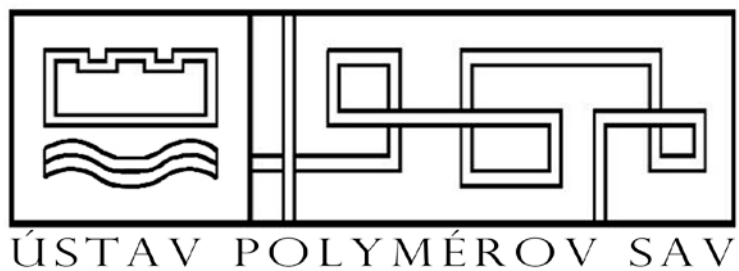


ÚSTAV POLYMÉROV SAV, BRATISLAVA



SPRÁVA O ČINNOSTI ZA ROK 2013

Bratislava, január 2014

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1. Základné údaje o organizácii

1.1. Kontaktné údaje

Názov: Ústav polymérov SAV

Riaditeľ: Ing. Igor Lacík, DrSc.

1. zástupca riaditeľa: Mgr. Jaroslav Mosnáček, PhD.

2. zástupca riaditeľa: Ing. Zuzana Hloušková

Vedecký tajomník: Ing. Mária Omastová, DrSc.

Predseda vedeckej rady: RNDr. Peter Cifra, DrSc.

Člen snemu SAV: RNDr. Peter Cifra, DrSc.

Adresa: Dúbravská cesta 9, 845 41 Bratislava 45

<http://www.polymer.sav.sk>

Tel.: 02/ 3229 4308, **Fax:** 02/ 5477 5923, **E-mail:** upolsekr@savba.sk

Názvy a adresy detašovaných pracovísk:

- **Detašované pracovisko Ústavu polymérov SAV**
ul. Gen. Svobodu 1069/4, 958 01 Partizánske

Vedúci detašovaných pracovísk:

- **Detašované pracovisko Ústavu polymérov SAV**
prof. Ing. Ivan Chodák, DrSc.

Typ organizácie: Príspevková od roku 1993

1.2. Údaje o zamestnancoch

Tabuľka 1a Počet a štruktúra zamestnancov

Štruktúra zamestnancov	K	K		K do 35 rokov		F	P	T
		M	Ž	M	Ž			
Celkový počet zamestnancov	90	36	54	9	20	83	66,45	48,71
Vedeckí pracovníci	48	27	21	5	12	41	37,4	37,4
Odborní pracovníci VŠ	24	6	18	4	8	24	12,51	11,31
Odborní pracovníci ÚS	14	1	13	0	0	14	13,8	0
Ostatní pracovníci	4	2	2	0	0	4	2,74	0

K – kmeňový stav zamestnancov v pracovnom pomere k 31.12.2013 (uvádzať zamestnancov v pracovnom pomere, vrátane riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí, v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich v zastupiteľských zboroch)

F – fyzický stav zamestnancov k 31.12.2013 (bez riadnej materskej dovolenky, zamestnancov pôsobiacich v zahraničí v štátnych funkciách, členov Predsedníctva SAV, zamestnancov pôsobiacich v zastupiteľských zboroch)

P – celoročný priemerný prepočítaný počet zamestnancov

T – celoročný priemerný prepočítaný počet riešiteľov projektov, M, Ž – muži, ženy

Tabuľka 1b Štruktúra vedeckých pracovníkov (kmeňový stav k 31.12.2013)

Rodová skladba	Pracovníci s hodnotou				Vedeckí pracovníci v stupňoch		
	DrSc.	CSc./PhD.	prof.	doc.	I.	IIa.	IIb.
Muži	8	17	3	1	9	13	5
Ženy	2	19	0	0	2	2	17

Tabuľka 1c Štruktúra pracovníkov podľa veku a rodu, ktorí sú riešiteľmi projektov

Veková štruktúra (roky)	< 31	31-35	36-40	41-45	46-50	51-55	56-60	61-65	> 65
Muži	5	2	9	1	0	1	3	2	5
Ženy	13	6	4	1	0	2	6	2	1

Tabuľka 1d Priemerný vek zamestnancov organizácie k 31.12.2013

	Kmeňoví zamestnanci	Vedeckí pracovníci	Riešitelia projektov
Muži	46,0	47,6	46,1
Ženy	42,3	36,4	39,7
Spolu	43,8	42,7	42,6

1.3. Iné dôležité informácie k základným údajom o organizácii a zmeny za posledné obdobie (v zameraní, v organizačnej štruktúre a pod.)

V roku 2013 fungoval ústav tretí rok s novou organizačnou štruktúrou s piatimi oddeleniami - štyrmi vedeckými a ekonomicko-technickým oddelením. Zjednotenie oddelení postupne začína splňať svoj cieľ, najmä čo sa týka zlepšenia spolupráce vo vnútri ústavu a zjednodušenia štruktúry ústavu smerom navonok. V rámci nových oddelení sa podali niektoré projekty, ktoré vychádzajú so spolupráce zjednotených oddelení.

V decembri 2013 sa uskutočnila voľba do Vedeckej rady Ústavu polymérov. Za členov VR boli opätovne zvolení Ing. Mária Omastová, DrSc., RNDr. Peter Cifra, DrSc., Mgr. Martin Danko, PhD., Mgr. Jaroslav Mosnáček, PhD. a Mgr. Juraj Kronek, PhD. Za nových členov boli zvolení Ing. Matej Mičušík, PhD. a Ing. Dušan Račko, PhD.

Ústav polymérov SAV pokračoval v riešení štrukturálnych fondov spolufinancovaných z ERDF (POLYFRIEND, PLASTICE) a Centra aplikovaného výskumu nanočastíc. V rámci týchto štrukturálnych fondov ako i v rámci budovania nového Materiálového centra, v ktorom ústav participuje, sa získali nové prístroje, ktoré významne posunú výskum na ústave na vyššiu úroveň a umožnia rozšíriť jeho spoluprácu s domácimi a zahraničnými výskumnými pracoviskami ako aj s firmami. V rámci medzinárodných projektov sa v roku 2013 pokračovalo v riešení ERA-NET projektu APGRAPHEL v spolupráci s dvomi vedeckými inštitúciami z Poľska a Turecka a piatimi firmami zo Slovenska, Poľska a Turecka, a riešila sa projektová spolupráca s Katarom.

V roku 2013 sa Ústav polymérov SAV zúčastnil prípravy niekoľkých projektov 7. RP EÚ, avšak žiaden z nich nebol podporený pre financovanie. Tieto projekty všeobecne predstavujú kvalitatívny rast pre zúčastnených vedeckých pracovníkov a doktorandov a tiež prispievajú k ekonomickej situácii ústavu. Preto pre rok 2014 podávanie projektov v rámci nového programu EU pre podporu vedy a výskumu Horizont 2020 bude predstavovať jednu z priorit. Okrem FP7 projektov bolo začiatkom roku podaných celkovo 13 APVV projektov a 3 projekty spolupráce s Katarom.

Vedenie Ústavu polymérov zorganizovalo v prvej polovici roka 2013 stretnutie s predstaviteľmi Ústavu polymérnych materiálov FCHPT a Katedry organickej chémie PriFUK za účelom zefektívnenia vedeckej a vzdelávacej spolupráce. Taktiež sa dohodla možnosť prezentácie doktorandských tém na oboch školách, avšak záujem zo strany študentov bol slabý. Do

budúcnosti je potrebné zvážiť akým spôsobom aktívnejšie prezentovať Ústav polymérov medzi študentami oboch fakúlt a tak zefektívniť získavanie kvalitných doktorandov z radov týchto študentov.

2. Vedecká činnosť

2.1. Domáce projekty

Tabuľka 2a Zoznam domácich projektov riešených v roku 2013

ŠTRUKTÚRA PROJEKTOV	Počet projektov		Čerpané financie za rok 2013 (v €)		
	A	B	A		B
			spolu	pre organi- záciu	
1. Vedecké projekty, ktoré boli r. 2013 financované VEGA	15	0	111 531	111 531	0
2. Projekty, ktoré boli r. 2013 financované APVV	4	9	221 222	171 669	106 330
3. Projekty OP ŠF	1	3	261 886	261 886	9 317
4. Projekty centier excelentnosti SAV	0	2	0	0	4 456.00
5. Iné projekty (FM EHP, ŠPVV, Vedecko-technické projekty, ESF, na objednávku rezortov a pod.)	0	1	0	0	10 000.00

2.2. Medzinárodné projekty

2.2.1. Medzinárodné projekty riešené v roku 2013

Tabuľka 2b Zoznam medzinárodných projektov riešených v roku 2013

ŠTRUKTÚRA PROJEKTOV	Počet projektov		Čerpané financie za rok 2013 (v €)		
	A	B	A		B
			spolu	pre organi- záciu	
1. Projekty 7. Rámcového programu EÚ	0	1	-	-	-
2. Multilaterálne projekty v rámci vedeckých programov COST, INTAS, ERANET, EUREKA, ESPRIT, PHARE, NATO, UNESCO, CERN, IAEA, ESF, ERDF a iné	1	9	37 500	37 500	107 596 + mobilita
3. Projekty v rámci medzivládnych dohôd o vedecko-technickej spolupráci	1	0	0	0	0
4. Bilaterálne projekty	8	1	mobilita	mobilita	mobilita
5. Podpora medzinárodnej spolupráce z národných zdrojov (MVTs, APVV,...)	5	7	14 659.00	14 659.00	22 933
6. Iné projekty financované alebo spolu-financované zo zahraničných zdrojov	0	2	0	0	22 183

2.3. Najvýznamnejšie výsledky vedeckej práce

2.3.1. Základný výskum

1) Fotochemicky aktívne systémy a značky pre polymérny výskum. (Martin Danko, Anita Andisová-Eckstein, Pavol Hrdlovič)

Konjugované π -systémy sú rýchlo sa rozvíjajúca oblasť elektronických súčiastok v organických elektronických zariadeniach ako sú flexibilné solárne články, svetlo-emitujúce diódy a tranzistory. Pre vhodný výber organického π -konjugovaného materiálu sú dôležité štúdie elektrónových a spektrálnych vlastností vhodných monomérov, oligomérov a prípadne až ich polymérov, ktoré majú spravidla lepšie mechanické vlastnosti. Skupinou látok, ktoré sú v tejto problematike intenzívne študované sú oligo- a polytiofény, pre ktoré sú modelom deriváty 2,2'-bitiofénu. Zo štúdie derivátov substituovaných v polohe 5- karbonylovou skupinou vyplýva, že jednoduchá substitúcia nefluorescenčného bitiofénu karbonylom spôsobuje výrazné preusporiadanie HOMO-LUMO elektrónov, a tým aj spektrálne vlastnosti týchto derivátov. Intenzívna fluorescencia oxo-propán nitrilového derivátu bitiofénu bola nezávislá na polarite prostredia, ale derivát s acetylovým substituentom mal vyšší kvantový výťažok v polárnych protických prostrediach a nízky v nepolárnych. Trifluoracetylový derivát naopak vykazoval vysoký kvantový výťažok v nepolárnych prostrediach. Tento trend spektrálnych charakteristík jednotlivých derivátov bol zachovaný aj v pevných polymérových maticiach. (projekt VEGA 2/0112/13)

English title: **Photochemically active systems and probes for polymer research.**

Výstupy:

1. DANKO, Martin - ANDISOVÁ, Anita - HRDLOVIČ, Pavol - RAČKO, Dušan - VÉGH, D. Spectral characteristics of carbonyl substituted 2,2'-bithiophenes in polymer matrices and low polar solvents. In *Photochemical and Photobiological Sciences*, 2013, vol. 12, p. 1210 - 1219. (2.923 - IF2012).
2. LUKEŠ, V. - DANKO, Martin - ANDICS, A. - HRDLOVIČ, Pavol - VÉGH, D. The synthesis and examination of spectral properties of some 2,2'-bithienyl derivatives with carbonyl-containing substituents. In *Synthetic Metals*, 2013, vol. 165, p. 17 - 26. (2.109 - IF2012).
3. DANKO, Martin - ANDICS, Anita - HRDLOVIČ, Pavol - RAČKO, Dušan - VÉGH, D. - LUKEŠ, V. Carbonyl substituted bithiophene derivatives - Spectral studies in solution and polymer matrices. In *ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel*: 65. Zjazd chemikov: *Tatranské Matliare*: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 102.

2) Segregácia makromolekúl stiesnených v nanokanáli. (Dušan Račko, Peter Cifra, Zuzana Benková)

Sledovali sme stiesnené makromolekuly v nanokanáloch v súvislosti s analýzou genomických makromolekúl v nanofluidných zariadeniach, ale aj so situáciami v zahustenom biologickom prostredí. Pokles celkového rozmeru makromolekúl pozdĺž kanálu ich lokálnym spätným ohybom, spolu so zvýšeným vystretím sekvencií bežiacich v kanáli vedľa seba, je známy a komplikuje linearizačné experimenty v oblasti analýzy DNA pri používaných hrúbkach kanálov. Menej známy je príbuzný efekt za prítomnosti viacerých reťazcov v kanáli pri ich prekrytí, dôležitý aj v iných súvislostiach, v oblasti štúdií segregácie makromolekúl v bakteriálnych chromozómoch. Zatiaľ sú tieto štúdie vedené pre ohybné makromolekuly. Vyšetřili sme prekrytie a segregáciu makromolekúl v kanáli a rozšířili sme doterajšie štúdie prechodom od ohybných ku reálnejším menej ohybným reťazcom. Výsledky sú založené na simuláciách voľnej energie pri rôznom stesnení a na priamych simuláciách procesu segregácie makromolekúl. Pre voľnú energiu sme potvrdili z teórie predpovedaný protichodný trend s rastúcou tuhosťou

reťazcov pri miernom a silnom stesnení kanálom. Dva rôzne prístupy poskytli konzistentné výsledky v súlade s teoretickou analýzou a ukázali silnejšiu tendenciu ku segregácii pre ohybnejšie makromolekuly oproti menej ohybným, aj v miere aj v dynamike segregácie. Vzájomné priestorové vylúčenie medzi prekrývajúcimi sa reťazcami v kanáli vedie aj ku zvýšeniu vystretia prekrývajúcich sa reťazcov a tento efekt je opäť silnejší pre ohybné makromolekuly, avšak slabý pre tuhšie reťazce akou je DNA. (Projekty: APVV-0451-11 Nanoštruktúra v makromolekulových systémoch indukovaná stesnaním a VEGA 2/093/12 Štrukturálne prechody stiesnených semiflexibilných makromolekúl.)

English title: **Segregation of macromolecules restricted in nano-channels.**

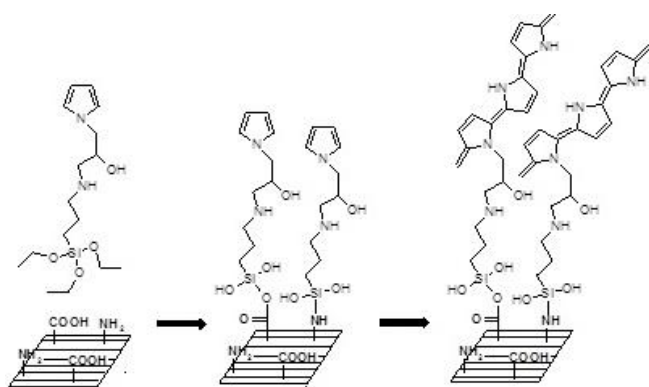
Výstupy:

1. RAČKO, Dušan - CIFRA, Peter Segregation of semiflexible macromolecules in nanochannel. In *Journal of Chemical Physics*, 2013, vol. 138, art.no. 184904. (3.164 - IF2012).
2. BENKOVÁ, Zuzana - CIFRA, Peter. Comparison of linear and ring DNA macromolecules moderately and strongly confined in nanochannels. In *Biochemical society transactions*, 2013, vol. 41, p.625 - 629. (2.587 - IF2012).

3) Vodivé textílie s naočkovaným polypyrrolom. (Mária Omastová, Katarína Mosnáčková, Matej Mičušík)

Pripravili sa vodivé textílie na báze polypropylénovej (PP) a polyamidovej (PA) tkaniny a polypyrrolu (PPy) in situ chemickou oxidačnou polymerizáciou pyrrolu na textilných povrchoch. Pre zlepšenie príľnavosti vodivej PPy vrstvy na povrchu textílie bol v prvom kroku naviazaný na textíliu pyrrolom-funkcionalizovaný silán (SP). V prípade modifikácie PP bolo potrebné najprv zaviesť na povrchu hydroxylové skupiny oplazmovaním.

Povrchová vodivosť modifikovaného PA a PP je úmerná množstvu PPy použitého na modifikáciu. V oboch prípadoch úpravy polyamidovej, ako aj polypropylénovej textílie prítomnosť SP zlepšila pevnosť PPy vrstiev. Zvýšenie koncentrácie SP na povrchu textílie zlepšilo stálosť vodivej PPy vrstvy a tým aj vodivosť modifikovaných materiálov po vypratí. Najvyššiu povrchovú vodivosť 3×10^{-4} S na štvorec po vypratí dosiahla PA textília, ktorá bola predupravená 1,0 hm. % SP a modifikovaná 25 hm. % pyrrolu.



A)

B)

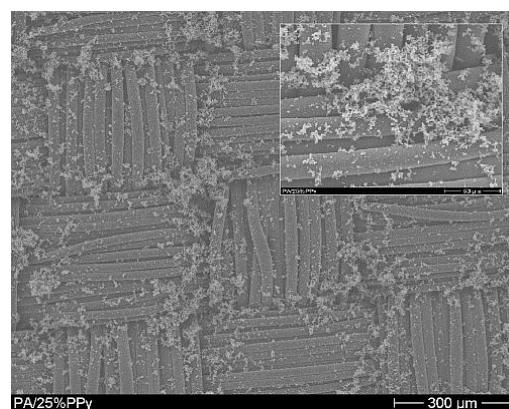


Schéma 1. Mechanizmus naviazania vodivej polypyrrolovej vrstvy prostredníctvom SP na povrchu PA textíli (A) SEM snímka PA tkaniny s 25% PP po vypratí (B).

English title: **Conductive textiles grafted with polypyrrole.**

Výstupy:

1. MOSNÁČKOVÁ, Katarína - CHEHIMI, M.M. - FEDORKO, P. - OMASTOVÁ, Mária. Polyamide grafted with polypyrrole: formation, properties, and stability. In *Chemical Papers*, 2013, vol. 67, no. 8, p. 979 - 994. (0.879 - IF2012).
2. MOSNÁČKOVÁ, Katarína - MIČUŠÍK, Matej - FEDORKO, P. - KOVÁŘOVÁ, J. - CHEHIMI, M. M. - OMASTOVÁ, Mária. Surface properties and morphology of conductive textiles. In *EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts*. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 255 - 256
3. MIČUŠÍK, Matej - MOSNÁČKOVÁ, Katarína - FEDORKO, P. - CHEHIMI, M. M. - OMASTOVÁ, Mária. Conductive textiles: Formation, properties, and stability. In *Modern Polymeric Materials for Environmental Applications: 5th International Seminar including COST Mp1105 Workshop : Kraków, Poland, 15 - 17 May 2013*. - Kraków, Poland: Wydawnictwo Naukowo-Techniczne TEZA, 2013, vol.5, iss. 2, P. 63 - 70.

2.3.2. Aplikačný typ

1) **Zmes biodegradovateľných plastov s vysokou húževnatosťou** (Ivan Chodák, Daniela Johech Mošková, Ivica Janigová, Juraj Krajčí)

V rámci riešenia projektu VEGA 2/0185/10, projektu EFRD Plastice a spoločného pracoviska ÚPo SAV a FCHPT STU sa vyvinul materiál na báze zmesi biodegradovateľných plastov kyselina polymliečna/polyhydroxybutyrát, ktorý sa vyznačuje vysokou húževnatosťou, na rozdiel od iných podobných kompozícií, ktoré sú výrazne krehké. Navyše, materiál je oveľa menej náchylný k fyzikálnemu starnutiu. Zmes je vhodná pre spracovanie prakticky všetkými bežnými technológiami pre plasty. V poloprevádzkových podmienkach sa úspešne otestovali technológie vytlačovania, vstrekovania a vyfukovania, zatiaľ čo vákuové tvarovanie sa zatiaľ otestovalo len v laboratórnych podmienkach. Podala sa patentová prihláška vo viac než 40 krajinách a v súčasnosti sa zvažuje výroba granulátu na Slovensku a rokuje sa so záujemcami o použitie na výrobu konkrétnych výrobkov.

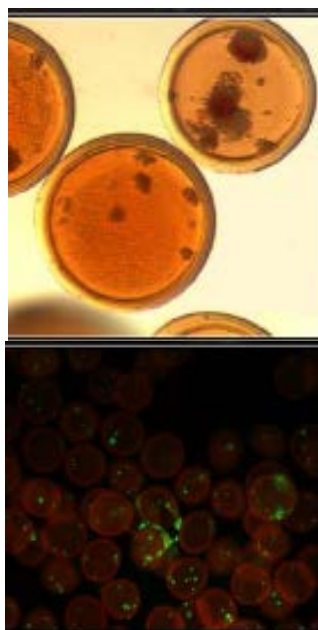


Laboratórne zvládnutá pomerne náročná technológia vákuového tvarovania.

English title: **Etraordinary tough blend of biodegradable plastics.**

2) Imobilizácia pankreatických ostrovčiekov v liečbe cukrovky (Igor Lacík, Lucia Uhelská Učňová, Filip Rázga, Zuzana Kroneková, Juraj Kronek, Dušana Treľová, Gabriela Hloušková, Dominika Vnuková, Patrik Sobolčiak, Peter Kasák, Vladislav Semak, Eva Hipká, Alena Ďurišová)

Téma enkapsulácie pankreatických ostrovčiekov pre liečbu cukrovky sa rozvíjala niekoľkými smermi. Boli pripravené prehľadové články o súčasnej situácii v liečbe cukrovky transplantáciou enkapsulovaných ostrovčiekov, v ktorých sa poukazuje na nutnosť zmeniť prístup k štúdiu tejto témy smerom ku komplexnej multidisciplinarite, aby bolo možné zachytiť indikátory, od ktorých závisí funkčnosť transplantovaných ostrovčiekov.



Enkapsulované ostrovčieky explantované po 55 dňoch z peritoneálnej dutiny paviána:
(a) optická mikroskopia, (b) fluorescenčná mikroskopia s ofarbenými živými

V tomto smere v rámci Chicago Diabetes Projektu vedenom University of Illinois (USA) a projektu APVV pracujeme na dizajne mikrokapsule na báze polyelektrolytového komplexu medzi alginátom sodným, sulfátom celulózy a poly(metylén-co-guanidínu). Jedným zo zásadných výstupov bola sumarizácia výsledkov z alotransplantácie ostrovčiekov do paviánov. Predbežné výsledky ukazujú na to, že nielen prázdne mikrokapsule ale aj mikrokapsule obsahujúce paviánie ostrovčieky sú tolerované po transplantácii do peritoneálnej dutiny paviánov. V súčasnosti sa pripravuje projekt v spolupráci na Chicago Diabetes Projekte, ktorého cieľom je dosiahnuť normoglykémiu u diabetického paviána alotransplantáciou enkapsulovaných ostrovčiekov. Vývoj mikrokapsúl pre transplantácie do človeka vyžadujú rozpoznať odozvu ľudského imunitného systému. Prepojenie vlastností mikrokapsúl a procesu ich prípravy s odozvou v kompletnej ľudskej krvi poukazuje na to, že cytokíny sa uvoľňujú ako následok stimulácie komplementu a že tento mechanizmus sa týka hlavne mikrokapsúl, v ktorých príprave sa využívajú polykatióny. Jedným z nových smerov bolo využitie zwiteriónových polymérov, ktoré sú v súčasnosti považované za vynikajúce materiály z pohľadu zamedzenia odozvy imunitného systému na implantovaný materiál. Táto práca nadväzuje na naše predchádzajúce skúsenosti a výsledky získané z fotoprepínateľného kationového polyméru na zwiteriónový polymér, čo súvisí s kontrolovaním interakcie voči DNA a bakteriálnym bunkám. (Projekty APVV-0486-10, VEGA 2/0163/12, The Chicago Diabetes Project)

English title: **Immobilization of pancreatic islets in diabetes treatment.**

Výstupy:

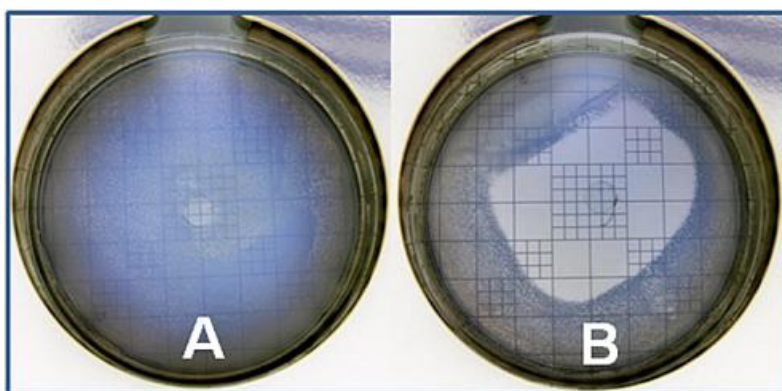
1. ROKSTAD, A. M. - BREKKE, O. L. - STEINKJER, B. - RYAN, L. - KOLLÁRIKOVÁ, Gabriela - STRAND, B. L. - SKJAK-BRAEK, G. - LAMBRIS, J. D. - LACÍK, Igor - MOLLNES, T. E. - ESPEVIK, T. The induction of cytokines by polycation containing microspheres by a complement dependent mechanism. In *Biomaterials*, 2013, vol. 34, p. 621 - 630. (7.604 - IF2012).
2. SOBOLČIAK, Patrik - ŠPÍREK, M. - KATRLÍK, J. - GEMEINER, P. - LACÍK, Igor - KASÁK, Peter. Light-switchable polymer from cationic to zwitterionic form: Synthesis, characterization, and interactions with DNA and bacterial cells. In *Macromolecular Rapid Communications*, 2013, vol. 34, p. 635 - 639. (4.929 - IF2012). ISSN 1022-1336.
2. ROKSTAD, A. M. - LACÍK, Igor - De VOS, P. - STRAND, B. L. Advances in biocompatibility and physico-chemical characterization of microspheres for cell encapsulation. In *Advanced Drug Delivery Reviews* 2013, DOI: 10.1016/j.addr.2013.07.010 (12.888 - IF2012). v tlači

3. LACÍK, Igor. Current status on immunoprotection of transplanted islets: Focus on islet microencapsulation. In *Micro and Nanosystems*, 2013, vol. 5, no. 3, p. 168 - 176. (2013 - SCOPUS).
4. QI, M. - MCGARRIGLE, J. J. - WANG, Y. - MARCHESE, E. - BOCHENEK, M. A. - VACA, P. - DAVIS, M. E. - AHN, S. J. - SCHWARTZ, A. - STRAND, B. - LACÍK, Igor - OBERHOLZER, J. Transplantation of pancreatic islets immobilized in alginate-based microcapsules : From animal studies to clinical trials. In *Micro and Nanosystems*, 2013, vol. 5, no. 3, p. 186 - 193. (2013 - SCOPUS).

3) Antibakteriálne úpravy polyetylénu (Anton Popelka, Igor Novák, Ivan Chodák)

V rámci spolupráce s Univerzitným inštitútom Univerzity Tomáša Baťu v Zlíne, Česká republika som sa venoval skúmaniu povrchových a antibakteriálnych vlastností polymérov. Skúmal sa vplyv antibakteriálnej modifikácie nízko-hustotného polyetylénu (LDPE) vybranými polysacharidmi (chitozán/pektín) s použitím bariérovej plazmy vo vzduchu alebo v argóne s cieľom jej aplikácií v automobilovom, obalovom priemysle a v humánnej medicíne. Bol zistený nárast polárnej zložky voľnej povrchovej energie plazmou modifikovaného LDPE, pričom sa testami potvrdila antibakteriálna účinnosť plazmou a polysacharidmi modifikovaného LDPE proti vybraným gram-pozitívnym baktériám (*Staphylococcus aureus*) a gram-negatívnym baktériám (*Escherichia coli*). V laboratórnom meradle pripravená LDPE antibakteriálna fólia bola na 15. medzinárodnej zdravotníckej výstave Slovmedica 2013, Incheba Expo, Bratislava, ocenená diplomom „Zlatá Incheba“ (projekt VEGA 2/0185/10 Viacfázové polymérne systémy so špeciálnymi vlastnosťami)

English title: **Antibacterial pre-treatments of polyethylene.**



Antibakteriálny test pôsobenia gram pozitívnych baktérií (*Staphylococcus aureus*) na fóliu z nízko-hustotného polyetylénu (LDPE) upravenú účinkom nízko-teplotnej plazmy: A - neupravená fólia, B – antibakteriálne upravená fólia. V dôsledku antibakteriálneho pôsobenia sa vytvára svetlejšia plocha okolo skúmanej kruhovej vzorky LDPE).

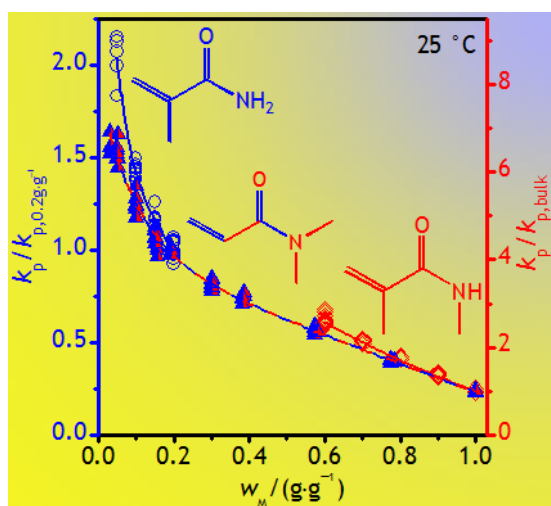
Výstupy:

1. NOVÁK, Igor - ŠTEVIAR, Marián - POPELKA, Anton - CHODÁK, Ivan - MOSNÁČEK, Jaroslav - ŠPÍRKOVÁ, M. - JANIGOVÁ, Ivica - KLEINOVÁ, Angela - SEDLIAČIK, J. - ŠLOUF, M. Surface modification of polyethylene by diffuse barrier discharge plasma. In *Polymer Engineering and Science*, 2013, vol. 53, p. 516 - 523. (1.243 - IF2012).
2. NOVÁK, Igor - POPELKA, Anton - LUYT, A. S. - CHEHIMI, M. M. - ŠPÍRKOVÁ, M. - JANIGOVÁ, Ivica - KLEINOVÁ, Angela - STOPKA, P. - ŠLOUF, M. - VANKO, V. - CHODÁK, Ivan - VALENTIN, Marian. Adhesive properties of polyester treated by cold plasma oxygen and nitrogen atmospheres. In *Surface and Coatings Technology*, 2013, vol. 235, p. 407 - 416. (1.941 - IF2012).

3. POPELKA, Anton - NOVÁK, Igor - CHODÁK, Ivan - LEHOCKÝ, M. - KLEINOVÁ, Angela - VANKO, V. Polyethylene antibacterial modified by polysaccharides via cold plasma. In *Chemické listy*, 2013, roč. 107, č. S, s. s162 - s164. (0.453 - IF2012). (2013 – Current Contents).
4. NOVÁK, Igor - POPELKA, Anton - LEHOCKÝ, M. - CHODÁK, Ivan - MATYAŠOVSKÝ, J. - JURKOVIC, P. Bacterial adhesion assessment of atmospheric plasma modified polyethylene. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology*, ^{1st} International Conference on Wood Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 – 19 September, 2013 - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 157 - 161.
5. NOVÁK, Igor - POPELKA, Anton - CHODÁK, Ivan - ŠPÍRKOVÁ, M. - KLEINOVÁ, Angela - VANKO, V. Antibacterial polyethylene prepared by plasma treatment. In *ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel*: 65. Zjazd chemikov: Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s.115 - 116. ISSN 1336-7242.

2.3.3. Medzinárodné vedecké projekty

1) Kinetika radikálovej polymerizácie vo vodnej fáze (Igor Lacík, Marek Stach, Anna Chovancová, Eva Hipkák)



Závislosť k_p pre substituované (met)akrylamidy od koncentrácie monoméru

V kontraktovej spolupráci s BASF SE Ludwigshafen, do ktorej sú okrem Ústavu polymérov ETH Zürich (Švajčiarsko) sme pokračovali v získavaní ďalších poznatkov ohľadne kinetiky radikálovej polymerizácie rôznych monomérov vo vodnej fáze. Práca bola zameraná hlavne na homopolymerizáciu a kopolymerizáciu neutrálnych (akrylamid, kyselina akrylová) ako aj ionizovaných (akrylát sodný, kationové deriváty akrylamidu) monomérov a tiež presnosti stanovenia distribúcií mólových hmotností vzniknutých polymérov gélovou permeačnou chromatografiou, čo je základným predpokladom pre stanovenie individuálnych rýchlostných konštánt a tiež pre porovnanie medzi experimentálnymi výsledkami a použitými modelmi. Ukončili sa práce

týkajúce sa určenia individuálnych rýchlostných konštánt propagácie, k_p , pre substituované akrylamidy a metakrylamidy N,N-dimetylakrylamid, N-metylmetakrylamid a metakrylamid vo vodnom roztoku metódou pulznej laserovej polymerizácie v kombinácii s gélovou permeačnou chromatografiou. k_p hodnoty boli získané v závislosti od koncentrácie monoméru, teploty a tlaku a pre všetky monoméry boli určené Arrheniove parametre. Podobne ako pre iné neutrálne monoméry bolo aj pre tieto monoméry zistené, že k_p klesá s narastajúcou koncentráciou monoméru. (kontraktová spolupráca a kontrakt s BASF SE, VEGA 2/0160/12, APVV-0486-10)

English title: **Kinetics of radical polymerization in aqueous phase.**

Výstupy:

1. SCHROOTEN, J. - LACÍK, Igor - STACH, Marek - HESSE, P. - BUBACK, M. Propagation kinetics of the radical polymerization of methylated acrylamides in aqueous solution. In *Macromolecular Chemistry and Physics*, 2013, vol. 214, p. 2283 - 2294. (2.386 - IF2012).

2.4. Publikačná činnosť (úplný zoznam je uvedený v Prílohe C)

Tabuľka 2c Štatistika vybraných kategórií publikácií

PUBLIKAČNÁ A EDIČNÁ ČINNOSŤ	A Počet v r. 2013/ doplňky z r. 2012	B Počet v r. 2013/ doplňky z r. 2012	C Počet v r. 2013/ doplňky z r. 2012
1. Vedecké monografie vydané v domácich vydavateľstvách (AAB, ABB, CAB)	0 / 0	0 / 0	0 / 0
2. Vedecké monografie vydané v zahraničných vydavateľstvách (AAA, ABA, CAA)	1 / 0	0 / 0	0 / 0
3. Odborné monografie, vysokoškolské učebnice a učebné texty vydané v domácich vydavateľstvách (BAB, ACB)	0 / 0	0 / 0	0 / 0
4. Odborné monografie a vysokoškolské učebnice a učebné texty vydané v zahraničných vydavateľstvách (BAA,ACA)	0 / 0	0 / 0	0 / 0
5. Kapitoly vo vedeckých monografiách vydaných v domácich vydavateľstvách (ABD, ACD)	0 / 0	0 / 0	0 / 0
6. Kapitoly vo vedeckých monografiách vydaných v zahraničných vydavateľstvách (ABC, ACC)	1 / 1	0 / 0	0 / 0
7. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v domácich vydavateľstvách (BBB,ACD)	0 / 0	0 / 0	0 / 0
8. Kapitoly v odborných monografiách, vysokoškolských učebniciach a učebných textoch vydaných v zahraničných vydavateľstvách (BBA, ACC)	0 / 0	0 / 0	0 / 0
9. Vedecké a odborné práce v časopisoch evidovaných v Current Contents (ADC, ADCA, ADCB, ADD, ADDA, ADDB, CDC, CDCA, CDCB, CDD, CDDA, Cddb, BDC, BDCA, BDCB, BDD, BDDA, BDDB)	47 / 0	1 / 0	0 / 0
10. Vedecké a odborné práce v nekarantovaných časopisoch (ADE, ADEA, ADEB, ADF, ADFA, ADFB, CDE, CDEA, CDEB, CDF, CDFA, CDFB, BDE, BDEA, BDEB, BDF, BDFA, BDFB)	13 / 0	0 / 0	0 / 0
11. Vedecké a odborné práce v zborníkoch (konferenčných aj nekonferenčných, vydaných tlačou alebo na CD)			
a/ recenzovaných/editovaných (AEC, AED, AFA, AFB, AFBA, AFBB, AFC, BEC, BED, CEC, CED)	24 / 0	0 / 0	0 / 0
b/ nerecenzovaných (AEE, AEGA, AFBA, AFD, AFDA, AFDB, AFE, AFFA,AFG, AFHA, AFHB, BEE, BEF)	3 / 0	0 / 0	0 / 0
12. Vydané periodiká evidované v Current Contents	0	0	0
13. Ostatné vydané periodiká	0	0	0

14. Vydané alebo editované zborníky z vedeckých podujatí (FAI)	1/0	0/0	0/0
15. Vedecké práce uverejnené na internete (GHG)	2 / 0	0 / 0	0 / 0
16. Preklady vedeckých a odborných textov (EAJ)	0 / 0	0 / 0	0 / 0
17. Heslá v odborných terminologických slovníkoch a encyklopédiách vydaných * (BDA, BDB)	0 / 0	0 / 0	0 / 0

A - pracovisko SAV je uvedené ako pracovisko (adresa) autora, alebo je súčasťou kolaborácie alebo iného združenia, ktoré je uvedené ako pracovisko (adresa) autora

B - pracovisko SAV nie je na publikácii uvedené, pretože prameň údaj o pracovisku autora neobsahuje, práca ale vznikla na pracovisku SAV

C - pracovisko SAV je uvedené ako materské pracovisko autora odlišné od pracoviska, na ktorom práca vznikla (napr. „on leave...“, „permanent address...“, „present address...“)

** - uvádzajú sa len heslá, pri ktorých je uvedený autor a ich rozsah je min. 1 autorský hárok*

Tabuľka 2d Ohlasy

OHLASY	A Počet v r. 2012/ doplňky z r. 2011	B Počet v r. 2012/ doplňky z r. 2011
Citácie vo WOS (1.1, 2.1)	1153/ 0	0 / 0
Citácie v SCOPUS (1.2, 2.2)	151 / 0	0 / 0
Citácie v iných citačných indexoch a databázach (9, 10)	1 / 0	0 / 0
Citácie v publikáciách neregistrovaných v citačných indexoch (3,4)	1 / 0	0 / 0
Recenzie na práce autorov z organizácie (5, 6, 7, 8)	0 / 0	0 / 0

A - pracovisko SAV je uvedené ako pracovisko (adresa) autora, alebo je súčasťou kolaborácie alebo iného združenia, ktoré je uvedené ako pracovisko (adresa) autora, alebo pracovisko SAV nie je na publikácii uvedené, pretože prameň údaj o pracovisku autora neobsahuje, práca ale vznikla na pracovisku SAV

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2.5. Aktívna účasť na vedeckých podujatiach

Tabuľka 2e Vedecké podujatia

Prednášky a vývesky na medzinárodných vedeckých podujatiach	89
Prednášky a vývesky na domácich vedeckých podujatiach	65

2.6. Vyžiadané prednášky

2.6.1. Vyžiadané prednášky na medzinárodných vedeckých podujatiach

1. BEREK, Dušan. Molecular characterization of complex polymer systems by means of advanced liquid chromatography techniques. In International Conference of Rubber and Rubber-like Materials, ICRRM 2013, Kharagpur, India, book of abstracts p. 39-40. Pozvaná prednáška – DB
2. BEREK, Dušan - NOVÁK, Ivan – KUDELA, S. Jr. Nanoporous carbon fibers from natural cellulosic precursors. In Rouen Symposium on Advanced Materials: Rouen, France, June 5 - 7 2013: abstract book. - Rouen, France: University of Rouen, 2013, p. 18. Pozvaná prednáška - DB
3. BEREK, Dušan. Comprehensive molecular characterization of complex polymer systems by advanced liquid chromatography methods. In *New Achievement in Chromatography: 19th*

- International Symposium on Separation Sciences: Poreč, Croatia, 25 - 28 September 2013: book of abstracts.* - Zagreb, Croatia: Croatian Society of Chemical Engineers, 2013, p. 23-24. ISBN 978-953-6470-64-8. Pozvaná prednáška - DB
4. BEREK, Dušan. Advanced liquid chromatography techniques for separation and comprehensive molecular characterization of complex polymer systems. In *Polymer Pacific Conference 2013, Kaohsiung, Taiwan*. (USB key). Pozvaná prednáška - DB
 5. CZANIKOVÁ, Klaudia - KRUPA, Igor - OMASTOVÁ, Mária. Actuations of nanocomposites containing carbon nanotubes. In *EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013: book of abstracts.* - Pisa, Italy: European Polymer Federation, 2013, p. [IL7-5]. Pozvaná prednáška - MO
 6. CHODÁK, Ivan - KRAJČI, Juraj. Determination of structure of reinforcing filler network by electrical conductivity of the polymer/carbon black composite. In *EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts.* - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 85. ISBN 978-80-970923-3-7. Pozvaná prednáška - ICH
 7. KASÁK, Peter - SOBOLČIAK, Patrik - SEMAK, Vladislav - STACH, Marek - KRONEKOVÁ, Zuzana - KOLLÁRIKOVÁ, Gabriela - KRUPA, Igor - CHORVÁT, D. Jr. - LACÍK, Igor. Zwitterionic polymers: kinetics, characterization and biomedical applications. In *Australian - Slovenian Polymer Meeting - ASPM 2013, 3-5 April 2013, Bled, Slovenia: el. zbornik.* - Ljubljana, Slovenia: Centre of Excellence PoliMat, 2013, p. 17. ISBN 978-961-269-992-5. Pozvaná prednáška - IL
 8. LACÍK, Igor - KASÁK, Peter - SEMAK, Vladislav - KOLLÁRIKOVÁ, Gabriela - SOBOLČIAK, Patrik - KRONEKOVÁ, Zuzana - UČŇOVÁ, Lucia - TRELOVÁ, Dušana - STEINKJER, B. - ESPEVIK, T. - ROKSTAD, A. M. Microcapsule design for encapsulation of islets of Langerhans: An ongoing effort. In *XXI International Conference on Bioencapsulation: Berlin, Germany, August 28 -30, 2013: abstract book.* - Berlin, Germany: TU Berlin, Bioencapsulation Research Group, 2013, p. 68 - 69. Pozvaná prednáška - IL
 9. LACÍK, Igor. Microcapsules for cell encapsulation. 12th International Conference on Polymers for Advanced Technologies, 29.9.-2.10.2013, Berlin, Germany. In *Polymers for Advanced Technologies*, 2013, vol. 24, suppl. 1, p. 30. (1.635 - IF2012). ISSN 1042-7147. Pozvaná prednáška - IL
 10. MIČUŠÍK, Matej - MOSNÁČKOVÁ, Katarína - FEDORKO, P. - CHEHIMI, M. M. - OMASTOVÁ, Mária. Conductive textiles: Formation, properties, and stability. In *Modern Polymeric Materials for Environmental Applications: 5th International Seminar including COST Mp1105 Workshop: Kraków, Poland, 15 - 17 May 2013.* - Kraków, Poland: Wydawnictwo Naukowo-Techniczne TEZA, 2013, vol.5, iss. 2, P. 63 - 70. ISBN 978-83-930641-2-0. Pozvaná prednáška - MO
 11. NOVÁK, Igor - POPELKA, Anton - LEHOCKÝ, M. - CHODÁK, Ivan - MATYAŠOVSKÝ, J. - JURKOVIČ, P. Bacterial adhesion assessment of atmospheric plasma modified polyethylene. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 1st International Conference on Wood Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 - 19 September, 2013* - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 157 - 161. ISSN 1898-5912. Pozvaná prednáška - IN.
 12. NOVÁK, Igor - POPELKA, Anton - SEDLIAČIK, J. - CHODÁK, Ivan - KLEINOVÁ, Angela - JURKOVIČ, P. Surface properties of oak wood treated by barrier discharge plasma. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 1st International Conference on Wood Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 - 19 September, 2013* - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 162 - 165. ISSN 1898-5912. Pozvaná prednáška - IN
 13. NOVÁK, Igor - POPELKA, Anton - CHODÁK, Ivan - SEDLIAČIK, J. - VANKO, V. - PREŤO, J. Pre-treatment of beech wood by radio-frequency plasma. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 1st International Conference on Wood*

Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 – 19 September, 2013 - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 166 - 169. ISSN 1898-5912. Pozvaná prednáška - IN

14. NOVÁK, Igor - CHODÁK, Ivan - SEDLIAČIK, J. - VANKO, V. - MATYAŠOVSKÝ, J. - ŠIVOVÁ, Mária. Pre-treatment of beech wood by cold plasma. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21st Century“: Warsaw (Rógow), Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 288-291. ISSN 1898-5912. Pozvaná prednáška - IN*
15. NOVÁK, Igor - POPELKA, Anton - CHODÁK, Ivan - SEDLIAČIK, J. - PREŤO, J. - PRACHÁR, Jozef - CHEHIMI, M. M. - ŠIVOVÁ, Mária. Modification of polyester-based foil by cold plasma for furniture applications. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21st Century“: Warsaw (Rógow), Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 283 - 287. ISSN 1898-5912. Pozvaná prednáška - IN*
16. NOVÁK, Igor - POPELKA, Anton - SEDLIAČIK, J. - CHODÁK, Ivan - VANKO, V. – TÓTH, A. - JURKOVIC, P. - PRACHÁR, Jozef - ŠIVOVÁ, Mária. Modification of polyamide foil by diffuse coplanar barrier discharge plasma for furniture applications. In *Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21st Century“: Warsaw (Rógow), Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 292 - 296. ISSN 1898-5912. Pozvaná prednáška – IN*
17. OMASTOVÁ, Mária. Actuations of polymeric nanocomposites containing carbon nanotubes. In *SAS - IVF - JST Workshop: Smolenice, Slovakia, 9 - 11 July 2013. - Bratislava: Slovak Academy of Sciences, Visegrad Fund, JST, 2013, p. 43 - 45. Pozvaná prednáška - MO*

2.6.2. Vyžiadané prednášky na domácich vedeckých podujatiach

1. FLORIÁN, Štepan - NOVÁK, Igor - SEDLIAČIK, J. - CHODÁK, Ivan - KLEINOVÁ, Angela - JURKOVIC, P. - MATYAŠOVSKÝ, J. Štúdium polyamidu 12 očkovaného pôsobením bariérovej výbojovej plazmy. In *Pokroky vo výrobe a použití lepidiel v drevopriemysle: XXI. sympóziu: zborník referátov. - Zvolen: Technická univerzita vo Zvolene, 2013, p. 95 - 100. ISBN 978-80-228-2529-0. Pozvaná prednáška - IN.*
2. CHMELA, Štefan. Mulching foils – photochemical, hydrolytical and biotic degradation. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - ŠCH
3. CHMELA, Štefan. Photodegradation of polymers. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - ŠCH
4. KOLLÁR, Jozef. Anionic polyacrylamide – soil conditioner. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - JK
5. LACÍK, Igor. Introduction to molecular characterization and properties of polymers. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - IL
6. LACÍK, Igor. Gel permeation chromatography – a tool for determination of molar mass of polymers. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - IL
7. LACÍK, Igor. Súčasný stav enkapsulácie pankreatických ostrovčiek pre transplantácie. 20.09.2013, Transplant fórum 2013, Košice. Pozvaná prednáška –IL
8. MOSNÁČEK, Jaroslav. Introductory words to POLYFRIEND Educational Course. POLYFRIEND Educational Course and Workshop, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - JM

9. MOSNÁČEK, Jaroslav. Goals of the POLYFRIEND project and introduction of the project partners. POLYFRIEND Educational Course and Workshp, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - JM
10. NOVÁK, Igor - SEDLIČIK, J. - VANKO, V. - CHODÁK, Ivan. Investigation of plasma-treated oak wood. In *Pokroky vo výrobe a použití lepidiel v drevopriemysle: XXI. sympóziu: zborník referátov*. - Zvolen: Technická univerzita vo Zvolene, 2013, p. 90 - 94. ISBN 978-80-228-2529-0. Pozvaná prednáška - IN
11. PAPAJOVÁ, Eva. Hydrolytic degradation and biodegradation of polymers. POLYFRIEND Educational Course and Workshp, 5.09.2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - EP
12. RYCHLÝ, Jozef. Thermooxidation and thermal degradation of polymers. POLYFRIEND Educational Course and Workshp, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška - JR
13. RYCHLÝ, Jozef. Chemiluminescence – tool for determination of degree of oxidation of polymers. POLYFRIEND Educational Course and Workshp, September 5, 2013, Polymer Institute SAS, Bratislava, Slovak Republic. Prednáška -JR

2.6.3. Vyžiadané prednášky na významných vedeckých inštitúciách

1. BEREK, Dušan. Comprehensive characterization of multicomponent polymer systems by novel liquid chromatography methods. November 26, 2013, National Chung Cheng University, Chiayi, Taiwan
2. BEREK, Dušan. Progress in liquid chromatography of complex systems of synthetic polymers. November 29, 2013, University of Taichung, Department of Chemistry, Taiwan
3. BEREK, Dušan. 1. Progress in liquid chromatography of complex systems of synthetic polymers. 2. Nanoporous carbon fibers prepared by carbonization of cellulose. December 1, 2013, Tamkang University, Department of Chemistry, Taipei, Taiwan
3. ILČÍKOVÁ, Markéta. Nanocomposites based on block copolymers and covalently modified carbon nanotubes. September 18, 2013, Physics Department, University of Aveiro, Portugal. Prednáška
4. ILČÍKOVÁ, Markéta. Block copolymer nanocomposites – synthesis, characterization and application. December 2013, Department of Chemical Engineering, National Chung-Cheng University, Chiayi, Taiwan.
5. KRONEK, Juraj. Poly(2-oxazolines: preparation, properties and applications, October 24, 2013, Centre of polymer and carbon materials, Polish Academy of Sciences, Zabrze, Poland. Pozvaná prednáška
6. LACÍK, Igor. Biomedical research at the Polymer Institute SAS, July 8, 2013, UTB Zlín, Czech Republic. Prednáška
7. LACÍK, Igor – KRONEK, Juraj. Polymers for biomedical applications: an overview of current activities at the Polymer Institute SAS in Bratislava, July 8, 2013, Donau Universität Krems, Austria. Prednáška
8. LACÍK, Igor - CHOVANCOVÁ, Anna - STACH, Marek. Factors affecting precision/possibility to obtain k_p values for AA, FA1Quat and AAm-co-AA”, November 27, 2013, BASF SE Ludwigshafen, Nemecko, Germany. Prednáška
9. LACÍK, Igor - STACH, Marek. SEC as a tool to obtain the secrets of radical polymerization kinetics, November 26, 2013, 2012, PSS Mainz, Germany. Prednáška
10. LACÍK, Igor. Polymeric microcapsules for encapsulation of cells in diabetes treatment, November 28, 2013, TU Vienna, Austria. Prednáška

11. MOSNÁČEK, Jaroslav. Covalent modification of carbon nanotubes for improved interactions with ABA triblock copolymers and photoactuation of the composites. May 23, 2013, Centre of Molecular and Macromolecular Studies, PAN, Poland. Prednáška
12. RAČKO, Dušan. The free volume of condensed phases confined in a nanopore as seen by computer simulations and compared to PALS, 41th Polish Seminar on Positron Annihilation PSPA2013, September 3, 2013, Lublin, Poland. Prednáška
13. STACH, Marek – HORVÁTH, B. - CHOVANCOVÁ, Anna - LACÍK, Igor. Homopolymerization of FA1Quat and its methacrylate analogue, May 5, 2013, BASF Meeting, University of Hamburg, Germany. Prednáška
14. STACH, Marek – LACÍK, Igor. Propagation kinetics of water-soluble monomers, October 24, 2013, Centre of polymer and carbon materials, Polish Academy of Sciences, Zabrze, Poland. Pozvaná prednáška
15. STACH, Marek - CHOVANCOVÁ, Anna – PREUSSER, C – HUTCHINSON, R. - HIPKÁ, Eva - LACÍK, Igor. Highlights of PLP-SEC studies into homopolymerization of ionized AA and FA1Quat and copolymerization of AAm-co-AA, November 27, 2013, BASF SE Ludwigshafen, Germany. Prednáška
16. ŠIŠKOVÁ, Alena. Un-conventional separation methods for characterization of complex polymer systems. institute of technological development for the chemical industry (INTEC). November 28, 2013, Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) and Universidad Nacional del Litoral (UNL). Santa Fe, Güemes 3450, Argentina.
17. ŠVAJDLENKOVÁ, Helena – BARTOŠ, Josef. The mutual relationships of spin probe mobility (ESR) with free volume (PALS) in relation to relaxation dynamics (BDS) in selected glass-forming systems. January 24, 2013, Forschungszentrum Garching, Germany. Prednáška

Ak boli príspevky publikované, sú súčasťou Prílohy C, kategória (AFC, AFD, AFE, AFF, AFG, AFH)

2.7. Patentová a licenčná činnosť na Slovensku a v zahraničí v roku 2013

2.7.1. Vynálezy, na ktoré bol udelený patent

Na Slovensku - počet patentov: 1

Číslo PV: PCT/SK2012/000004

Mená autorov: CHODÁK, Ivan - ALEX, P. - BAKOŠ, D. - BUGAJ, P. - PAVLAČKOVÁ, M. - TOMANOVÁ, K. - BENOVIČ, F. - PLAVEC, R. - MIHALÍK, M. – BOTOŠOVÁ, M.

Názov vynálezu: Biologically degradable polymeric composition with high deformability

Majiteľ / spolumajiteľ: Ústav polymérov SAV

2.7.2. Prihlásené vynálezy

Na Slovensku - počet patentov: 3

Číslo PV: Euro PTC – PAN EP 12720304.0

Mená autorov: CHODÁK, Ivan - ALEX, P. - BAKOŠ, D. - BUGAJ, P. - PAVLAČKOVÁ, M. - TOMANOVÁ, K. - BENOVIČ, F. - PLAVEC, R. - MIHALÍK, M. – BOTOŠOVÁ, M.

Názov vynálezu: Biologically degradable polymeric composition with high deformability

Majiteľ / spolumajiteľ: Ústav polymérov SAV

Číslo PV: PP 50024-2013

Mená autorov: LUKÁČ, Ivan – HUSÁR, Branislav – KÓSA, Csaba – FÁRYOVÁ, Janka

Názov vynálezu: Spôsob sieťovania filmov polymérov

Majiteľ / spolumajiteľ: Ústav polymérov SAV

Číslo PV: PP 5003-2013

Mená autorov: BEREK, Dušan - NOVÁK, Ivan

Názov vynálezu: Spôsob výroby nanopórovitého vlákňitého uhlíka z celulóзовých prekurzorov
Majiteľ / spolumajiteľ: Ústav polymérov SAV

2.7.3. Predané licencie

2.7.4. Realizované patenty

Finančný prínos pre organizáciu SAV v roku 2013 a súčet za predošlé roky sa neuvádzajú, ak je zverejnenie v rozpore so zmluvou súvisiacou s realizáciou patentu.

2.8. Účasť expertov na hodnotení národných projektov (APVV, VEGA a iných)

Tabuľka 2f Experti hodnotiaci národné projekty

Meno pracovníka	Typ programu/projektu/výzvy	Počet hodnotených projektov
BEREK Dušan	APVV	1
BEREK Dušan	VEGA	1
CHODÁK Ivan	APVV	1
CHODÁK Ivan	VEGA	3
LACÍK Igor	VEGA	1
NOVÁK Igor	APVV	1
NOVÁK Igor	VEGA	1

2.9. Iné informácie k vedeckej činnosti.

Hodnotenie organizačných útvarov ústavu Vedeckou radou sa tretí rok po sebe uskutočnilo formou dvojdnového kolokvia, ktoré sa konalo v polovici decembra 2013. V priebehu tohto kolokvia malo každé zo štyroch oddelení priestor na prezentáciu vedeckej, vedecko-organizačnej, popularizačnej a inej činnosti uskutočnenej v priebehu roku 2013. Kolokvium bolo organizované a vedené Vedeckou radou ústavu a pre každé oddelenie boli po prvýkrát určené dvaja vnútroústavní hodnotitelia, pričom jedným z hodnotiteľov pre každé oddelenie bol mladý vedecký pracovník, ktorý v roku 2013 obhájil PhD titul. Podkladom pre hodnotenie oddelení bol písomný materiál štrukturovaný podľa zásad definovaných vedeckou radou. Cieľom hodnotenia bolo získať komplexný prehľad jednak o činnosti jednotlivých oddelení a zároveň aj o príspevku vedeckých a vedeckotechnických pracovníkov do výstupov oddelení v kontexte posledných troch rokov. Pri vyhodnotení kolokvia sa dospelo k názoru, že kolokvium spĺňa účel monitorovania a získania celkového prehľadu o výstupoch organizačných útvarov i jednotlivcov a bude sa takouto formou pokračovať v hodnotení i v ďalších rokoch.

Zameranie ústavu pokračuje v tradičných témach popri rozvíjaní nových tém hlavne v oblasti bioaplikácií polymérov a nanotechnológiách. Tematický profil pracoviska je v štyroch základných oblastiach reflektujúcich tematiku jeho oddelení: syntéza a modifikácia polymérov, biomateriály a bioaplikácie, polymérne kompozity a modelovanie. Kvantitatívne a kvalitatívne vedecké, projektové a popularizačné výstupy – počty publikácií, citácií, projektov a projektových spoluprác, popularizačných článkov, popularizačných akcií a vystúpení v médiách, ako aj iné ukazovatele sú celkovo uspokojivé. Doleuvedená Tabuľka ukazuje vývoj počtu publikácií a citácií v posledných 5 rokoch. V budúcnosti by sa mali formovať ďalšie

vedúce osobnosti tímov z mladšej generácie vedeckých pracovníkov, ktorí by mali postupne významnejšie prispievať k počtu publikácií a zastúpiť odchádzajúcu silnú generáciu starších vedeckých pracovníkov.

Rok	CC publikácie	Kapitoly v knihách	Citácie WOS, Scopus
2009	43	7	695
2010	51	3	876
2011	44	4	1015
2012	62	2	1307
2013	48	3	1306

Vedecká rada organizuje semináre vedeckých pracovníkov ústavu a pravidlom sú i vedecké prednášky zahraničných hostí organizované ad-hoc v priebehu ich návštev ústavu prevažne v rámci projektovej spolupráce. Inicioval sa i cyklus pravidelných pozvaných prednášok zahraničných vedeckých osobností; v aktívnejšej organizácii tohto cyklu sa bude pokračovať v r. 2014.

Tradične Vedecká rada organizuje súťaž mladých vedeckých pracovníkov, ktorá je finančne podporená vedením ústavu. Mladí vedeckí pracovníci sa do súťaže zapájajú publikáciami, na ktorých majú zásadný podiel, a publikované výsledky prezentujú pred akademickou obcou ústavu. Napriek vysokej úrovni v predchádzajúcich rokoch, v roku 2013 bola pre nízky záujem (len jedna prihlásená publikácia) táto súťaž zrušená.

Vedenie ústavu v rámci podpory mladých vedeckých pracovníkov dáva možnosť uchádzať sa o ročný Štartovací grant v sume 1600 Euro/grant.

V roku 2013 sa po prvýkrát uskutočnilo hodnotenie mladých vedeckých pracovníkov, ktorým končila v roku 2013 zmluva. Hodnotenie pozostávalo z vyplneného formuláru s doterajšími výstupmi a vedecko-organizačnými aktivitami a z krátkej prezentácie najvýznamnejších výsledkov a plánovaného budúceho zamerania. Cieľom hodnotenia je selekcia mladých vedeckých pracovníkov na základe ich vedeckých výsledkov a schopnosti samostatne pracovať a rozvíjať výskum na ústave. Malo by viesť k zamestnávaniu kvalitnejších vedeckých pracovníkov, ktorí budú schopní rozvíjať výskum na ÚPo SAV a zvyšovať konkurencieschopnosť a povedomie ústavu doma a v zahraničí. Hodnotenie by sa malo rozšíriť v ďalšom roku i na vedeckých pracovníkov nad 40 rokov za účelom vytvorenia konkurenčného prostredia pre ich prácu. Toto hodnotenie bude zvažovať komplexný prínos každého vedeckého pracovníka k rozvoju pracoviska.

3. Doktorandské štúdium, iná pedagogická činnosť a budovanie ľudských zdrojov pre vedu a techniku

3.1. Údaje o doktorandskom štúdiu

Tabuľka 3a Počet doktorandov v roku 2013

Forma	Počet k 31.12.2013				Počet ukončených doktorantúr v r. 2013					
	Doktorandi				Ukončenie z dôvodov					
	celkový počet		z toho novoprijatí		ukončenie úspešnou obhajobou		predčasné ukončenie		neúspešné ukončenie	
	M	Ž	M	Ž	M	Ž	M	Ž	M	Ž
Interná zo zdrojov SAV	6	8	2	1	1	4	0	1	0	0
Interná z iných zdrojov	0	0	0	0	0	0	0	0	0	0
Externá	1	0	0	0	0	0	0	0	0	0
Spolu	7	8	2	1	1	4	0	1	0	0
Súhrn	15		3		5		1		0	

3.2. Zmena formy doktorandského štúdia

Tabuľka 3b Počty preradení

Z formy	Interná z prostriedkov SAV	Interná z prostriedkov SAV	Interná z iných zdrojov	Interná z iných zdrojov	Externá	Externá
Do formy	Interná z iných zdrojov	Externá	Interná z prostriedkov SAV	Externá	Interná z prostriedkov SAV	Interná z iných zdrojov
Počet	0	0	0	0	0	0

3.3. Zoznam doktorandov, ktorí ukončili doktorandské štúdium úspešnou obhajobou

Tabuľka 3c Menný zoznam ukončených doktorandov v roku 2013 úspešnou obhajobou

Meno doktoranda	Forma DŠ	Mesiac, rok nástupu na DŠ	Mesiac, rok obhajoby	Číslo a názov študijného odboru	Meno a organizácia školiteľa	Fakulta udeľujúca vedeckú hodnotu
Ing. Katarína Borská	interné štúdium hrazené z prostriedkov SAV	9/2009	8/2013	4.1.19 makromolekulová chémia	Mgr. Martin Danko PhD., Ústav polymérov SAV	Fakulta chemickej a potravinárskej technológie STU

Ing. Klaudia Czaniková	interné štúdium hrazené z prostriedkov SAV	9/2009	8/2013	4.1.19 makromolekulová chémia	Ing. Mária Omastová DrSc., Ústav polymérov SAV	Fakulta chemickej a potravinárskej technológie STU
Ing. Markéta Ilčíková	interné štúdium hrazené z prostriedkov SAV	9/2009	8/2013	4.1.19 makromolekulová chémia	Mgr. Jaroslav Mosnáček PhD., Ústav polymérov SAV	Fakulta chemickej a potravinárskej technológie STU
Ing. Juraj Krajčí	interné štúdium hrazené z prostriedkov SAV	9/2009	8/2013	4.1.19 makromolekulová chémia	prof. Ing. Ivan Chodák DrSc., Ústav polymérov SAV	Fakulta chemickej a potravinárskej technológie STU
Ing. Alena Šišková	interné štúdium hrazené z prostriedkov SAV	2/2010	8/2013	4.1.19 makromolekulová chémia	doc. Ing. Dušan Berek DrSc., Ústav polymérov SAV	Fakulta chemickej a potravinárskej technológie STU

Zoznam interných a externých doktorandov je uvedený v Prílohe A.

3.4. Zoznam akreditovaných študijných programov s uvedením VŠ

Tabuľka 3d Zoznam akreditovaných študijných programov s uvedením univerzity/vysokej školy a fakulty

Názov študijného programu (ŠP)	Názov študijného odboru (ŠO)	Číslo ŠO	Univerzita/vysoká škola a fakulta
	fyzikálna chémia	4.1.18	Fakulta chemickej a potravinárskej technológie STU Prírodovedecká fakulta UK
	makromolekulová chémia	4.1.19	Fakulta chemickej a potravinárskej technológie STU
	technológia makromolekulových látok	5.2.21	Fakulta chemickej a potravinárskej technológie STU

Tabuľka 3e Účasť na pedagogickom procese

Menný prehľad pracovníkov, ktorí boli menovaní do odborových komisií študijných programov doktorandského štúdia	Menný prehľad pracovníkov, ktorí pôsobili ako členovia vedeckých rád univerzít, správnych rád univerzít a fakúlt	Menný prehľad pracovníkov, ktorí získali vyššiu vedeckú, pedagogickú hodnosť alebo vyšší kvalifikačný stupeň
doc. Ing. Dušan Berek, DrSc. (FCHPT STU, PrF UK -analytická chémia)	prof. Ing. Tomáš Bleha, DrSc. (FCHPT STU)	Ing. Filip Rázga, PhD. (IIa)
prof. Ing. Tomáš Bleha, DrSc. (FCHPT STU, PrF UK makromolekulová chémia)	Ing. Igor Lacík, DrSc. (Univerzita T. Bati, Zlín, Česká Republika)	Ing. Katarína Borská, PhD. (PhD., Fakulta chemickej a potravinárskej technológie STU)
RNDr. Peter Cifra, DrSc. (FCHPT STU - makromolekulová chémia)		Ing. Klaudia Czaniková, PhD. (PhD., Fakulta chemickej a potravinárskej technológie STU)
Mgr. Martin Danko, PhD. (FCHPT STU - technológia makromolekulových látok-)		Ing. Markéta Ilčíková, PhD. (PhD., Fakulta chemickej a potravinárskej technológie STU)
Štefan Chmela, DrSc. (FCHPT STU - technológia makromolekulových látok)		Ing. Juraj Krajčí, PhD. (PhD., Fakulta chemickej a potravinárskej technológie STU)
prof. Ing. Ivan Chodák, DrSc. (FCHPT STU - technológia makromolekulových látok)		Ing. Alena Šišková, PhD. (PhD., Fakulta chemickej a potravinárskej technológie STU)
Ing. Ivica Janigová, PhD. (FCHPT STU - technológia makromolekulových látok)		
Ing. Igor Lacík, DrSc. (FCHPT STU - makromolekulová chémia)		
Mgr. Jaroslav Mosnáček, PhD. (FCHPT STU - technológia makromolekulových látok)		
Ing. Igor Novák, PhD. (FCHPT STU - technológia makromolekulových látok)		
Ing. Mária Omastová, DrSc. (FCHPT STU - makromolekulová chémia)		
Ing. Jozef Rychlý, DrSc. (FCHPT STU -makromolekulová chémia)		

3.5. Údaje o pedagogickej činnosti

Tabuľka 3f Prednášky a cvičenia vedené v roku 2013

PEDAGOGICKÁ ČINNOSŤ	Prednášky		Cvičenia a semináre	
	doma	v zahraničí	doma	v zahraničí
Počet prednášateľov alebo vedúcich cvičení	9	1	0	0
Celkový počet hodín v r. 2013	83	2	0	0

Prehľad prednášateľov predmetov a vedúcich cvičení, s uvedením názvu predmetu, úväzku, katedry, fakulty, univerzity/vysokej školy je uvedený v Prílohe D.

Tabuľka 3g Aktivity pracovníkov na VŠ

1.	Počet pracovníkov, ktorí pôsobili ako vedúci alebo konzultanti diplomových a bakalárskych prác	2
2.	Počet vedených alebo konzultovaných diplomových a bakalárskych prác	2
3.	Počet pracovníkov, ktorí pôsobili ako školitelia doktorandov (PhD.)	12
4.	Počet školených doktorandov (aj pre iné inštitúcie)	19
5.	Počet oponovaných dizertačných a habilitačných prác	6
6.	Počet pracovníkov, ktorí oponovali dizertačné a habilitačné práce	4
7.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby DrSc. prác	7
8.	Počet pracovníkov, ktorí pôsobili ako členovia komisií pre obhajoby PhD. prác	7
9.	Počet pracovníkov, ktorí pôsobili ako členovia komisií, resp. oponenti v inauguračnom alebo habilitačnom konaní na vysokých školách	3

3.6. Iné dôležité informácie k pedagogickej činnosti

Vedeckí pracovníci Ústavu polymérov sa aktívne podieľajú aj na výchove študentov a doktorandov. V roku 2013 pracovníci ústavu pedagogicky pôsobili ako prednášatelia semestrálnych prednášok a seminárov pre študentov na Prírodovedeckej fakulte UK, Fakulte chemickej a potravinárskej technológie STU v Bratislave, Materiálovo-technickej fakulte STU v Trnave a na Fakulte priemyselných technológií TU AD v Púchove. V poslednom roku sa do riešenia parciálnych vedeckých problémov zapojili aj študenti bakalárskeho stupňa, čo je dobrým predpokladom pre ich následné získanie na PhD štúdium. Vedecká výchova doktorandov pokračovala úspešne aj v poslednom roku. Pracovisko je akreditované v troch odboroch pri Fakulte chemickej a potravinárskej technológie STU v Bratislave: Makromolekulová chémia, Technológia makromolekulových látok a Fyzikálna chémia, a pri Prírodovedeckej fakulte UK v Bratislave v odbore Fyzikálna chémia. V roku 2013 sme získali troch nových doktorandov. Nepodarilo sa nám zatiaľ získať doktorandov z iných krajín EU, pre ktorých platia rovnaké podmienky pri nástupe ako u domácich doktorandov. Vedeckí pracovníci ústavu sa podieľajú aj na výchove doktorandov ako prednášatelia v prednáškových kurzoch a ako vedúci dizertačných prác doktorandov. Vedecká rada ÚPo začala diskusiu o skvalitnení prípravy doktorandov, kde sa predpokladá zorganizovanie ďalších odborných prednášok a prehĺbenie vedomostí zapojením pracovníkov ústavu a pozvaných hostí ako prednášateľov do špeciálnych kurzov pre doktorandov. Vedenie ústavu a vedecká rada kladú veľký dôraz na kvalitnú prípravu PhD študentov, ktorej súčasťou sú každoročné hodnotenia doktorandov v septembri, keď po každom uzavretom akademickom roku štúdiá prezentujú dosiahnuté výsledky. Motiváciou v tomto štádiu prípravy je vyhodnotenie najlepších troch doktorandov za posledný školský rok, ktorí získajú finálnu prémie. Doktorandské štúdium obhajobou dizertačných prác ukončili piati doktorandi. Z priebehu obhajob je možné konštatovať skvalitnenie dizertačných prác obhájených doktorandov a ich výstupov vo forme publikácií oproti predchádzajúcemu obdobiu.

V roku 2013 sme zorganizovali pre širokú verejnosť a pre študentov stredných škôl Deň otvorených dverí, ktorý sa stretol s veľkým záujmom. Počas tohto podujatia boli prezentované prednášky o polyméroch v medicíne, poľnohospodárstve a tiež o povrchových charakterizáciách materiálov kolegami Jurajom Kronekom, Martinom Dankom a Matejom Mičušíkom. Zúčastnení mali možnosť navštíviť jednotlivé oddelenia a zaujímavé chemické pokusy boli pripravené vo vestibule.

4. Medzinárodná vedecká spolupráca

4.1. Medzinárodné vedecké podujatia

4.1.1. Medzinárodné vedecké podujatia, ktoré organizácia SAV organizovala v roku 2013 alebo sa na ich organizácii podieľala, s vyhodnotením vedeckého a spoločenského prínosu podujatia

V. medzinárodná konferencia o polymérnych materiáloch v automobilovom priemysle 2013, Hotel Bonbón - Bratislava, Slovenská republika, 164 účastníkov, 23.04.-25.04.2013

V dňoch 23.-25.apríla 2013 sa uskutočnil v Bratislave 5. ročník medzinárodnej konferencie Polymeric Materials in Automotive–PMA 2013 spolu s medzinárodnou gumárskou konferenciou Slovak Rubber Conference-SRC 2013.

Cieľom konferencie bolo prezentovať dosiahnuté výsledky výskumu a vývoja na báze plastov a elastomérov a upriamiť pozornosť na možnosti a potenciál výskumu a vývoja na Slovensku v oblasti polymérnych materiálov aplikovaných v automobilovom priemysle.

Programovo bola konferencia rozdelená do niekoľkých blokov - úvodného a záverečného bloku plenárnych prednášok a ďalších blokov prednášok prebiehajúcich paralelne v dvoch sekciách - sekcii plastov – Plastics in Automotive PMA 2013 a v sekcii gumárenských surovín a výrobkov - Slovak Rubber Conference SRC 2013.

Na úvod programu konferencie odznela prednáška prezidenta Zväzu automobilového priemyslu na Slovensku podčiarkujúca súčasnú situáciu v automobilovom priemysle vo svete a na Slovensku. Prednáška naznačila postavenie a trendy rozvoja automobilového priemyslu vo svete, v rámci Európskej únie a na Slovensku najmä z hľadiska významu tohto odvetvia pre hospodársky rast Slovenska. Úvodný blok pokračoval plenárnou prednáškou zástupcu firmy Lanxess týkajúcou sa príspevku firmy k ekologizácii dopravy a na záver prof. Schuster prezentoval aplikáciu uhlíkových nanotrubiek ako základu pre nové typy elastomérnych materiálov.

S veľkým ohlasom sa stretli plenárne prednášky prof. M. M. Saina z Univerzity v Toronte o nanotechnológiách a uhlíkových vláknoch pre kompozitné materiály z obnoviteľných surovín a prednáška prof. Nishiho z Centra materiálového výskumu v Sendai o nanoštruktúre a vlastnostiach plášťov vysoko efektívnych z hľadiska spotreby palív. V záverečnom plenárnom bloku prof. Paul z Univerzity v Austine upriamil pozornosť na nové typy zmesných a kompozitných materiálov pre aplikáciu v automobiloch a prof. Giese z DIK v Hannoveri priblížil problematiku mechanizmov a kvantitatívnej charakterizácie procesu degradácie ako aj možností ochrany sieťovaných elastomérnych systémov antioxidantmi.

Veľkej pozornosti sa tešila aj skupina prednášok o nových typoch polymérov a nanomateriáloch pre konštrukčné aplikácie, nových metódach a postupoch analýzy polymérov, možnostiach modifikácie ich vlastností, biopolyméroch a kompozitoch využívajúcich ako zložky biodegradovateľné polyméry, nových technologických aspektoch prípravy zmesí na báze kaučukov, ako aj nových metódach a technológiách recyklácie odpadov z plastov z ojazdených automobilov, obalov používaných v automobilovom priemysle, ako aj odpadov z gumených, najmä ojazdených plášťov.

Spoločným úsilím organizátorov z Ústavu polymérnych materiálov FCHPT STU v Bratislave a Ústavu polymérov SAV v Bratislave sa podarilo zabezpečiť vysokú úroveň odborného programu konferencie, ktorá si počas ôsmich rokov získala pevné miesto medzi medzinárodnými vedeckými a odbornými podujatiami zameranými na gumárske a plastikárske produkty využívané hlavne v oblasti automobilizmu v európskom meradle.

K dobrému priebehu konferencie prispela aj výrazná podpora zo strany sponzorských organizácií najmä Recyklačného fondu, firmy Lanxess, ako aj firiem VIPO a Shimadzu. Propagácii konferencie a zvýrazneniu jej dôležitosti výrazne prospela aj účasť mediálnych

partnerov z radov domácich a zahraničných odborných časopisov (Strojárstvo, Plasty a kaučuk, Elastomery), ako aj podpora zo strany internetového portálu Plastic Portal.

V rámci konferencie odznelo celkovo 7 plenárnych prednášok, 16 kľúčových prednášok a 30 krátkych prednášok v oboch programových sekciách. Program konferencie bol doplnený prezentáciou 52 posterov a celkový rámec dopĺňala aj prezentácia viacerých firiem vyrábajúcich laboratórnu techniku a zariadenia na testovanie vlastností polymérnych materiálov.

Veľkým plusom konferencie bola prítomnosť veľkého počtu zahraničných účastníkov prakticky z celého sveta – z 20 krajín sveta všetkých kontinentov s výnimkou Južnej Ameriky. Z celkového počtu 169 účastníkov bolo 75 registrovaných účastníkov zo zahraničia.

Popri odbornom programe poskytli organizátori vďaka spolupráci s Incheba Expo Bratislava účastníkom možnosť navštíviť 22. ročník medzinárodného Autosalónu. Časový program konferencie vytvoril priestor aj na širokú výmenu názorov, rozvinutie osobných kontaktov, ako aj spoznanie slovenskej kultúry počas koncertu v koncertnej sieni Zichyho palace a slávnostného večera v priestoroch kongresového centra hotelu Bonbon a reštaurácie Čárda. Výkony slovenských umelcov očarili prítomných a určite boli významnou podporou pozvaníu na budúci 6. ročník konferencie PMA 2015, ktorý sa spolu s 22. ročníkom gumárskej konferencie SRC 2015 bude konať v apríli 2015 v Bratislave.

Eurofillers 2013, Hotel Park Inn, Bratislava, Slovenská republika, 175 účastníkov, 25.08.-29.08.2013

10. výročná konferencia EUROFILLERS 2013 sa konala v Bratislavskom hoteli Park Inn Danube od 25. do 29. augusta 2013. Zameranie a rozsah konferencie o plnivách prešli významnými zmenami od roku 1995, kedy bol usporiadaný prvý kongres EUROFILLERS. Každé dva roky sa schádzajú odborníci z oblasti plnív a polymérnych kompozitov aby prezentovali rad úplne nových myšlienok a konceptov vo vývoji polymérnych kompozitov. Hlavnými organizátormi tohto podujatia boli Ing. Mária Omastová, DrSc. a prof. Ing. Ivan Chodák, DrSc. z Ústavu polymérov SAV.

Otváracieho ceremoniálu dňa 26.8.2013 sa zúčastnili japonský veľvyslanec J. E. A. Takamatsu, predseda SAV prof. RNDr. Jaromír Pastorek, DrSc., riaditeľ usporiadajúceho pracoviska, Ústavu polymérov SAV, Ing. Igor Lacík, DrSc., za spoluporiadajúce organizácie bol prítomný riaditeľ Ústavu anorganickej chémie doc. Ing. Miroslav Boča, PhD. a za Fakultu chemickej a potravinárskej technológie STU doc. Ing. Ľudovít Jelemenský, PhD., prodekan pre rozvoj fakulty, podnikateľskú činnosť, spoluprácu s priemyslom. Slovenskú chemickú spoločnosť zastupoval prof. Ing. Viktor Milata, DrSc., za SAV bol prítomný aj Ing. Juraj Lapin, DrSc., podpredseda SAV pre I. oddelenie a ďalší zástupcovia sponzorujúcich firiem a organizácií.

Významným hosťom a plenárnym prednášateľom bol objaviteľ uhlíkových nanotrubičiek prof. Sumio Iijima z Meijo Univerzity v Japonsku. Predseda SAV prof. Jaromír Pastorek mu počas otváracieho ceremoniálu odovzdal čestnú plaketu SAV Dionýza Ilkoviča za zásluhy vo fyzikálnych a chemických vedách. Prof. Iijima bol ocenený aj Zlatou medailou Slovenskej chemickej spoločnosti (SCHS), ktorú prevzal z rúk prof. Viktora Milatu, podpredsedu SCHS.

Laudatio predniesla Ing. Mária Omastová, DrSc., pripomenula v ňom systematickú vedeckú prácu prof. Iijimu. Článok prof. Iijimu Helical microtubules of graphitic carbon, ktorý publikoval v roku 1991 v Nature, podnietil záujem vedeckej komunity o uhlíkové nanoštruktúry a zároveň sa začal intenzívny výskum v oblasti nanotechnológií. Tento článok má v súčasnosti viac ako 21 000 citácií v databáze WOS a viac ako 30 000 podľa Google scholar. Prof. Iijima okrem prípravy uhlíkových nanomateriálov ich aj skúmal a analyzoval spôsoby, akými tieto nanoštruktúry je možné aplikovať. Neskôr objavil ešte ďalšiu variantu, jednostenné uhlíkové nanotrubičky a tiež vyvinul metódu ich výroby. Stena z uhlíkových nanorúrok sa skladá z jednej alebo viacerých vrstiev atómov uhlíka, ktoré tvoria hexagonálne štruktúry. Priemer trubičiek môže byť jeden nanometer, ale ich dĺžka môže dosiahnuť makroskopických rozmerov, niekoľko centimetrov a viac, pričom tieto nanočastice disponujú zaujímavými elektrickými,

mechanickými a tepelnými vlastnosťami.

Charakterizovala ho ako zaniieteného vedca kladúceho otázky a hľadajúceho odpovede, a ako sám povedal kľúč k poznaniu spočíva "nie v tom, čo urobili ostatní, ale práve v tom, čo iní neurobili a neprebádali". Veľa možných aplikácií nanotrubičiek v súčasnej dobe aktívne skúma a rozvíja vedecký výskum na mnohých univerzitných aj priemyselných výskumných pracoviskách a zdôraznila, že hrajú hlavnú úlohu v mnohých prednáškach a posterových prezentáciách, ktoré budú prezentované počas konferencie Eurofillers 2013. M. Omastová uzavrela Laudatio citátom prof. Iijimu: "Výskum možno vykonávať v akomkoľvek prostredí, tak dlho ako bude trvať váš záujem."

Po odovzdaní ocenení sa prítomným prihovoril japonský veľvyslanec J. E. AkahiraTakamatsu, zdôraznil úlohu vedeckého výskumu a medzinárodnej spolupráce pre ďalší rozvoj spoločnosti.

Prof. Iijima predniesol prednášku s názvom Nano-carbon materials: science and applications, kde okrem iného ukázal niekoľko praktických aplikácií uhíkových nanoštruktúr.

Štvordňové stretnutie odborníkov pokračovalo prednáškami v troch paralelných sekciách. Celkovo na podujatí odznelo 5 pozvaných plenárnych prednášok, 33 hlavných prednášok a 53 krátkych prednášok. Počas konferencie sa konali dve posterové sekcie so 70 príspevkami. Celkovo sa na konferencii zúčastnilo 170 odborníkov z 32 krajín všetkých piatich kontinentov. Z prezentovaných prednášok a postrov Ústav polymérov vydal Zborník abstraktov, ktorý ma 317 strán.

Hoci sa polymérne kompozity pripravujú použitím tradičných plnív ako sú uhľikové, alebo sklenené vlákna, vápenec, kaolín, mastenec, sadze atď., záujem priemyslu aj akademickej obce bol rozšírený na iné heterogénne systémy, ako sú bio alebo prírodné plnivé, napr. celulózoové vlákna. Zníženie veľkosti plnív z mikro- na nano-rozmary prináša novú príležitosť pre úpravu fyzikálno-mechanických vlastností polymérnych materiálov zavedením špeciálnych funkcií nanoplňiva, preto je možné pripraviť nové typy materiálov so zaujímavými vlastnosťami, ako sú elektricky alebo tepelne vodivé polymérne kompozity.

EUROFILLERS 2013, stretnutie odborníkov pracujúcich v tejto oblasti, snád' obohatilo všetkých zúčastnených o nové vedecké výsledky a nápady, ktoré ovplyvnia vývoj nových materiálov a sú aj základom aplikovania vedeckého výskumu v praxi.

POLYFRIEND, Ústav polymérov SAV, Bratislava, 30 účastníkov, 05.09.-05.09.2013

sa uskutočnil 5. septembra 2013 na Ústave polymérov SAV. Jeho organizátormi bol Ústavom polymérov SAV spolu s Department of Polymer Chemistry HAS, Budapest. Ranná sekcia POLYFRIEND Educational Course bola zameraná najmä na študentov. V šiestich prezentáciach prednášajúci poskytli informácie o degradácii polymérov, vplyvu degradácie polymérov na ich vlastnosti, analýzu degradácie a spôsoby stabilizácie polymérov. Poobedňajšia sekcia POLYFRIEND workshop bola organizovaná najmä pre expertov v oblasti polymérov pre poľnohospodárstvo a obalovú techniku. V šiesti

ch prezentáciach boli poskytnuté informácie o zameraní projektu POLYFRIEND ako aj o nových trendoch vo vývoji polymérnych materiálov pre poľnohospodárstvo a obalovú techniku a o citlivých metódach charakterizácie stupňa oxidácie a degradácie polymérov. Okrem prednášok bola pre účastníkov zorganizovaná i exkurzia po Ústave polymérov, špeciálne po laboratóriách s rôznymi metódami analýzy degradácie polymérov.

65. zjazd chemikov, Tatranské Matliare, 500 účastníkov, 09.09.-13.09.2013

6. Európske sympóziu o poveternostnom starnutí polymérov, Hotel Park Inn, Bratislava, Slovenská republika, 100 účastníkov, 11.09.-13.09.2013

sa uskutočnilo 11.-13. septembra 2013 v Park Inn Danube hoteli, v Bratislave. Jeho organizátormi boli Fraunhofer Institute ICT, Pfinztal, Nemecko spolu s Ústavom polymérov

SAV. Sympozium bolo už v poradí šieste od roku 2003 (Praha, Goteburg, Krakow, Budapest a Lisabon) a sa zaoberalo nasledovnými témami:

1. Weathering of Polymeric Products – Plastics and Coatings,
2. Determination, Simulation and Effects of Relevant Climatic Quantities,
3. New Test Procedures and Devices,
4. Weathering Reference Materials,
5. Analysis of Polymer Degradation a
6. Service Life Prediction.

Sympózia sa zúčastnilo okolo 100 výskumných pracovníkov z akademických inštitúcií a z priemyslu z 13 európskych krajín, USA a Austrálie. Bolo prezentovaných celkom 35 prác vo forme prednášok a posterov (13). Ústav polymérov prezentoval jednu prednášku (J. Rychlý) a jeden poster (J. Mosnáček) na tému biodegradácie polymérov. Významnou súčasťou podujatia bol kurz o chemiluminiscencii a FTIR spektroskopii pri analýze polymérnych materiálov, o ktorý prejavili účastníci sympózia veľký záujem. Konal sa prvé popoludnie sympózia na Ústave polymérov SAV pod vedením Š. Chmelu, L. Rychlej a J. Rychlého.

4.1.2. Medzinárodné vedecké podujatia, ktoré usporiada organizácia SAV v roku 2014 (anglický a slovenský názov podujatia, miesto a termín konania, meno, telefónne číslo a e-mail zodpovedného pracovníka)

BYPoS 2014 - 5th Bratislava Young Polymer Scientists workshop/BYPoS 2014 - Piaty bratislavský workshop mladých vedcov so zameraním na celú oblasť polymérnej chémie; Hotel Havrania, Zázrivá, Slovenská republika, 16.06.-20.06.2014, (Alena Šišková, 02/3229 4301, alena.siskova@savba.sk)

14th International Seminar on Elastomers ISE'14 - 14. Medzinárodné sympóziu o elastomeroch; Hotel Park Inn, Bratislava, Slovenská republika, 24.08.-27.08.2014, (Ivan Chodák, 02/ 3229 4340, ivan.chodak@savba.sk)

XXII. International Conference on Bioencapsulation - XII. medzinárodná konferencia o bioenkapsulácii, Hotel Holiday Inn, Bratislava, Slovenská republika, 17.09.-19.09.2014, (Igor Lacík, 02/ 3229 4308, igor.lacik@savba.sk)

4.1.3. Počet pracovníkov v programových a organizačných výboroch medzinárodných konferencií

Tabuľka 4a Programové a organizačné výbory medzinárodných konferencií

Typ výboru	Programový	Organizačný	Programový i organizačný
Počet členstiev	10	10	9

4.2. Členstvo a funkcie v medzinárodných orgánoch

4.2.1. Členstvo a funkcie v medzinárodných vedeckých spoločnostiach, úniách a národných komitétach SR

doc. Ing. Dušan Berek, DrSc.

Medzinárodný vedecký výbor Sympózií o separačných vedách (funkcia: tajomník)

Americká chemická spoločnosť (funkcia: člen)

Central European Group of Separation Sciences (funkcia: člen Riadiaceho výboru)

Trvalý vedecký výbor konferencie „Polychar“ (sídlo Denton, TX, USA) (funkcia: člen trvalého vedeckého výboru konferencií)

prof. Ing. Tomáš Bleha, DrSc.

European Academy of Science and Arts (funkcia: člen)
komisia AV ČR pre obhajoby dizertácii DSc v odbore Makromolekulová chémia do
09.2013 (funkcia: člen)

Mgr. Peter Kasák, PhD.

Bioadhesive Research Group a COST TD0906 (funkcia: člen)

Mgr. Juraj Kronek, PhD.

Spoločné poľsko-slovenské laboratórium SYNADPOL (funkcia: koordinátor)

Ing. Igor Lacík, DrSc.

Associate Member IUPAC (funkcia: člen)
Bioencapsulation research Group (funkcia: člen)
European Association for the Studies of Diabetes (funkcia: člen)
IUPAC Subcommittee Subcommittee Modeling of Polymerization Kinetics and Processes
(funkcia: člen)

Mgr. Jaroslav Mosnáček, PhD.

Americká chemická spoločnosť (funkcia: člen)

Ing. Igor Novák, PhD.

Society of Plastics Engineers, Newtown, CT, USA (funkcia: člen)

Ing. Mária Omastová, DrSc.

European Polymer Federation (funkcia: národný reprezentant SR)

Ing. Lýdia Rychlá, DrSc.

European Academy of Sciences and arts (funkcia: člen)

Mgr. Patrik Sobolčíak

COST TD0906 (funkcia: člen)

Ing. Marek Stach, PhD.

IUPAC Subcommittee “Modeling of Polymerization Kinetics and Processes” (funkcia: člen)

4.3. Účast' expertov na hodnotení medzinárodných projektov (EÚ RP, ESF a iných)

Tabuľka 4b Experti hodnotiaci medzinárodné projekty

Meno pracovníka	Typ programu/projektu/výzvy	Počet hodnotených projektov
Berek Dušan	APVV	1
Chodák Ivan	National Research Foundation of South	1
Chodák Ivan	SAIA oponentúra švajčiarskeho projektu	1
Omastová Mária	projekt Slovensko-Taiwanskej spolupráce	1
Omastová Mária	projekty Slovinskej výskumnej agentúry	9

4.4. Najvýznamnejšie prínosy MVTŠ ústavu vyplývajúce z mobility a riešenia medzinárodných projektov a iné informácie k medzinárodnej vedeckej spolupráci

1. Jedna karentovaná publikácia ako výsledok MAD projektu SAV – CNR Taliansko uzavretého k 31.12.2012 odoslaná do časopisu Analytical Chemistry.
2. Zavedenie našej originálnej metódy kvapalinovej chromatografie komplexných polymérových systémov na Aix- Marseille v Marseill. Pracovníčky univerzity navštívili náš ústav v rámci výmeny pracovníkov MAD.
3. Zavedenie našej originálnej metódy kvapalinovej chromatografie komplexných polymérových systémov na Institute of Technological Development for the Chemical Industry, Consejo Nacional de Investigaciones Científicas y Técnicas and Universidad Nacional del Litoral. Alena Šišková navštívila inštitút v Santa Fe v rámci výmeny pracovníkov MAD.

***Prehľad údajov o medzinárodnej mobilitě pracovníkov organizácie je uvedený v Prílohe E. Prehľad a údaje o medzinárodných projektoch sú uvedené v kapitole 2 a Prílohe B.*

5. Vedná politika

Účasť ústavu na rozvoji vednej politiky sa realizovala a realizuje cez člena SKVH Ing. Igora Lacíka, DrSc. a zastúpením pracovníkov ústavu v Sneme SAV, v Rade riaditeľov II. Oddelenia vied a ďalších komisiách SAV a mimo SAV, ako aj v komisiách grantovej agentúry VEGA.

6. Spolupráca s univerzitami/vysokými školami, štátnymi a neziskovými inštitúciami okrem aktivít uvedených v kap. 2, 3, 4

6.1. Spolupráca s univerzitami/VŠ (fakultami)

Názov univerzity/vysokej školy a fakulty: Prírodovedecká fakulta UK

Druh spolupráce (spoločné pracovisko alebo iné): Chemický ústav-neformálna spolupráca, spoločné výsledky a publikácie

Začiatok spolupráce: 2010

Zameranie: spektrálna charakterizácia organických molekúl v roztokoch a polymérových maticiacich pre aplikácie vo fotonike a senzorike

Zhodnotenie: Spolupráca v roku 2013 vyústila do komplexnej fotofyzikálnej charakterizácie derivátov kumarínov s fenysemikarbazidovým mostíkom. Bola odoslaná práca do SCI časopisu.

Názov univerzity/vysokej školy a fakulty: Fakulta chemickej a potravinárskej technológie STU

Druh spolupráce (spoločné pracovisko alebo iné): spoločné pracovisko

Začiatok spolupráce: 2008

Zameranie: výskum biodegradovateľných plastov

Zhodnotenie: V roku 2013 sa pokračovalo v aktivitách na zlešení húževnatosti zmesí biodegradovateľných plastov a znížení ceny. Urobili sa zásadné práce pri optimalizovaní zmesí PLA a PHB prídavkom lacných biodegradovateľných komponentov. Podstatná časť kapacity sa venovala podaniu patentových prihlášok v iných krajinách, celkove sa podali prihlášky do viac než 40 krajín celého sveta. Patent bol ocenený Cenou CVTI za transfer technológií v kategórii Inovácia s najvyšším potenciálom pre uplatnenie v praxi.

Názov univerzity/vysokej školy a fakulty: Fakulta chemickej a potravinárskej technológie STU

Druh spolupráce (spoločné pracovisko alebo iné): Ústav organickej chémie -neformálna spolupráca, spoločné výsledky a publikácie

Začiatok spolupráce: 2010

Zameranie: spektrálna charakterizácia organických molekúl pre aplikácie vo fotonike

Zhodnotenie: Spolupráca v roku 2013 vyústila do komplexnej fotofyzikálnej charakterizácie derivátov bitiofénov substituovaných s rôznymi karbonylmi. Boli publikované 2 práce v SCI časopisoch.

Názov univerzity/vysokej školy a fakulty: Materiálovotechnologická fakulta STU v Trnave

Druh spolupráce (spoločné pracovisko alebo iné): Ústav výrobných technológií - Spolupráca v rámci vzájomnej zmluvy o skúmaní spájania kovových materiálov, spoločné pracovisko nie je

Začiatok spolupráce: 2012

Zameranie: Výskum hybridného spájania kovových materiálov

Zhodnotenie: V roku 2013 sa pokračovalo v skúmaní laserového spájania kovových materiálov kombinovanou metódou s použitím lepenia. Skúmala sa redukcia pevností adhézných spojov kovov v závislosti od termostability, ktorá je závislá od druhu použitého adhezíva. Na základe výsledkov spolupráce bola vypracovaná aj dizertačná práca I. Michalec: Adhéžno-laserové spájanie tenkých plechov, ktorá bola obhájená v roku 2013 a tiež bola pripravená publikácia do časopisu Acta Polytechnica Hungarica, ktorá bola akceptovaná a je v tlači.

6.2. Významné aplikácie výsledkov výskumu v spoločenskej praxi alebo vyriešenie problému pre štátnu alebo neziskovú inštitúciu

Zadávateľ, odberateľ, zmluvný partner: firma Celox, spol. s r. o., Viničné; firma Mikrochem, s. r. o., Pezinok, Vietnam (odberateľ špeciálnych adhezív)

Názov aplikácie/objekt výskumu: Spájanie drevených práčcov lepením s oceľovou podkladovou doskou/adhezívum Gravipol Power

Začiatok spolupráce: 2012

Stručný opis aplikácie/výsledku: špeciálne adhezívum Gravipol Power sa používa na vzájomné spájanie kovov s drevom lepením pri konštruovaní železničných tratí.

Zhodnotenie (uviesť i finančný efekt z aplikácie v € pre organizáciu SAV): v súčasnosti sa výsledky spájania lepením s použitím 15 kg adhezíva Gravipol Power vo Vietname ešte vyhodnocujú.

6.3. Iná činnosť využiteľná pre potreby spoločenskej praxe

- 1) Spolupráca s Výskumným ústavom vodného hospodárstva pri testovaní sorbentov na báze nanopórových uhlíkových vlákien určených na odstraňovanie arzénu a antimónu z pitnej vody (Berek Dušan a kol.)
- 2) Spolupráca s ústavom VIPO pri aplikácii nanopórových uhlíkových vlákien ako plnidla kaučuku na špeciálne aplikácie (Berek Dušan a kol.)
- 3) Výroba elektrovodivého ekologického adhezíva Elektropol 1 (pre firmy Optaglio, s.r.o., Česká republika, SOS s.r.o., Košice) a pre firmu Ecoson, s.r.o., Nové Mesto nad Váhom sa lepia ultrazvukové meniče ku nádobám z chrómniklovej ocele pri výrobe ultrazvukových čističiek (Novák Igor a kol.) 6 052.00 €.

7. Spolupráca s aplikačnou a hospodárskou sférou okrem aktivít uvedených v kap. 2, 3, 4

7.1. Spoločné pracoviská s aplikačnou sférou

7.2. Kontraktový – zmluvný výskum (vrátane zahraničných kontraktov)

Názov kontraktu: Technologický postup prípravy poly(L-laktidu) (PLLA) polymerizáciou z L,L-dilaktidu (L-Laktidu, L-LA) s definovanými vlastnosťami.

Partner(i): Tau-Chem, s.r.o. Nobelova 34, 836 05 Bratislava

Začiatok spolupráce (v súlade s podpísaným kontraktom): 2011

Ukončenie spolupráce (ak ide o spoluprácu v krátkom období): trvá

Objem získaných prostriedkov v bežnom roku (€): 0,00

Stručný opis výstupu/výsledku: Technologický postup prípravy poly(L-laktidov) s definovanou molekulovou hmotnosťou v kilogramovom merítku.

Zhodnotenie: Uskutočnila sa príprava 500 g produktu PLA v laboratóriu partnera. Prebieha optimalizácia postupu.

Názov kontraktu: Konštrukcia Lumipolu 3

Partner(i): Queensland University of Technology

Začiatok spolupráce (v súlade s podpísaným kontraktom): 2012

Ukončenie spolupráce (ak ide o spoluprácu v krátkom období): 2013

Objem získaných prostriedkov v bežnom roku (€): 24 750

Stručný opis výstupu/výsledku: Konštrukcia nového chemiluminiscenčného prístroja Lumipol 3 pre QUT Brisbane, Australia, jeho inštalácia a uvedenie do prevádzky.

Zhodnotenie: Akcia bola spojená so školením o chemiluminiscencii, ktoré bolo realizované počas inštalácie prístroja na Queensland University of Technology.

Názov kontraktu: Monomers for adhesive polymers in dental composites.

Partner(i): IVOCLAR VIVADENT, AG. Schaan, Liechtenstein.

Začiatok spolupráce (v súlade s podpísaným kontraktom): 2013

Ukončenie spolupráce (ak ide o spoluprácu v krátkom období): 2013

Objem získaných prostriedkov v bežnom roku (€): 16 145

Stručný opis výstupu/výsledku: Štúdium kinetiky polymerizácie nových monomérov určených pre adhezíva aplikované do “self-etching” dentálnych výplňových kompozitov. Vypracovanie výskumnej správy.

Zhodnotenie: Zachovanie kontinuity spolupráce s Ivoclar Vivadent bolo vedeckým ako aj finančným prínosom pre ÚPo.

7.3. Iná činnosť využiteľná pre potreby hospodárskej praxe

- 1) Regenerácia silikagélu pre stĺpcovú chromatografiu pre SYNKOLA Bratislava, príjem vo výške 298,8 € (Berek Dušan a kol.)
- 2) Ústav polymérov SAV sa podieľa na výskume v téme liečby cukrovky transplantovanými ostrovcami, ktoré sú enkapsulované v polymérnej membráne. Vďaka APVV projektu (zodp. riešiteľ VV2010) a medzinárodnej spolupráci v rámci Chicago Diabetes Projektu máme možnosť smerovať náš výskum ku klinickej aplikácii. Výsledky získané v roku 2013 dávajú nádej uskutočnenia predklinických testov v diabetických primátoch v r. 2014. (Lacík Igor a kol.)

8. Aktivity pre Národnú radu SR, vládu SR, ústredné orgány štátnej správy SR a iné organizácie

8.1. Členstvo v poradných zboroch vlády SR, Národnej rady SR, ministerstiev SR, orgánoch EÚ, EP, NATO a pod.

Tabuľka 8a Členstvo v poradných zboroch Národnej rady SR, vlády SR, ministerstiev SR, orgánoch EÚ, EP, NATO a pod.

Meno pracovníka	Názov orgánu	Funkcia
prof. Ing. Ivan Chodák, DrSc.	Ministerstvo školstva SR	člen štátnej skúšobnej komisie pre študijný odbor Polymérne materiály, 0120 Plasty a kaučuk (FCHPT STU)
Ing. Igor Lacík, DrSc.	Ministerstvo školstva SR	člen Slovenskej komisie pre vedecké hodnosti SKVH

8.2. Expertízna činnosť a iné služby pre štátnu správu a samosprávu

8.3. Členstvo v radách štátnych programov a podprogramov ŠPVV a ŠO

Tabuľka 8b Členstvo v radách štátnych programov a podprogramov ŠPVV a ŠO

Meno pracovníka	Názov orgánu	Funkcia
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8.4. Prehľad aktuálnych spoločenských problémov, ktoré riešilo pracovisko v spolupráci s Kanceláriou prezidenta SR, s vládnymi a parlamentnými orgánmi alebo pre ich potrebu

9. Vedecko-organizačné a popularizačné aktivity

9.1. Vedecko-popularizačná činnosť

9.1.1. Najvýznamnejšia vedecko-popularizačná činnosť pracovníkov organizácie SAV

Tabuľka 9a Vedecko-popularizačná činnosť pracovníkov organizácie SAV

Meno	Spoluautori	Typ ¹	Názov	Miesto zverejnenia	Dátum alebo počet za rok
Mgr. Martin Danko, PhD.		PB	Polyméry a svetlo	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Martin Danko, PhD.		PB	Polyméry v poľnohospodárstve	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Martin Danko, PhD.	Jozef Kollár	IN	Polyméry a svetlo	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Martin Danko, PhD.	Jozef Kollár	PB	Polyméry a svetlo	Noc výskumníka, stánok ÚPo SAV pre verejnosť, OC Avion Bratislava,	27.9.2013
Mgr. Martin Danko, PhD.	Jozef Kollár	IN	Polyméry v poľnohospodárstve	Deň otvorených dverí, ÚPo SAV	13.11.2013
prof. Ing. Ivan Chodák, DrSc.		TV	relácia Separé	STV 2	18.5.2013
Ing. Markéta Ilčíková, PhD.		EX	BDS - vodivé polyméry	Deň otvorených dverí, ÚPo SAV	13.11.2013

Ing. Markéta Ilčíková, PhD.		PB	BDS - vodivé polyméry	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Markéta Ilčíková, PhD.		IN	BDS - vodivé polyméry	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Juraj Krajčí, PhD.		EX	Príprava kopmpozitov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Juraj Krajčí, PhD.		PB	Príprava kopmpozitov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Juraj Krajčí, PhD.		IN	Príprava kopmpozitov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Juraj Kronek, PhD.	Igor Lacík	PB	Polyméry ako medicínske materiály	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Juraj Kronek, PhD.	Igor Lacík	EX	Polyméry ako medicínske materiály	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Juraj Kronek, PhD.	Igor Lacík	IN	Polyméry ako medicínske materiály	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Igor Lacík, DrSc.		RO	Svet vedy	Radio Best	26.6.2013
Ing. Igor Lacík, DrSc.	BASF Slovensko s.r.o., Mária Omastová, Silvia Podhradská	IN	Reťazová reakcia	http://slovensko.rtvs.sk/clanok/spolocnost/retazova-reakcia?currentPage=4	13.12.2013
Ing. Igor Lacík, DrSc.	BASF Slovensko s.r.o., Mária Omastová, Silvia Podhradská	RO	Reťazová reakcia	RTS,	13.12.2013
Ing. Matej Mičušík, PhD.		EX	Chémia povrchu a jej praktický význam XPS laboratórium – elektronový spectrometer pre chemickú analýzu povrchov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Matej Mičušík, PhD.		IN	Chémia povrchu a jej praktický význam XPS laboratórium – elektronový spectrometer pre chemickú analýzu povrchov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Matej Mičušík, PhD.		PB	Chémia povrchu a jej praktický význam XPS laboratórium – elektronový spectrometer pre chemickú analýzu povrchov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Jaroslav Mosnáček, PhD.		PB	Predstavenie Ústavu polymérov SAV	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Jaroslav Mosnáček, PhD.		IN	Predstavenie Ústavu polymérov SAV	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Igor Novák, PhD.	Marian, Valentín Jozef Prachar	PB	Ekologická modifikácia plazmou	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Igor Novák, PhD.	Marian, Valentín Jozef Prachar	EX	Ekologická modifikácia plazmou	Deň otvorených dverí, ÚPo SAV	13.11.2013

Ing. Igor Novák, PhD.	Marian, Valentín Jozef Prachar	IN	Ekologická modifikácia plazmou	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Igor Novák, PhD.	Marian, Valentín Jozef Prachar	PB	Ekologické elektricky vodivé lepidlo	Noc výskumníka, stánok ÚPo SAV pre verejnosť, Stará tržnica	27.9.2013
Ing. Igor Novák, PhD.	Marian, Valentín Jozef Prachar	EX	Ekologické elektricky vodivé lepidlo	Noc výskumníka, stánok ÚPo SAV pre verejnosť, Stará tržnica	27.9.2013
Ing. Mária Omastová, DrSc.		TV	relácia Spektrum vedy	RTS - STV 2	27.10.2013
Ing. Mária Omastová, DrSc.	BASF Slovensko s.r.o., Igor Lacík, Silvia Podhradská	IN	Reťazová reakcia	http://slovensko.rtv.s.sk /clanok/spolocnost/retazova- reakcia?currentPage=4	13.12.2013
Ing. Mária Omastová, DrSc.	BASF Slovensko s.r.o., Igor Lacík, Silvia Podhradská	PB	Reťazová reakcia	RTS,	13.12.2013
Ing. Mária Omastová, DrSc.	BASF Slovensko s.r.o., Igor Lacík, Silvia Podhradská	RO	Reťazová reakcia	RTS,	13.12.2013
Mgr. Peter Palenčár, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	EX	Modelovanie polymérnych reťazcov: teória a prax	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Peter Palenčár, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	PB	Modelovanie polymérnych reťazcov: teória a prax	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Peter Palenčár, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	IN	Modelovanie polymérnych reťazcov: teória a prax	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Peter Palenčár, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	PB	Modelovanie polymérnych reťazcov: teória a prax	Noc výskumníka, stánok ÚPo SAV pre verejnosť, OC Avion Bratislava	27.10.2013
Mgr. Silvia Podhradská, PhD.	BASF Slovensko s.r.o., Igor Lacík, Mária Omastová	IN	Reťazová reakcia	http://slovensko.rtv.s.sk /clanok/spolocnost/retazova- reakcia?currentPage=4	13.12.2013
Mgr. Silvia Podhradská, PhD.	BASF Slovensko s.r.o., Igor Lacík, Mária Omastová	PB	Reťazová reakcia	RTS,	13.12.2013
Mgr. Silvia Podhradská, PhD.	BASF Slovensko s.r.o., Igor Lacík, Mária Omastová	RO	Reťazová reakcia	RTS,	13.12.2013
Ing. Dušan Račko, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	IN	Zasimulujme si...	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Dušan Račko, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	PB	Zasimulujme si...	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Dušan Račko, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	EX	Zasimulujme si...	Deň otvorených dverí, ÚPo SAV	13.11.2013

Ing. Dušan Račko, PhD.	Zuzana Benková, Pavol Námer, Peter Cifra	PB	Zasimulujme si...	Noc výskumníka, stánok ÚPo SAV pre verejnosť, OC Avion	27.9.2013
Ing. Filip Rázga, PhD.		IN	Cukrovka	Rádio Slobodný vysielateľ, Banská Bystrica	20.12.2013
Ing. Filip Rázga, PhD.		RO	Cukrovka	Rádio Slobodný vysielateľ, Banská Bystrica	20.12.2013
Ing. Filip Rázga, PhD.	Dominika Vnuková	PB	Polyméry pre zdravie	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Filip Rázga, PhD.	Dominika Vnuková	EX	Polyméry pre zdravie	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Filip Rázga, PhD.	Dominika Vnuková	IN	Polyméry pre zdravie	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Filip Rázga, PhD.	Dominika Vnuková	PB	Polyméry pre zdravie	Noc výskumníka, stánok ÚPo SAV pre verejnosť, Stará tržnica	27.9.2013
Ing. Jozef Rychlý, DrSc.		PB	Lumipol a horenie plastov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Jozef Rychlý, DrSc.		EX	Lumipol a horenie plastov	Deň otvorených dverí, ÚPo SAV	13.12.2013
Ing. Jozef Rychlý, DrSc.		IN	Lumipol a horenie plastov	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Dušana Treľová		PB	GPC a iné	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Dušana Treľová		EX	GPC a iné	Deň otvorených dverí, ÚPo SAV	13.11.2013
Ing. Dušana Treľová		IN	GPC a iné	Deň otvorených dverí, ÚPo SAV	13.11.2013
Mgr. Zuzana Benková, PhD.		TL	Beh a chémia	In Quark, roč. 8, 2013, s. 8-9	12
Ing. Igor Lacík, DrSc.		TL	Naši špičkoví vedci	Týždeň, interview s M. Gašparovičom - č.35, s. 38-39	52
Ing. Igor Lacík, DrSc.		TL	Reťazová reakcia	Správy SAV, HN	12
Ing. Igor Lacík, DrSc.		TL	Umelý pankreas	Týždenník Plus 7 dní, interview s Martinou Utešenou-č. 9, s. 40-41	52
Ing. Igor Lacík, DrSc.		TL	Ústav polymérov SAV má 50 rokov	In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel.	2
Ing. Igor Novák, PhD.	Ondrej Žigo	TL	Využitie polymérnych materiálov pri výrobe automobilov.	Strojárstvo Strojnírenství - roč. 17, č. 12, s. 50-51.	12
Ing. Mária Omastová, DrSc.		TL	Konferencia odborníkov z oblasti plnív a polymérnych kompozitov.	In Správy Slovenskej akadémie vied - roč. 49, č. 9, s. 5	12
Ing. Mária Omastová, DrSc.		TL	Slovenská akadémia vied oslavuje 60. výročie založenia.	In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel roč. 9, č. 1,	2

Ing. Mária Omastová, DrSc.		TL	Stretnutie slovenských a českých chemikov vo Vysokých Tatrách.	In Správy Slovenskej akadémie vied - roč. 49, č. 9, s.10	12
Ing. Mária Omastová, DrSc.	BASF Slovensko s.r.o., Igor Lacík, Silvia Podhradská	TL	Reťazová reakcia	Správy SAV, HN	12

¹ PB - prednáška/beseda, TL - tlač, TV - televízia, RO - rozhlas, IN - internet, EX - exkurzia, PU - publikácia, MM - multimédia, DO - dokumentárny film

9.1.2. Súhrnné počty vedecko-popularizačných činností organizácie SAV

Tabuľka 9b Súhrnné počty vedecko-popularizačných činností organizácie SAV

Typ	Počet	Typ	Počet	Typ	Počet
prednášky/besedy	20	tlač	11	TV	2
rozhlas	5	internet	17	exkurzie	11
publikácie	0	multimediálne nosiče	0	dokumentárne filmy	0
iné	0				

9.2. Vedecko-organizačná činnosť

Tabuľka 9c Vedecko-organizačná činnosť

Názov podujatia	Domáca/ medzinárodná	Miesto	Dátum konania	Počet účastníkov
V. medzinárodná konferencia o polymérnych materiáloch v automobilovom priemysle PMA 2013	medzinárodná	Hotel Bonbón, Bratislava, SR	23.-25.04.2013	164
Eurofillers 2013	medzinárodná	Hotel Park Inn, Bratislava, SR	25. -29.08.2013	175
POLYFRIEND	medzinárodná	Ústav polymérov SAV, Bratislava, SR	05. -05.09.2013	30
65. zjazd chemikov	medzinárodná	Tatranské Matliare, SR	09. -13.09.2013	500
6. Európske sympóziu o poveternostnom starnutí polymérov	medzinárodná	Hotel Park Inn, Bratislava, SR	11. -13.09.2013	100

9.3. Účasť na výstavách

Názov výstavy: 40. medzinárodný veľtrh Agrokomplex

Miesto konania: stánok SAV, výstavisko Agrokomplex, Nitra

Dátum: august 2013

Zhodnotenie účasti: Aktívna účasť na výstavách a veľtrhoch za účelom inštalácie a propagácie špeciálnych adhezív z Ústavu polymérov v rámci expozície SAV:

Názov výstavy: 15. medzinárodná zdravotnícka výstava Slovmedica 2013

Miesto konania: stánok SAV, výstavisko Incheba Expo, Bratislava

Dátum: september 2013

Zhodnotenie účasti: Aktívna účasť na výstavách a veľtrhoch za účelom inštalácie a propagácie špeciálnych adhezív z Ústavu polymérov v rámci expozície SAV:

Názov výstavy: 34. medzinárodný veľtrh Coneco-Racioenergia 2013

Miesto konania: stánok SAV, výstavisko Incheba Expo, Bratislava

Dátum: apríl 2013

Zhodnotenie účasti: Aktívna účasť na výstavách a veľtrhoch za účelom inštalácie a propagácie špeciálnych adhezív z Ústavu polymérov v rámci expozície SAV

Názov výstavy: 20. medzinárodný strojársky veľtrh

Miesto konania: stánok Slovenskej zväračskej spoločnosti, výstavisko Agrokomplex, Nitra

Dátum: máj 2013

Zhodnotenie účasti: Aktívna účasť na výstavách a veľtrhoch za účelom inštalácie a propagácie špeciálnych adhezív z Ústavu polymérov v rámci expozície SAV:

Názov výstavy: 11. medzinárodná výstava Kamenár 2013

Miesto konania: Výstavisko Expo Center, a.s., Trenčín

Dátum: 28.2.2013

Zhodnotenie účasti: Aktívna účasť na výstavách a veľtrhoch za účelom inštalácie a propagácie špeciálnych adhezív z Ústavu polymérov v rámci expozície SAV:

9.4. Účasť v programových a organizačných výboroch národných konferencií

Tabuľka 9d Programové a organizačné výbory národných konferencií

Typ výboru	Programový	Organizačný	Programový i organizačný
Počet členstiev	0	1	2

9.5. Členstvo v redakčných radách časopisov

doc. Ing. Dušan Berek, DrSc.

Current Analytical Chemistry (Pakistan) (funkcia: člen edičnej rady)

Chemistry and Chemical Technology (Ukraina) (funkcia: člen edičnej rady)

International Journal of Polymeric Materials (USA) (funkcia: člen edičnej rady)

Macromolecules - An Indian Journal (India) (funkcia: člen edičnej rady)

prof., RNDr. Ignác Capek, DrSc.

Journal of Surface Science and Technology (funkcia: člen edičnej rady)

Ing. Zuzana Hloušková

ChermZi (funkcia: člen redakčnej rady)

prof. Ing. Ivan Chodák, DrSc.

Open Macromolecules Journal, Bentham (funkcia: člen redakčnej rady)

Plasty a kaučuk (ČR) (funkcia: člen edičnej rady)

Ing. Igor Lacík, DrSc.

Frontiers in Biomaterials (funkcia: review editor)

Chemical Industry and Chemical Engineering Quarterly (Srbsko a Čierna Hora) (funkcia: člen international advisory board)

Mgr. Jaroslav Mosnáček, PhD.

časopis ISRN Polymer Science (funkcia: člen edičnej rady)

Ing. Igor Novák, PhD.

CHEMagazín (ČR) (funkcia: externý člen edičnej rady)

Urob si sám (funkcia: člen redakčnej rady)

Ing. Mária Omastová, DrSc.

ChemZi (funkcia: členka redakčnej rady)

Chemical Papers (funkcia: člen redakčnej rady)

9.6. Činnosť v domácich vedeckých spoločnostiach

doc. Ing. Dušan Berek, DrSc.

Slovenkej chemickej spoločnosti (funkcia: čestný člen)

Slovenský národný komitét chémie pre IUPAC (funkcia: podpredseda)

výbor odborných skupín Polyméry a Chromatografia SCHS (funkcia: člen)

Mgr. Martin Danko, PhD.

SCHS (funkcia: člen výboru odbornej skupiny Polyméry)

RNDr. Agnesa Fiedlerová

SCHS (funkcia: tajomníčka výboru odbornej skupiny Polyméry)

Štefan Chmela, PhD.

SCHS (funkcia: člen výboru odbornej skupiny Polyméry)

Mgr. Juraj Kronek, PhD.

SCHS (funkcia: Podpredseda odbornej skupiny Polyméry)

Ing. Igor Lacík, DrSc.

Slovenský národný komitét IUPAC (funkcia: člen)

Ing. Mária Omastová, DrSc.

SCHS (funkcia: podpredsedníčka výboru odbornej skupiny Polyméry)

SCHS (funkcia: predsedníčka)

Ing. Marek Stach, PhD.

Slovenský národný komitét IUPAC (funkcia: člen)

SCHS (funkcia: člen odbornej skupiny polyméry)

9.7. Iné dôležité informácie o vedecko-organizačných a popularizačných aktivitách

Ústav polymérov SAV sa pravidelne podieľa na organizácii vedeckých podujatí a tak to bolo aj v roku 2013.

- V. medzinárodná konferencia o polymérnych materiáloch v automobilovom priemysle, Bratislava, 23.-25.04.
- Eurofillers, 10th Anniversary Conference, Bratislava, 25.- 29.08. 2013
- 6th European Weathering Symposium EWS, Bratislava, 11.- 13.09. 2013
- 65. Zjazd chemikov, 9.-13.09.2013 Vysoké Tatry
- Workshop k projektu HU-SK Polyfriend on Advanced Biofriendly Polymers, 4.-5.09. 2013

Ústav polymérov SAV pokladá za významné vedecko-popularizačné aktivity v rôznych médiách v zmysle súčasných trendov SAV. Propagácia sa v roku 2013 týkala mnohých vystúpení formou tlače, rozhlasu, televízie, internetu, osobných stretnutí a pod. Projekty a celková činnosť ústavu boli opäť úspešne prezentované na Noci výskumníka v OC Avion a v Starej tržnici, počas Dňa otvorených dverí, ako aj formou exkurzií pre študentov stredných a vysokých škôl. Pracovníci ÚPo SAV zviditeľnili prácu ústavu mnohými oceneniami, z ktorých je možné vyzdvihnúť cenu Mladého vedca roka 2012, ocenenia k 60. výročiu založenia SAV, Literárneho fondu, pri propagácii aplikačných výstupov a mnohé iné. V decembri 2013 sme v spolupráci s BASF Slovensko zorganizovali vyhodnotenie finále súťaže Reťazová reakcia za prítomnosti médií ale hlavne pri účasti mnohých stredoškolákov-chemikov, pre ktorých predstavenie ústavu znamenalo prvý kontakt so SAV a pravdepodobnosť nasmerovania ich záujmu. Práca na téme liečby cukrovky je propagovaná propri iných akciách aj cez neinvestičný fond Cukrovka n.f. (www.cukrovkanf.sk).

10. Činnosť knižnično-informačného pracoviska

10.1. Knižničný fond

Tabuľka 10a Knižničný fond

Knižničné jednotky spolu		10 950
z toho	knihy a zviazané periodiká	10 811
	audiovizuálne dokumenty	0
	elektronické dokumenty (vrátane digitálnych)	0
	mikroformy	0
	iné špeciálne dokumenty - dizertácie, výskumné správy	139
Počet titulov dochádzajúcich periodík		4
z toho zahraničné periodiká		3
Ročný prírastok knižničných jednotiek		16
v tom	kúpou	16
	darom	0
	výmenou	0
	bezodplatným prevodom	0
Úbytky knižničných jednotiek		0
Knižničné jednotky spracované automatizovane		0

10.2. Výpožičky a služby

Tabuľka 10b Výpožičky a služby

Výpožičky spolu		1 090
z toho	odborná literatúra pre dospelých	1 065
	výpožičky periodík	25
	prezenčné výpožičky	0
MVS iným knižniciam		4
MVS z iných knižníc		5
MMVS iným knižniciam		0
MMVS z iných knižníc		0
Počet vypracovaných bibliografií		0
Počet vypracovaných rešerší		152

10.3. Používatelia

Tabuľka 10c Užívatelia

Registrovaní používatelia	57
Návštevníci knižnice spolu (bez návštevníkov podujatí)	82

10.4. Iné údaje

Tabuľka 10d Iné údaje

On-line katalóg knižnice na internete (1=áno, 0=nie)	0
Náklady na nákup knižničného fondu v €	2216,45

10.5. Iné informácie o knižničnej činnosti

11. Aktivity v orgánoch SAV

11.1. Členstvo vo Výbore Snemu SAV

11.2. Členstvo v Predsedníctve SAV a vo Vedeckej rade SAV

11.3. Členstvo vo vedeckých kolégiách SAV

RNDr. Peter Cifra, DrSc.

- VK SAV pre chemické vedy (člen)

Ing. Mária Omastová, DrSc.

- VK SAV pre chemické vedy (člen)

Ing. Jozef Rychlý, DrSc.

- VK SAV pre chemické vedy (člen)

11.4. Členstvo v komisiách SAV

prof. Ing. Tomáš Bleha, DrSc.

- Komisia SAV pre vyhodnocovanie medzinárodných projektov (člen)

prof. Ing. Ivan Chodák, DrSc.

- Komisia SAV pre duševné vlastníctvo, inovácie a technologický transfer (člen)

- Komisia SAV pre infraštruktúru a štrukturálne fondy (člen)

- Rada programu centier excelentnosti SAV (člen)

Ing. Igor Lacík, DrSc.

- Komisia SAV pre ekonomické otázky (člen)

- Komisia SAV pre medzinárodnú vedecko-technickú spoluprácu (člen)

Mgr. Jaroslav Mosnáček, PhD.

- Komisia SAV pre infraštruktúru a štrukturálne fondy (člen)

Ing. Lýdia Rychlá, DrSc.

- Porota pre udeľovanie Medzinárodnej ceny SAV (člen)

Ing. Jozef Rychlý, DrSc.

- Komisia SAV pre ekonomické otázky (člen)

11.5. Členstvo v orgánoch VEGAIng. Mária Omastová, DrSc.

- komisia VEGA č.3 pre chemické vedy, chemické inžinierstvo a biotechnológie (člen)

12. Hospodárenie organizácie**12.1. Výdavky PO SAV**

Tabuľka 12a Výdavky PO SAV (v €)

V ý d a v k y	Skutočnosť k 31.12.2013 spolu	v tom:			
		zo ŠR od zriaďovateľ a	z vlastných zdrojov	z iných zdrojov	z toho: ŠF EÚ
Výdavky spolu	2 630 752,31	1 158 538,00	750 110,36	539 051,37	183 052,58
Bežné výdavky	2 417 293,92	1 146 538,00	913 633,05	357 122,87	0,00
v tom:					
mzdy (610)	884 097,51	633 536,00	174 963,01	75 598,50	0,00
poistné a príspevkov do poisťovní (620)	310 745,10	169 837,00	114 087,94	26 820,16	0,00
tovary a služby (630)	784 965,99	231 213,00	223 450,28	330 302,71	0,00
z toho: časopisy	0,00	0,00	0,00	0,00	0,00
VEGA projekty	111 531,00	11 531,00	0,00	0,00	0,00
MVTS projekty	63 933,00	63 933,00	0,00	0,00	0,00
CE	4 456,00	4 456,00	0,00	0,00	0,00
vedecká výchova	6 840,00	6 840,00	0,00	0,00	0,00
bežné transfery (640)	252 826,37	111 952,00	34 544,37	106 330,00	0,00
z toho: štipendiá	113 671,50	111 952,00	1 719,50	0,00	0,00
transfery partnerom projektov	139 154,87	0,00	32 824,87	106 330,00	0,00
Kapitálové výdavky	212 937,87	12 000,00	17 885,29	0,00	183 052,58
v tom:					
obstarávanie kapitálových aktív	200 937,87	0,00	17 885,29	0,00	183 052,58
kapitálové transfery	12 000,00	12 000,00	0,00	0,00	0,00
z toho: transfery partnerom projektov	0,00	0,00	0,00	0,00	0,00

12.2. Príjmy PO SAV

Tabuľka 12b Príjmy PO SAV (v €)

P r í j m y	Skutočnosť k 31.12.2013 spolu	v tom:	
		rozpočtové	z mimorozp. zdrojov
Príjmy spolu	2 404 200,54	1 146 538,00	1 257 662,54
Nedaňové príjmy	1 257 662,54	0,00	1 257 662,54
v tom:			
príjmy z prenájmu	21 340,72	0,00	21 340,72
príjmy z predaja výrobkov a služieb	311 474,37	0,00	311 474,37
iné	474 024,74	0,00	474 024,74
Granty a transfery (mimo zdroja 111)	494 776,02	0,00	494 776,02
v tom:			
tuzemské	450 822,71	0,00	450 822,71
z toho: APVV	337 572,00	0,00	337 572,00
iné	69 297,40	0,00	69 297,40
zahraniczne	43 953,31	0,00	43 953,31
z toho: projekty rámcového programu EÚ	43 953,31	0,00	43 953,31
iné	0,00	0,00	0,00

13. Nadácie a fondy pri organizácii SAV

Názov: Fond na podporu mladých vedcov

Zameranie: Štartovací grant

Opis: Štartovací grant je Fondom na podporu mladých vedeckých pracovníkov. Zámerom poskytovania uvedeného grantu je prínos nových problematik na pracovisko a uľahčenie začiatku vo výskume mladším tvorivým pracovníkom.

Názov: Neinvestičný fond Cukrovka n.f. (www.cukrovkanf.sk)

Zameranie: Podpora výskumu spojeného s liečbou cukrovky transplantáciou pankreatických ostrovčiek

Opis: Neinvestičný fond Cukrovka n.f. s cieľom získať prostriedky najmä na:

- podporu výskumu a všetkých aktivít spojených s liečbou cukrovky transplantáciou pankreatických ostrovčiek, ktoré sú enkapsulované v polymérnej membráne,
- podporu vzdelávania a informovania verejnosti vo forme podávania informácií o nových trendoch v liečbe cukrovky,
- podporu študijných pobytov, školení, prednášok, konferencií,
- podporu tvorby prístrojovej infraštruktúry

14. Iné významné činnosti organizácie SAV

15. Vyznamenania, ocenenia a ceny udelené pracovníkom organizácie v roku 2013

15.1. Domáce ocenenia

15.1.1. Ocenenia SAV

Benková Zuzana

Mladý výskumník roka 2012

Oceňovateľ: Slovenskáj akadémia vied, Centrum vedecko – technických informácií SR a Zväu slovenských vedeckotechnických spoločností

Opis: 16. ročníku súťaže významných slovenských vedcov, technológov a mladých výskumníkov zo všetkých oblastí vedy; CVTI 14.05.2013

Bleha Tomáš

ocenenie osobností SAV

Oceňovateľ: SAV

Opis: ocenenie osobností, ktoré sa zaslúžili o rozvoj SAV pri príležitosti 60. výročia jej založenia – KC Smolenice 11.09.2013

Capek Ignác

Identifikácia špičkových vedeckých tímov a ich členov na SAV

Oceňovateľ: SAV

Opis: tím zaradený do kategórie špičkový v hodnotení agentúry ARRA “Identifikácia špičkových vedeckých tímov a ich členov na SAV” – ocenenie od vedenia Slovenskej akadémie vied v Zrkadlovej sieni Primaciálneho paláca 3.07.2013

Lacík Igor

Identifikácia špičkových vedeckých tímov a ich členov na SAV

Oceňovateľ: SAV

Opis: tím zaradený do kategórie špičkový v hodnotení agentúry ARRA “Identifikácia špičkových vedeckých tímov a ich členov na SAV” – ocenenie od vedenia Slovenskej akadémie vied v Zrkadlovej sieni Primaciálneho paláca 3.07.2013

Omastová Mária

Identifikácia špičkových vedeckých tímov a ich členov na SAV

Oceňovateľ: SAV

Opis: tím zaradený do kategórie špičkový v hodnotení agentúry ARRA “Identifikácia špičkových vedeckých tímov a ich členov na SAV” – ocenenie od vedenia Slovenskej akadémie vied v Zrkadlovej sieni Primaciálneho paláca 3.07.2013

15.1.2. Iné domáce ocenenia

Lacík Igor

prémia Literárneho fondu

Oceňovateľ: Literárny fond

Opis: prémia Literárneho fondu, II. miesto za trojročný vedecký ohlas v kategórii technické vedy a geovedy za rok 2013 ako prejav vedeckého uznania za výrazný vedecký ohlas za predchádzajúce tri roky.

Novák Igor

Zlatá Incheba

Oceňovateľ: Incheba Expo

Opis: Ústav polymérov SAV - diplom Zlatá Incheba za exponát Antibakteriálna fólia - výstava Slovmedica 2013, Incheba Expo, Bratislava, 26. – 28.09.2013

15.2. Medzinárodné ocenenia

16. Poskytovanie informácií v súlade so zákonom č. 211/2000 Z. z. o slobodnom prístupe k informáciám v znení neskorších predpisov (Zákon o slobode informácií)

Na pracovisku nebola zaznamenaná žiadna požiadavka o poskytnutie informácií v zmysle uvedeného zákona.

17. Problémy a podnety pre činnosť SAV

V r. 2013 pretrvávali nejasnosti ohľadne postupu transformácie SAV, čiastočne aj spojené s reštrukturalizáciou. Veľmi ťažko sa v danej situácii orientuje a plánuje dlhodobá vízia ústavov. V súčasnosti (1/2014) sa situácia zdá sa mení a transformácia naberať konkrétnejšie kontúry. Veríme, že tento proces bude zvládnutý prehľadne a v dostatočnom predstihu a tiež s dostatočne definovaným prechodným obdobím, aby ústavy mali čas sa na nové podmienky pripraviť.

Dalo by sa dlho písať o zúfalosti základnej a kontinuálnej finančnej podpory na Slovensku. Je naivné sa domnievať, že ústavy si budú vedieť plánovite získavať potrebné finančné prostriedky z H2020 al. OPVaI príp. účasť vo Vedeckých parkoch a centrách. V takýchto podmienkach je obtiažne predpokladať optimistický vývoj z pohľadu udržania si a získavania kvalitných vedeckých pracovníkov ako základného faktora pre prosperitu vedy v SAV a na Slovensku.

Správu o činnosti organizácie SAV spracovali:

Csomorová Katarína	(telefón: 3229 4338, E-mail: Katarina.Csomorova@savba.sk)
Hloušková Zuzana	(telefón: 3229 4328, E-mail: Zuzana.hlouskova@savba.sk)
Kleinová Angela	(telefón: 3229 4368, E-mail: Angela.Kleinová@savba.sk)
Lacík Igor	(telefón: 3229 4308, E-mail: Igor.Lacik@savba.sk)
Majerčíková Monika	(telefón: 3229 4319, E-mail: Monika.Majercikova@savba.sk)
Mosnáček Jaroslav	(telefón: 3229 4353, E-mail: Jaroslav.Mosnacek@savba.sk)
Petrenčíková Nadežda	(telefón: 3229 4371, E-mail: Nadezda.Petrencikova@savba.sk)
Špitalský Zdenko	(telefón: 3229 4325, E-mail: Zdenko.Spitalsky@savba.sk)

Riaditeľ organizácie SAV:

Lacík Igor (telefón: 3229 4308, E-mail: Igor.Lacik@savba.sk)

.....
Ing. Igor Lacík, DrSc.

Príloha A**Zoznam zamestnancov a doktorandov organizácie k 31.12.2013****Zoznam zamestnancov podľa štruktúry (nadväzne na údaje v Tabuľke 1a)**

	Meno s titulmi	Úväzok (v %)	Ročný prepočítaný úväzok
Vedúci vedeckí pracovníci DrSc.			
1.	Ing. Josef Bartoš, DrSc.	100	1.00
2.	Doc. Ing. Dušan Berek, DrSc.	40	0.40
3.	Prof. Ing. Tomáš Bleha, DrSc.	60	0.58
4.	Prof., RNDr. Ignác Capek, DrSc.	100	1.00
5.	RNDr. Peter Cifra, DrSc.	100	1.00
6.	Štefan Chmela, PhD.	100	1.00
7.	Prof. Ing. Ivan Chodák, DrSc.	100	1.00
8.	Ing. Igor Lacík, DrSc.	100	1.00
9.	Ing. Mária Omastová, DrSc.	100	1.00
10.	Ing. Lýdia Rychlá, DrSc.	80	0.80
11.	Ing. Jozef Rychlý, DrSc.	80	0.80
Samostatní vedeckí pracovníci			
1.	Mgr. Zuzana Benková, PhD.	100	0.92
2.	Mgr. Martin Danko, PhD.	100	1.00
3.	Ing. Ivica Janigová, PhD.	100	1.00
4.	Mgr. Peter Kasák, PhD.	100	0.00
5.	Mgr. Jozef Kollár, PhD.	100	1.00
6.	Ing. Csaba Kósa, PhD.	100	1.00
7.	Mgr. Juraj Kronek, PhD.	100	1.00
8.	Ing. Igor Krupa, PhD.	100	0.00
9.	Ing. Matej Mičušík, PhD.	100	1.00
10.	Mgr. Jaroslav Mosnáček, PhD.	100	1.00
11.	Ing. Igor Novák, PhD.	100	1.00
12.	Ing. Dušan Račko, PhD.	100	1.00
13.	Ing. Filip Rázga, PhD.	100	0.50
14.	Ing. Marek Stach, PhD.	100	1.00
15.	Mgr. Zdenko Špitálsky, PhD.	100	1.00
Vedeckí pracovníci			
1.	Ing. Katarína Borská, PhD.	100	0.40
2.	Ing. Klaudia Czaniková, PhD.	100	0.40
3.	Ing. Anita Eckstein, PhD.	100	1.00
4.	Maria Lorena Romina Falco, PhD.	100	0.08
5.	Ing. Gabriela Hloušková, PhD.	100	0.89
6.	Ing. Markéta Ilčíková, PhD.	100	0.40

7.	Ing. Daniela Jochec Mošková, PhD.	100	0.95
8.	Ing. Juraj Krajči, PhD.	100	0.40
9.	Mgr. Zuzana Kroneková, PhD.	100	0.94
10.	Ing. Marta Malíková, PhD.	50	0.45
11.	Ing. Andrea Mihálová, PhD.	100	0.00
12.	Ing. Daniela Moravčíková, PhD.	100	0.25
13.	Mgr. Katarína Mosnáčková, PhD.	100	0.50
14.	Ing. Andrea Oravcová, PhD.	100	1.00
15.	Mgr. Peter Palenčár, PhD.	100	1.00
16.	Mgr. Silvia Podhradská, PhD.	100	1.00
17.	Ing. Anton Popelka	100	0.47
18.	Mgr. Patrik Sobolčíak	100	0.58
19.	Ing. Alena Šišková, PhD.	100	0.40
20.	Ing. Helena Švajdlenková, PhD.	100	1.00
21.	Ing. Lucia Uhelská, PhD.	100	0.75
22.	Ing. Ondrej Žigo, PhD.	100	1.00
Odborní pracovníci s VŠ vzdelaním			
1.	Ing. Katarína Csomorová	100	1.00
2.	RNDr. Agnesa Fiedlerová	100	1.00
3.	Ing. Zuzana Hloušková	100	1.00
4.	Ing. Ľudmila Hrčková	100	1.00
5.	Ing. Anna Chovancová	100	0.93
6.	Ing. Angela Kleinová	100	1.00
7.	Mgr. Igor Koreň	20	0.20
8.	Ing. Ján Kratochvíla	10	0.10
9.	Ing. Miroslava Lukešová	10	0.10
10.	Ing. Eva Macová	100	1.00
11.	Mgr. Monika Majerčíková	100	1.00
12.	Mgr. Marcel Mikulec	10	0.10
13.	Mgr. Pavol Námer	10	0.03
14.	Ing. Zuzana Nógellová	100	1.00
15.	Ing. Nadežda Petrenčíková	100	1.00
16.	Mgr. Jozef Prachár	10	0.10
17.	Ing. Jana Sasová	10	0.10
18.	Ing. Mária Šivová	100	1.00
19.	Mgr. Petra Šrámková	10	0.03
20.	Ing. Jana Tabačiarová	10	0.10
21.	Ing. Dušana Treľová	100	0.40
22.	Ing. Marian Valentin	10	0.10
23.	Ing. Dominika Vnuková	10	0.10
24.	Mgr. Anna Zahoranová	10	0.10

Odborní pracovníci ÚSV			
1.	Katarína Cinová	100	1.00
2.	Nadežda Danková	100	1.00
3.	Alena Ďurišová	100	1.00
4.	Janka Fáryová	100	1.00
5.	Eva Hipká	100	1.00
6.	Ivona Hrodeková	100	1.00
7.	Sidónia Kalinová	100	1.00
8.	Jozef Kandráč	80	0.80
9.	Viera Karlíková	100	1.00
10.	Marcela Kimličková	100	1.00
11.	Beata Kosíková	100	1.00
12.	Zuzana Kuželová	100	1.00
13.	Marta Mitošinková	100	1.00
14.	Iveta Nestarcová	100	1.00
Ostatní pracovníci			
1.	Peter Kečkéš	40	0.37
2.	Apostol Todorov Nedelčev	40	0.37
3.	Zuzana Ondrušová	100	1.00
4.	Daniela Pírová	100	1.00

Zoznam zamestnancov, ktorí odišli v priebehu roka

	Meno s titulmi	Dátum odchodu	Ročný prepočítaný úväzok
Vedeckí pracovníci			
1.	Mgr. Branislav Husár, PhD.	30.9.2013	0.00
2.	Ing. Miroslav Mrlík, PhD.	31.8.2013	0.17
3.	Ing. Eva Papajová	31.10.2013	0.83
4.	Mgr. Vladislav Semak	12.7.2013	0.54
Odborní pracovníci s VŠ vzdelaním			
1.	Ing. Milica Riecka	28.2.2013	0.02

Zoznam doktorandov

	Meno s titulmi	Škola/fakulta	Študijný odbor
Interní doktorandi hrazení z prostriedkov SAV			
1.	Ing. Anna Chovancová	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
2.	Ing. Ján Kratochvíla	Fakulta chemickej a potravinárskej technológie STU	5.2.21 technológia makromolekulových látok
3.	Ing. Jaroslav Kuliček	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
4.	Ing. Miroslava Lukešová	Fakulta chemickej a potravinárskej technológie STU	4.1.18 fyzikálna chémia
5.	Mgr. Marcel Mikulec	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
6.	Mgr. Pavol Námer	Fakulta chemickej a potravinárskej technológie STU	4.1.18 fyzikálna chémia
7.	Mgr. Jozef Prachár	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
8.	Ing. Jana Sasová	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
9.	Mgr. Petra Šrámková	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
10.	Ing. Jana Tabačiarová	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
11.	Ing. Dušana Treľová	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
12.	Ing. Marian Valentin	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
13.	Ing. Dominika Vnuková	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
14.	Mgr. Anna Zahoranová	Fakulta chemickej a potravinárskej technológie STU	4.1.19 makromolekulová chémia
Interní doktorandi hrazení z iných zdrojov			
<i>organizácia nemá interných doktorandov hrazených z iných zdrojov</i>			
Externí doktorandi			
1.	Ing. Michal Lacko	Fakulta chemickej a potravinárskej technológie STU	5.2.21 technológia makromolekulových látok

Príloha B

Projekty riešené v organizácii

Medzinárodné projekty

Programy: Medziakademická dohoda (MAD)

1.) Syntéza, molekulová charakterizácia a čistenie blokových kopolymérov.

Synthesis, molecular characterization and purification of block polymers.

Zodpovedný riešiteľ: Dušan Berek
Trvanie projektu: 1.1.2013 / 31.12.2014
Evidenčné číslo projektu: MAD
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Francúzsko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

V prvom roku riešenia bola zavedená LC LCD metóda a dvoj-dimenzionálna kvapalinová chromatografia S2D LC na charakterizáciu komplexných polymérových systémov v partnerskom laboratóriu CNRS vo Francúzsku. Pracovníčky univerzity navštívili Ústav polymérov v rámci výmeny pracovníkov MAD.

Výstupy:

1. BEREK, Dušan - NOVÁK, Ivan - KUDELA, Stanislav Jr. Nanoporous carbon fibers from natural cellulosic precursors. In *Rouen Symposium on Advanced Materials: Rouen, France, June 5 - 7 2013: abstract book*. - Rouen, France: University of Rouen, 2013, p. 18.

2.) Príprava a elektrické vlastnosti vodivých polymérnych kompozitov a nanokompozitov.

Preparation and electrical properties of conducting polymer composites and nanocomposites.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.1.2012 / 31.12.2016
Evidenčné číslo projektu: -
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Česko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Pripravil sa vodivý polymér polypyrol (PPy) vo vodnom roztoku použitím dusičnanu strieborného ako oxidačného činidla. Polymerizácia prebieha niekoľko dní do dosiahnutia aspoň 75 hm. % výťažku. Pri polymerizácii sa pridávali rôzne stabilizátory a povrchovo aktívne látky, pričom sa sledoval ich vplyv na veľkosť pripravených PPy a strieborných častíc.

Výstupy:

1. OMASTOVÁ, Mária - MOSNÁČKOVÁ, Katarína - FEDORKO, P. - TRCHOVÁ, M. - STEJSKAL, J. Polypyrrole/silver composites prepared by single-step synthesis. In *Synthetic Metals*, 2013, vol.166, p. 57 - 62. (2.109 - IF2012).

3.) Senzory pre kvapaliny a plyny na báze elektricky vodivých kompozitov polymér/uhlíkové nanotrubičky. *Sensors for liquids and vapours based on electric conductive polymer/carbon nanotubes composites.*

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.1.2013 / 31.12.2014
Evidenčné číslo projektu: MAD - bilaterálny
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Nemecko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Prvým krokom bola príprava kompozitov a jej optimalizácia s cieľom čo najlepšie dispergovať plnivo v matrici. Použité boli blokové kopolyméry SIS (styrén-izoprén-styrén) a SBS (styrén-butadién-styrén), percentuálny podiel plniva bol od 0.5 do 4 hm. % buď s pridaním alebo bez pridanej tenzidu. Elektrické vlastnosti pripravených kompozitov boli následne zamerané pomocou širokopásmovej dielektrickej spektroskopie (BDS) so stanovením perkolačného prahu jednotlivých sérií. Vybrané kompozity s koncentráciou plniva tesne nad perkolačným prahom sa skúmali na IPF v Drážďanoch. Predbežne sa ukázalo, že najlepšími senzormi vybraných kvapalín sú kompozity na báze SBS a pre plyny kompozity so SIS ako matricou.

Výstupy:

1. TABAČIAROVÁ, Jana - MIČUŠÍK, Matej - PODHRADSKÁ, Silvia - POTSCHE, P. - PIONTECK, J. - OMASTOVÁ, Mária. Carbon nanotubes/elastomer composites for liquid sensing. In *EUROFILLERS 2013: 10th anniversary meeting : Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts*. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 286 - 287.

2. TABAČIAROVÁ, Jana - MIČUŠÍK, Matej - POTSCHE, P. - PIONTECK, J. - OMASTOVÁ, Mária. Liquid sensors based on carbon nanotubes-containing composites. In *CNPComp 2013: 6th International Conference on Carbon Nanoparticle Based Composites: Dresden, Germany, September 22 to 25, 2013: collection of extended abstracts*. - Dresden, Germany: Leibnitz-Institut für Polymerforschung Dresden, 2013, [P24].

3. TABAČIAROVÁ, Jana - MIČUŠÍK, Matej - PIONTECK, J. - OMASTOVÁ, Mária. Príprava kompozitov na báze elastomérskej matrice a uhlíkových nanotrubičiek pre senzorické aplikácie. In *ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel: 65. Zjazd chemikov: Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 207*.

4.) Charakterizácia chromatograficky zložitých polymérov pokročilými metódami kvapalinovej chromatografie: MD-SEC a LC LCD.

Characterization of chromatographically-complex polymers by advanced liquid chromatography methods: MD-SEC and LC LCD.

Zodpovedný riešiteľ: Alena Šišková
Trvanie projektu: 1.1.2013 / 31.12.2015

Evidenčné číslo projektu: MAD
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Argentína: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

V prvom roku riešenia bola zavedená LC LCD metóda a dvoj-dimenzionálna kvapalinová chromatografia S2D LC na charakterizáciu komplexných polymérových systémov v laboratóriu polymérov v INTEC v Santa Fe. V súčasnosti sa tiež vyvíja metóda na spracovanie dát.

Programy: Medzivládna dohoda

5.) Nové funkčné kopolyméry na báze cyklických iminoéterov navrhnuté pre biomedicínske aplikácie.

New functional copolymers based on cyclic iminoethers designed for biomedical applications.

Zodpovedný riešiteľ: Juraj Kronek
Trvanie projektu: 1.1.2012 / 31.12.2013
Evidenčné číslo projektu: APVV-SK-BG-0038-10
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Bulharsko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Študovali sa termosenzitívne vlastnosti kopolymérov na báze 2-oxazolínov. Zistilo sa, že teplota fázového prechodu, pri ktorej dochádza k zmene hydrofilného charakteru kopolyméru na hydrofóbny, je závislá od zloženia kopolyméru a prídavku aditív. Kombináciou oboch parametrov sa dá presne nastaviť termosenzitívne správanie študovaných polymérov podľa typu aplikácie.

Výstupy:

1. KRONEK, Juraj - PETRENČÍKOVÁ, Nadežda - MIKULEC, Marcel – BORSKÁ, Katarína – CHRISTOVA, D. Structure analysis and thermosensitive properties of copolymers prepared from 2-ethyl-2-oxazoline and 2-(4-aminophenyl)-2-oxazoline. *Polymer Bulletin* - odoslané

Programy: COST

6.) Nová generácia cenovo efektívnych materiálov prechádzajúcich fázovou premenou pre zvýšenie účinnosti energie v budovách využívajúcich energiu z obnoviteľných zdrojov.

Next generation cost effective phase change materials for increased energy efficiency in renewable energy systems in buildings-NeCoE-PCM.

Zodpovedný riešiteľ: Marta Malíková
Trvanie projektu: 1.1.2013 / 30.4.2013
Evidenčné číslo projektu: COST TU0802

Organizácia je nie
koordinátorom projektu:
Koordinátor: Dublin Institute of Technology, Ireland
Počet spoluriešiteľských 21
inštitúcií:
Čerpané financie: COST: 36 870 €
MVTs: 1000 €

Dosiahnuté výsledky:

Výsledkom projektu COST TU0802 sú štandardizované metodiky charakterizácie PCM na základe "round robin" testu v rôznych laboratóriách. Úspechom je aj validácia simulačných modelovacích metodík. Boli vytvorené aj nové dizajny experimentov, ktoré dokážu využívať nadbytočnú energiu v integrovaných aplikáciách v budovách. Podobne ako novo vyvinuté typy PCM, aj tieto systémy boli charakterizované pre využitie v rôznych klimatických podmienkach.

Výstupy:

1. CABEZA, L. F. - BARRENECHE, C. - MARTORELL, I. - ENGINEER, L. M. - SARI-BEY, S. - FOIS, M. - O PAKSOY, H. - SAHAN, N. - WEBER, R. - CONSTANTINESCU, M. - ANGHEL, E. M. - MALIKOVA, Marta - KRUPA, Igor - DELGADO, M. - DOLADO, P. - FURMANSKI, P. - JAWORSKI, M. - HAUSSMANN, T. - GSCHWANDER, S. - FERNÁNDEZ, I. A. Unconventional technologies available for phase change materials (PCM) characterization. Part 1. Thermophysical properties. In *Renewable & Sustainable Energy Reviews*- odoslané
2. FERNÁNDEZ, I. A. - ENGINEER, A. S. - GIRÓ-PALOMA, J. - MARTÍNEZ, M. - HADJIEVA, M. - BOUDENNE, A. - CONSTANTINESCU, M. - ANGHEL, E. M. - MALIKOVA, Marta - KRUPA, Igor - PE?ALOSA, C. - LÁZARO, A. - O PAKSOY, H. - CELLAT, K. - VECSTAUDZA, J. - BAJARE, D. - SUMIGA, B. - BOH, B. - HAUSSMANN, T. - GSCHWANDER, S. - WEBER, R. - FURMANSKI, P. - JAWORSKI, M. - CABEZA, L. F. Unconventional technologies used for phase change materials (PCM) characterization. Part 2. Morphological and structural characterization, physico-chemical stability and mechanical properties. In *Renewable & Sustainable Energy Reviews*- odoslané

7.) Dlhodobé udržateľné retardanty horenia pre textil a príbuzné materiály na báze nanočastíc nahradzujúcich konvenčné chemické látky.

Sustainable flame retardancy for textiles and related materials based on nanoparticles substituting conventional chemicals.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.5.2012 / 1.5.2016
Evidenčné číslo projektu: MP1105
Organizácia je nie
koordinátorom projektu:
Koordinátor: Centre for Materials Science and Engineering (CSME), University Gent, Gent, Belgium
Počet spoluriešiteľských 19 - Fínsko: 2, Francúzsko: 2, Veľká Británia: 3, Taliansko: 3, Litva: 3, Poľsko: 2, Portugalsko: 4
inštitúcií:
Čerpané financie: MVTs: 4000 €

Dosiahnuté výsledky:

Tím riešiteľov sa venoval prešetreniu účinkov silanizácie povrchu polyamidových textíl líšiacich sa špeciálne syntetizovaným pyrol-silánom. Už 1,0 hm. % naviazaného modifikátora zlepšilo stálosť vodivej polypyrolovej vrstvy, ktorá sa polymerizovala na povrchu chemickou oxidačnou polymerizáciou pyrolu. Termografickou analýzou materiálov pri použití vzduchu sa zistilo, že touto modifikáciou sa zvýšila termooxidačná stabilita modifikovaného textilu po praní.

Výstupy:

1. MIČUŠÍK, Matej - MOSNÁČKOVÁ, Katarína - FEDORKO, P.I - CHEHIMI, M. M. - OMASTOVÁ, Mária. Conductive textiles : Formation, properties, and stability. In Modern Polymeric Materials for Environmental Applications: 5th International Seminar including COST Mp1105 Workshop: Kraków, Poland, 15 - 17 May 2013. - Kraków, Poland: Wydawnictwo Naukowo-Techniczne TEZA, 2013, vol.5, iss. 2, P. 63 - 70.
2. MOSNÁČKOVÁ, Katarína - MIČUŠÍK, Matej - FEDORKO, P. - KOVÁŘOVÁ, J. - CHEHIMI, M.M. - OMASTOVÁ, Mária. Surface properties and morphology of conductive textiles. In EUROFILLERS 2013: 10th anniversary meeting : Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 255 - 256.

8.) Európska vedecká sieť pre umelé svaly.

European Scientific Network for Artificial Muscles.

Zodpovedný riešiteľ:	Mária Omastová
Trvanie projektu:	8.12.2011 / 7.12.2014
Evidenčné číslo projektu:	MP1003
Organizácia je koordinátorom projektu:	nie
Koordinátor:	University of Pisa, Pisa, Italy
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	MVTS: 4000 €

Dosiahnuté výsledky:

Ukončilo sa štúdium starnutia chemicky pripraveného polypyrolu použitím rôznych oxidačných činidiel ako v prítomnosti, tak i bez prítomnosti aniónového tenzidu. V rámci projektu sa rozvíjalo štúdium materiálov na báze elastomérov a uhlíkových nanotrubičiek. Tieto materiály prejavili foto-aktuálne správanie po ožiarení svetelnými diódami a je ich možné použiť ako umelé svaly.

Výstupy:

1. KOSIDLO, U. - OMASTOVÁ, Mária - MIČUŠÍK, Matej - ĆIRIĆ-MARJANOVIĆ, G. - RANDRIAMAHAZAKA, H. - WALLMERSPERGER, T. - AABLOO, A. - KOLARIC, I. - BAUERNHANS, T. Nanocarbon based ionic actuators - a review. In Smart Materials & Structures, 2013, vol. 22, art.no. 104022 [30 p.]. (2.024 - IF2012).
2. CZANIKOVÁ, Klaudia - MIČUŠÍK, Matej - TABAČIAROVÁ, Jana - OMASTOVÁ, Mária. Elastomeric/carbon nanotubes nanocomposites for photo-actuation and sensing systems. In CNPComp 2013: 6th International Conference on Carbon Nanoparticle Based Composites: Dresden, Germany, 22 to 25 September, 2013: collection of extended abstracts. - Dresden, Germany: Leibniz-Institut für Polymerforschung Dresden, 2013, [C43].
3. MIČUŠÍK, Matej - CZANIKOVÁ, Klaudia - KRUPA, Igor - OMASTOVÁ, Mária. Nano-optical mechanical systems based on carbon nanotubes and elastomeric matrix. In EuroEAP 2013: Third International Conference on Electromechanically Active Polymer (EAP) Transducers & Muscles: Duebendorf, Switzerland, 25 -26 June 2013: book of abstracts. - Dubendorf, Switzerland: EMPA Academy, 2013, p. 36.

Programy: 7RP

9.) Rozriešenie segmentálnej relaxačnej dynamiky v oligomérnych 1,4-poly(izoprén)och.

Resolution of the segmental relaxation dynamics in oligomeric 1,4-poly(isoprene)s.

Zodpovedný riešiteľ: Josef Bartoš
Trvanie projektu: 1.1.2013 / 31.12.2013
Evidenčné číslo projektu: ESMI/MVTS E130100330
Organizácia je koordinátorom projektu: nie
Koordinátor: Forschungszentrum Juelich, GmbH
Počet spoluriešiteľských inštitúcií: 2 - Španielsko: 2
Čerpané financie: MVTS: 3600 €

Dosiahnuté výsledky:

Kombinované termodynamické a dynamické štúdium série piatich oligomérnych 1,4-poly(izoprén)ov (1,4-PIP) s molekulovou hmotnosťou $M=800, 1\ 100, 2\ 700, 4\ 270$ and $10\ 500$ g/mol v čistom, nedopovanom a dopovanom stave s malým prídavkom polárnej nízkomolekulovej látky 2,2,6,6 – tetramethyl - piperidine - 1- oxyl (TEMPO) bolo vykonané použitím nízko-teplotnej DSC a BDS techniky so zameraním na rozriešenie komplexných BDS spektier od segmentálneho a normálového relaxačného procesu. DSC charakterizácia dopovaných systémov pomocou DSC techniky odhalila malý záporný posun v teplote sklovitého prechodu v dopovaných systémoch vzhľadom na čisté matrice v dôsledku plastifikačného efekt. Detailné dynamické štúdium použitím BDS v širokom frekvenčnom rozsahu 10^{-2} – 10^9 Hz ukázalo veľmi slabý efekt polárnej komponenty TEMPO na normálový relaxačný mód, ale veľmi výrazný intenzifikačný and mierny urýchlovací efekt na segmentálny relaxačný mód. Nadväzne, komplexné BDS spektrá boli analyzované v terminoch fenomenologickej Havriliak - Negami (HN) relaxačnej funkcie pre segmentálny mód a mikroskopického Rouseho modelu pre normálový mód s cieľom ich prvého kompletného popisu a interpretácie.

Výstupy:

1. ŠVAJDLENKOVÁ, Helena - BARTOŠ, Josef - YU, Y. – KRAUSE-REHBERG, R. - ARRESE-IGOR, S. - ALEGRÍA, A. Structural and dynamical heterogeneities in oligomer and polymer glassformers by ortho-positronium probe annihilation and spin probe mobility in relation to dielectric relaxation. In: E-Abstracts of Annual Meeting 2013 of European Soft Matter Infrastructure (ESMI), Rimini, Italy.

Programy: Multilaterálne - iné

10.) Biologické adhezíva: od biológie ku biomimetike.

Biological adhesives: from biology to biomimetics.

Zodpovedný riešiteľ: Peter Kasák
Trvanie projektu: 1.1.2011 / 31.12.2014
Evidenčné číslo projektu: TD0906
Organizácia je koordinátorom projektu: nie
Koordinátor: Université de Mons
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: MVTS: 4000 €

Dosiahnuté výsledky:

Pripravovali sa polyméry so svetlom prepínateľnými vlastnosťami a využívali sa na rôzne interacie s DNA a baktériami.

11.) The Chicago Diabetes Project: Globálna spolupráca pre funkčnú liečbu cukrovky.

The Chicago Diabetes Project: Global collaboration for a functional cure.

Zodpovedný riešiteľ: Igor Lacík
Trvanie projektu: 1.5.2007 /
Evidenčné číslo projektu:
Organizácia je koordinátorom projektu: nie
Koordinátor: University of Illinois, Chicago
Počet spoluriešiteľských inštitúcií: 5 - Austrália: 1, Švajčiarsko: 1, Taliansko: 1, Nórsko: 1, USA: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Mikrokapsule dizajnované v posledných rokoch na ÚPo SAV sú tolerované v paviánoch po transplantácii do brušnej dutiny v prípade prázdnych mikrokapsúl aj mikrokapsúl obsahujúcich paviánie pankreatické ostrovčeky. Vyjadrenie názoru na oblasť liečby cukrovky transplantáciou enkapsulovaných ostrovčekov v prehľadových článkoch. Tri pozvané prednášky na medzinárodných konferenciách.

Výstupy:

1. ROKSTAD, A. M. - BREKKE, O. L. - STEINKJER, B. - RYAN, L. - KOLLÁRIKOVÁ, Gabriela - STRAND, B. L. - SKJAK-BRAEK, G. - LAMBRIS, J. D. - LACÍK, Igor - MOLLNES, T. E. - ESPEVIK, T. The induction of cytokines by polycation containing microspheres by a complement dependent mechanism. In Biomaterials, 2013, vol. 34, p. 621 - 630. (7.604 - IF2012).
2. LACÍK, Igor. Current status on immunoprotection of transplanted islets: Focus on islet microencapsulation. In Micro and Nanosystems, 2013, vol. 5, no. 3, p. 168 - 176. (2013 - SCOPUS).
3. QI, M. - MCGARRIGLE, J. J. - WANG, Y. - MARCHESE, E. - BOCHENEK, M. A. - VACA, P. - DAVIS, M. E. - AHN, S. J. - SCHWARTZ, A. - STRAND, B. - LACÍK, Igor - OBERHOLZER, J. Transplantation of pancreatic islets immobilized in alginate-based microcapsules : From animal studies to clinical trials. In Micro and Nanosystems, 2013, vol. 5, no. 3, p. 186 - 193. (2013 - SCOPUS).

12.) Určenie rýchlostných konštánt radikálovej polymerizácie vodorozpusťných monomérov so špeciálnym dôrazom na nabité a ionizovateľné monoméry.

Determination of rate coefficients of water-soluble monomers with special emphasis on charged/ionizable monomers.

Zodpovedný riešiteľ: Igor Lacík
Trvanie projektu: 1.6.2004 / 31.5.2014
Evidenčné číslo projektu: projekt BASF AG, Ludwigshafen, Nemecko
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 2 - Kanada: 1, Nemecko: 1
Čerpané financie: 37 500 €

Dosiahnuté výsledky:

Individuálne rýchlostné konštanty propagácie neiónových a iónových monomérov, opis kopolymerizácie v rôznych kopolymerizačných systémoch, modelovanie rýchlosti polymerizácie a distribúcií mólových hmotostí.

Výstupy:

1. SCHROOTEN, J. - LACÍK, Igor - STACH, Marek - HESSE, P. - BUBACK, M. Propagation kinetics of the radical polymerization of methylated acrylamides in aqueous solution. In Macromolecular Chemistry and Physics, 2013, vol. 214, p. 2283 - 2294. (2.386 - IF2012).

13.) Nano-vlákná pripravené elektrostatickým zvlákňovaním pre pre bio- inšpirované kompozitné materiály a ich inovatívne priemyselné aplikácie.

Electrospun Nano-fibres for bio inspired composite materials and innovative industrial applications.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.5.2012 / 31.5.2017
Evidenčné číslo projektu: MVTs - COST MP 1206
Organizácia je koordinátorom projektu: nie
Koordinátor: Kemyk, 7000 Eisenstadt
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: MVTs: 2333 €

Dosiahnuté výsledky:

Riešitelia projektu z Ústavu polymérov SAV majú skúsenosti s výskumom nanomateriálov, prípravou nanokompozitov s polymérnou maticou obsahujúcou nanoplňivá a s prípravou vodivých polymérov. V prvej fáze sme zostavili aparatúru pre elektrostatické zvlákňovanie. V ďalšej fáze budeme metódou elektrostatického zvlákňovania pripravovať nanovláknenné štruktúry pozostávajúce z polymérnej matrice a uhlíkových nanotrubičiek. V ďalších krokoch sa zapojíme do zvlákňovania vodivých polymérov, ako je napr. polypyrol.

14.) Nové materiály a zariadenia na báze vodivých polymérov a ich kompozitov.

New materials and devices based on conducting polymers and their composites.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.1.2013 / 31.12.2014
Evidenčné číslo projektu: Danube projekt, BMBF
Organizácia je koordinátorom projektu: nie
Koordinátor: Brandenburg University of Technology Cottbus–Senftenberg
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: mobilita

Dosiahnuté výsledky:

Hybridné materiály na báze polyanilínu polypyrol, ktoré sa pripravujú na Ústave polymérov sa používajú pre analytické aplikácie a vývoj senzorov a biokompatibilných polymérnych materiálov.

Programy: Bilaterálne - iné

15.) Teoretické a experimentálne štúdium polymérnych vrstiev zakotvených na povrchoch ako ochrana proti adsorpcii proteínov.

Theoretical and experimental study of polymer layers confined on surfaces as a protection against polymer adsorption.

Zodpovedný riešiteľ: Zuzana Benková
Trvanie projektu: 1.4.2013 / 30.4.2015
Evidenčné číslo projektu: SK-PT-0015-12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: mobilita

Dosiahnuté výsledky:

Získanie molekulových simulácií pre rôzne modifikované povrchy.

Výstupy:

1. BENKOVÁ, Zuzana - CIFRA, Peter. Comparison of linear and ring DNA macromolecules moderately and strongly confined in nanochannels. In Biochemical Society Transactions, 2013, vol. 41, p. 625 -629. (2.587 - IF2012).

16.) (Ko)-polymerizácia s otvorením kruhu butyrolaktónových monomérov.

Ring-opening (co)-polymerization of butyrolactone based monomers.

Zodpovedný riešiteľ: Martin Danko
Trvanie projektu: 1.1.2013 / 31.12.2015
Evidenčné číslo projektu: bilaterálny slovensko-poľský
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Poľsko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Bolo uskutočnených niekoľko polymerizácií a kopolymerizácií gamma-butyrolaktónu ako modelového laktónu s L,L-laktidom a epsilon-kaprolaktónom polymerizáciou s otvorením kruhu aniónovým a kationovým mechanizmom. Homopolymerizácia prakticky neprebiehala, kopolymerizáciou sa zabudovalo do kopolyméru do 10% butyrolaktónu.

Výstupy:

1. MOSNÁČEK, Jaroslav - BORSKÁ, Katarína - DANKO, Martin - JANIGOVÁ, Ivica. Photochemically promoted degradation of poly(epsilon-caprolactone) film. In Materials Chemistry and Physics, 2013, vol. 140, p. 191 - 199. (2.072 - IF2012).

2. BORSKÁ, Katarína - DANKO, Martin - MOSNÁČEK, Jaroslav. Photochemical treatment of benzil in poly(epsilon-caprolactone) matrix. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013: book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [P4-25].

3. RIECKA, M. - MOSNÁČEK, Jaroslav - LIPTAJ, T. - DANKO, Martin. Polymerization of renewable unsaturated gamma-lactone monomers. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013: book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [P4-81].

17.) Nové inteligentné kopolyméry na báze cyklických iminoéterov.

New stimuli-responsive copolymers based on cyclic iminoethers.

Zodpovedný riešiteľ: Juraj Kronek
Trvanie projektu: 1.1.2012 / 31.12.2014
Evidenčné číslo projektu:
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Bulharsko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

Druhý rok riešenia projektu bol zameraný na charakterizáciu spektroskopických vlastností poly(2-oxazolínov) obsahujúcich aromatickú skupinu. Zistilo sa, že prítomnosť fluorofóru neovplyvňuje len spektrálne vlastnosti, ale má vplyv aj na polaritu polymérov.

18.) Štúdium povrchových a adhézných vlastností polyimidu a jeho kopolymérov.

Study of surface and adhesive properties of polyimide and its copolymers.

Zodpovedný riešiteľ: Igor Novák
Trvanie projektu: 1.1.2012 / 31.12.2015
Evidenčné číslo projektu: -
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 2 - Česko: 2
Čerpané financie: mobilita

Dosiahnuté výsledky:

V roku 2013 boli skúmané PIS blokové kopolyméry s rôznou dĺžkou reťazcov polydimetylsiloxánu (PDMS) v PIS kopolyméri. Skúmala sa pritom povrchová energia PIS kopolymérov obsahujúcich PDMS bloky s rôznou dĺžkou v PIS kopolyméri. Pri kondicionovaní PIS kopolymérov počas 24h pri teplote 100 oC sa pre vzorku s 10 hmot. % PDMS (Mn=2000 g/mol) v PIS kopolyméri zistilo 90%-né zaplnenie povrchu kopolyméru reťazcami PDMS a pre vzorku, PDMS kopolyméru s kratšími reťazcami PDMS (Mn=1000 g/mol) pri tej istej koncentrácii sa zistilo takmer identické 84%-né zaplnenie povrchu kopolyméru PDMS, hoci v prípade nekondicionovaných vzoriek PIS kopolymérov bol rozdiel v zaplnení povrchu výrazný, pričom sa v prípade PDMS s Mn=2000 g/mol zistilo 86%-né zaplnenie povrchu kopolyméru reťazcami PDMS a pre PDMS s Mn=1000 g/mol iba 64%-né zaplnenie povrchu PIS kopolyméru.

Výstupy:

1. NOVÁK, Igor – POPELKA, Anton – SYSEL, P. – KRUPA, Igor – CHODÁK, Ivan – VALENTIN, Marian – PRACHÁR, Jozef – VANKO, V. Surface Properties of poly(imide-co-siloxane) block

copolymers. In Qatar Foundation Annual Research Conference Proceedings (ARC 13): Information Communication Technologies, Vol. 2013, ICTP 045, 24-25 November, 2013, Doha, Qatar. DOI: 10.5339/qfarf.2013.ICTP-045. Publikované online: 22. 11. 2013.

19.) Štúdium povrchových vlastností vybraných funkcionalizovaných polyolefínov.

Study of surface properties of selected functionalized polyolefins.

Zodpovedný riešiteľ: Igor Novák
Trvanie projektu: 1.1.2012 / 31.12.2015
Evidenčné číslo projektu: -
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Česko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

V roku 2013 sa skúmala povrchová energia izotaktického polypropylénu (iPP) a nízko hustotného polyetylénu (LDPE) očkovaného kyselinou itakonovou a kyselinou akrylovou. Boli zistené hodnoty povrchových energií metódou visiacej kvapky v tavenine pri teplote 200°C v argóne, pričom v prípade kyseliny akrylovej boli pre očkovaný iPP a LDPE zistené vyššie hodnoty povrchovej energie pri rovnakej koncentrácii očkovaného monoméru v porovnaní s kyselinou itakonovou. Tento rozdiel bol výraznejší v prípade povrchových energií očkovaného iPP a LDPE zistených použitím metódy sediacej kvapky z merania uhlov zmáčania.

20.) Vysoko výkonné senzory na báze vodivých polymérov a kompozitov.

High performance sensors on the base of conducting polymers and composites.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.1.2013 / 31.12.2014
Evidenčné číslo projektu: APVV SK-GR-0029-11
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 2 650.00 €

Dosiahnuté výsledky:

Boli pripravené kompozity z polyvinylfluoridovej matrice (PVDF) a uhlíkových nanotrubičiek (MWCNT) s rôznym obsahom plniva zamiešaním v tavenine. Elektrické vlastnosti pripravených materiálov boli študované pomocou meraní AC a DC vodivosti, vypočítaná hodnota perkolačného prahu bola 1.2 hm.%. Elektricky vodivé vzorky boli vystavené jedoosovej deformácii ťahom a meral sa prúd prechádzajúci vzorkou. Pozdĺžna deformácia teliesok sa monitorovala veľmi presne s laserovým-extenziometrom, ktorý umožňuje bezkontaktné meranie pozdĺžnej deformácie v troch zónach vzorky. Výsledky ukázali, že tieto materiály sa môžu použiť ako snímače deformácie.

Výstupy:

1. GEORGOUSIS, G. - PANDIS, C. - KALAMITIS, A. - GEORGIPOULOS, P. - KYRITSIS, A. -

KONTOU, E. - MICUŠÍK, Matej - CZANIKOVÁ, Klaudia - OMASTOVÁ, Mária - PISSIS, P. Strain and damage sensing in polyvinylidene fluoride-carbon nanotubes nanocomposites. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 264 - 265.

21.) Charakterizácia polymérov citlivých na vonkajšie podnety s rôznou topológiou pomocou vodnej gélovej permeačnej chromatografie.

Characterization of stimuli sensitive polymers with different topology by aqueous gel permeation chromatography.

Zodpovedný riešiteľ: Marek Stach
Trvanie projektu: 1.1.2013 / 31.12.2015
Evidenčné číslo projektu:
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Poľsko: 1
Čerpané financie: mobilita

Dosiahnuté výsledky:

V rámci projektu sa pripravili hviezdicové polyméry, ktoré sa charakterizovali pomocou gélovej permeačnej chromatografie, pričom sa optimalizovali parametre potrebné na meranie molekulových charakteristík polymérov so zložitou architektúrou. Taktiež sa pripravené polyméry použili na modifikáciu povrchu komerčných polymérov (PET, PP).

22.) Polymér-keramické nanokompozity pre vložené kondenzátory.

Polymer-ceramic nanocomposites for embedded capacitors - NanoEmbedded.

Zodpovedný riešiteľ: Zdenko Špitálsky
Trvanie projektu: 1.1.2013 / 31.12.2014
Evidenčné číslo projektu: SK-PT-0021-12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Portugalsko: 1
Čerpané financie: MVTS: 2 600 €

Dosiahnuté výsledky:

Portugalská strana pripravila CCTO častice, ktoré boli na Slovensku: a) zamiešané do polymérov; b) povrchovo modifikované pre lepšiu dispergáciu v polymérnej matici.

23.) Vplyv vodivosti na dielektrické a magnetické vlastnosti hybridných polymérnych kompozitov.

Effect of conductivity on dielectric and magnetic properties of hybrid polymer composites.

Zodpovedný riešiteľ: Zdenko Špitálsky
Trvanie projektu: 1.1.2012 / 31.12.2013
Evidenčné číslo projektu: APVV SK-CZ-0174-11

Organizácia je áno
koordinátorom projektu:
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských 1 - Česko: 1
inštitúcií:
Čerpané financie: APVV: 1 968 €

Dosiahnuté výsledky:

Pripravila sa prvá séria kompozitov, ktoré boli testované na dielektrické vlastnosti na ÚPo a magnetické na UTB.

Výstupy:

1. MOUČKA, R. - MRLIK, M. - ILČÍKOVÁ, Markéta - ŠPITALSKÝ, Zdenko - KAZANTSEVA, N. - BOBER, P. - STEJSKAL, J. Electrical transport properties of poly(aniline-co-p-phenylenediamine) and its composites with incorporated silver particles. In Chemical Papers, 2013, vol. 67, no. 8, p. 1012 - 1019. (0.879 - IF2012).

2. MOUČKA, R. - MRLIK, M. - ILČÍKOVÁ, Markéta - BOBER, R. - KAZANTSEVA, N. - STEJSKAL, J. - ŠPITALSKÝ, Zdenko. Aniline oligomers: Characterization and electrical properties. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 111 - 112.

Programy: European Regional Development Fund (ERDF)

24.) Vývoj inovatívnych postupov pre udržateľné plasty v Strednej Európe.

Innovative value chain development for sustainable plastics in Central Europe.

Zodpovedný riešiteľ: Ivan Chodák
Trvanie projektu: 1.4.2011 / 31.3.2014
Evidenčné číslo projektu: 3CE368 P1
Organizácia je nie
koordinátorom projektu:
Koordinátor: National Institute of Chemistry, Ljubljana
Počet spoluriešiteľských 14 - Taliansko: 3, Poľsko: 2, Slovensko: 4, Slovinsko: 5
inštitúcií:
Čerpané financie: 22 726 €
MVTs: 4000 €

Dosiahnuté výsledky:

Pripravili a rozdistibuovali sa početné materiály, vysvetľujúce výhody BDP, problem pri ich aplikáciách, ako aj postupy pre riešenie problémov;

Spracoval sa zoznam konzultantov, ktorí môžu poradiť pri zavádzaní BDP do praxe;

Pripravil sa postup pre certifikáciu BDP materiálov a produktov z nich na Slovensku;

Vyvinul a otestoval sa nový materiál BDP, vhodný pre technológie vytlačovania, vstrekovania, vyfukovania a vákuového tvarovania.

Výstupy:

Patentová prihláška vo viac než 40 krajinách

Programy: ERANET

25.) Aplikácia polymérnych nanokompozitov s nízkym obsahom grafenu v elektronických zariadeniach.

Applications of polymer nanocomposites with low content of graphene in electronic devices.

Zodpovedný riešiteľ:	Zdenko Špitálsky
Trvanie projektu:	1.1.2012 / 31.12.2014
Evidenčné číslo projektu:	ID 794 (NT-ERA-Net)
Organizácia je koordinátorom projektu:	nie
Koordinátor:	West Pomerian University, Szczecin
Počet spoluriešiteľských inštitúcií:	7 - Poľsko: 4, Turecko: 3
Čerpané financie:	P SAV: 48 000 €

Dosiahnuté výsledky:

Podarilo sa nám povrchovou úpravou troch rôznych typov textílií (bavlna, polyester, polyester/bavlna) polymérnymi kompozitmi s expandovaným grafitom pripraviť vodivé textílie s objemovou vodivosťou rádovo až 10⁻³ S/cm. Polyméry boli na báze polyamidov alebo akrylátového typu. Ich povrchová úprava viedla k nárastu hydrofóbného charakteru textílie a nemala výrazný vplyv na termickú stabilitu v dusíkovej atmosfére. Najlepšie výsledky sa dosiahli pre úpravu polyesterov polymérnym kompozitom na báze akrylátu s expandovaným grafitom, keď hodnota elektrickej objemovej vodivosti rádovo 10⁻⁴ S/cm neklesla ani po opakovanom vypieraní.

Zároveň sme začali s prípravou modifikovaných grafénov pre našich partnerov, keď modifikácia bola z povrchu polymérov, alebo magnetickými časticami.

Výstupy:

1. PASZKIEWICZ, S. - SZYMCZYK, A. - ŠPITALSKÝ, Zdenko - MOSNÁČEK, Jaroslav - JANUS, E. - ROSLANIEC, Z. Wpływ dodatku ekspandowanego grafitu (EG) na przebieg syntezy i charakterystyce poli(tereftalanu etyleny) modyfikowanego 1,4-cykloheksanodimetanolom (PETG). In POLIMERY-W, 2013, vol. 58, nr. 11 - 12, p. 893 - 899. (0.470 - IF2012).
2. DANKO, Martin - ILČÍKOVÁ, Markéta - MOSNÁČEK, Jaroslav - ŠPITALSKÝ, Zdenko - DOROSHENKO, M. - KOYNOV, K. Fluorescent labeling of carbon-based nanofillers for their visualization in polymer matrix. In Pomerania-Plast 2013: Materiały Polimerowe: Miedzyzdroje, Poland, 4 - 7czerwca 2013. - Szczecin, Poland: Wydawnictwo Uczelniane Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie, 2013, p. 179 - 180.
3. ILČÍKOVÁ, Markéta - MOSNÁČEK, Jaroslav - MRLÍK, M. - MIČUŠÍK, Matej - ŠPITALSKÝ, Zdenko. Reduction of graphene oxide during grafting of polystyrene from its surface. In IUPAC 2013: 44th World Chemistry Congress: Istanbul, Turkey, 11 - 16 August 2013: abstract book. - Istanbul, Turkey: Turkish Chemical Society, 2013, p. 992.
4. MOSNÁČEK, Jaroslav - ILČÍKOVÁ, Markéta - MRLÍK, M. - CSOMOROVÁ, Katarína - MIČUŠÍK, Matej - ŠPITALSKÝ, Zdenko. In situ reduction of graphene oxide during surface initiated atom transfer radical polymerization. In Pomerania-Plast 2013: Materiały Polimerowe: Miedzyzdroje, Poland, 4 - 7czerwca 2013.- Szczecin, Poland: Wydawnictwo Uczelniane Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie, 2013, p. 279 - 280.
5. NACHMAN, M. - PASZKIEWICZ, S. - ŠPITALSKÝ, Zdenko - MOSNÁČEK, Jaroslav - ROSLANIEC, Z. Influence of expanded graphite (EG) and graphene oxide (GO) on synthesis of PET/EG and PET/GOnanocomposites. In Pomerania-Plast 2013: Materiały Polimerowe: Miedzyzdroje, Poland, 4

- 7czerwca 2013. - Szczecin, Poland: Wydawnictwo Uczelniane Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie, 2013, p. 281 - 282.

6. PASZKIEWICZ, S. - SZYMCZYK, A. - ŠPITALSKÝ, Zdenko - MOSNÁČEK, Jaroslav - ROSLANIEC, Z. Morphology and non-isothermal crystallisation of poly(ethylene terephthalate)(PET)/graphite oxide(GO). In CARBON Rio 2013: The Annual World Conference on Carbon: Rio de Janeiro, Brazil, July 14 - 19, 2013: program and abstract. - Rio de Janeiro, Brazil: Brazilian Carbon Association, 2013, p. 79 - 80.

7. SZYMCZYK, A. - PASZKIEWICZ, S. - ŠPITALSKÝ, Zdenko - MOSNÁČEK, Jaroslav - ROSLANIEC, Z. Graphene and graphite oxide based PTT-block-PTMO copolymer nanocomposites: structure and properties. In CARBON Rio 2013: The Annual World Conference on Carbon: rio de Janeiro, Brazil, July 14 - 19, 2013: program and abstracts. - Rio de Janeiro, Brazil : Brazilian Carbon Association, 2013, p. 187.

8. ŽIAČKOVÁ, K. - ŠPITALSKÝ, Zdenko. Grafén - polymérne nanokompozity na povrchovú úpravu textilu. In 15. študentská vedecká konferencia: Bratislava, 13.11. 2013. - Bratislava : FCHPT STU Bratislava, 2013, p. 204 - 205.

Programy: Iné

26.) Molekulovo-dynamické simulácie imobilizovaných PEO vrstiev ako potenciálnych bariér proti adhézii proteínov.

Molecular dynamics simulations of tethered PEO layers as potential barriers to protein adhesion.

Zodpovedný riešiteľ:	Zuzana Benková
Trvanie projektu:	1.2.2010 / 31.1.2013
Evidenčné číslo projektu:	SFRH/BPD/63568/2009
Organizácia je koordinátorom projektu:	nie
Koordinátor:	REQUIMTE, Katedra chémie, Univerzita v Porte
Počet spoluriešiteľských inštitúcií:	1 - Portugalsko: 1
Čerpané financie:	financovanie postdoktorandskej stáže

27.) Nové materiály prechádzajúce fázovou premenou zo zlepšeným prestupom tepla.

New Phase Change Materials with improved heat transfer properties.

Zodpovedný riešiteľ:	Ali S A Al-Maadeed Mariam
Zodpovedný riešiteľ:	Zdenko Špitálsky
Trvanie projektu:	1.11.2011 / 31.10.2014
Evidenčné číslo projektu:	NPRP No. : 4 – 465 – 2 -173
Organizácia je koordinátorom projektu:	nie
Koordinátor:	Qatar University
Počet spoluriešiteľských inštitúcií:	1 - Katar: 1
Čerpané financie:	22 183 €

Dosiahnuté výsledky:

Pripravili sa kompozity LLDPE s voskom, ktoré boli testované na mechanické, reologické a tepelné vlastnosti. Zároveň sa zistilo, že enkapsulovaný vosk sa zahrievaním nevymýva z polymérnej matrice. Ako plnivo na zvýšenie tepelnej vodivosti sa otestoval grafit a pokovovaná drevná múčka a zároveň sa preštudoval ich vplyv na vyššie uvedené vlastnosti.

Výstupy:

1. KRATOCHVÍLA, Ján - NÓGELLOVÁ, Zuzana - ŠPITALSKÝ, Zdenko - MALÍKOVÁ, Marta - ALMAADEED, M.A. - KRUPA, Igor. Phase change materials on the base of low density polyethylene and paraffin waxes. In Sustainable Energy Storage in Buildings: the 2nd International Energy Storage Conference: Dublin, Ireland, 19 - 21st June 2013: conference programme. - Dublin, Ireland: Trinity College Dublin, 2013, p 40.
2. KRATOCHVÍLA, Ján - ŠPITALSKÝ, Zdenko - KRUPA, Igor. Rheological and electrical properties of composites based on low density polyethylene and expanded graphite. In Chemické listy, 2013, roč. 107, č. S, s. s141. (0.453 - IF2012). (2013 - Current Contents).
3. KRATOCHVÍLA, Ján - ŠPITALSKÝ, Zdenko - JOČEC MOŠKOVÁ, Daniela - TLILI, R. - BOUDENNE, A. - KRUPA, Igor. Elektrické, tepelné a dynamicko mechanické vlastnosti polymérnych kompozitov na báze LDPE a expandovaného grafitu. In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel: 65. Zjazd chemikov : Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 81.
4. KRATOCHVÍLA, Ján - ŠPITALSKÝ, Zdenko - KRUPA, Igor. Electrical conductivity and rheological behaviours of graphite filled polymer composites. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 230 - 231.
5. NÓGELLOVÁ, Zuzana - KRUPA, Igor - MALÍKOVÁ, Marta - JANIGOVÁ, Ivica - KRATOCHVÍLA, Ján - CSOMOROVÁ, Katarína - ŠPITALSKÝ, Zdenko - ALMAADEED, M. A. Phase change materials based on linear low density polyethylene/paraffin wax blends. In 15. Österreichische Chemietage: Graz, Austria, September 23 - 26, 2013. - Graz, Austria: TU Graz, 2013, pO - 183.
6. ŠPITALSKÝ, Zdenko - NÓGELLOVÁ, Zuzana - ŽIGO, Ondrej - MALÍKOVÁ, Marta - KRATOCHVÍLA, Ján - CSOMOROVÁ, Katarína - ALMAADEED, M. - KRUPA, Igor. New phase change materials with improved heat transfer properties based on the high density polyethylene and encapsulated paraffin wax. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 281.

Projekty národných agentúr

Programy: VEGA

1.) Štruktúrálna-dynamická charakterizácia objemových a priestorovo limitovaných sklotvorných a kryštalizujúcich materiálov pomocou ESR techniky.

Structure-dynamic characterization of bulk and space-limited glass-forming and crystallizing materials by means of ESR technique.

Zodpovedný riešiteľ:	Josef Bartoš
Trvanie projektu:	1.1.2012 / 31.12.2015
Evidenčné číslo projektu:	2/0017/12
Organizácia je koordinátorom projektu:	áno

Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 3 500 + 331 €

Dosiahnuté výsledky:

Kombinované vyšetrovanie modelového oligoméru 1,4-poly(izoprén)u (PIP 0.8k) s molekulovou hmotnosťou 800 g/mol pomocou dvoch externých príbovacích techník, ESR za použitia molekulovej spinovej sondy TEMPO a PALS za použitia atomickej o-Ps príby, ukázalo niekoľko koincidií medzi charakteristickými ESR a PALS teplotami, ktoré indikujú spoločný pôvod zmien v rotačno-dynamickom resp. anihilačnom procese. V rámci dynamickej hypotézy bola detailným BDS meraním v širokom teplotnom a frekvenčnom rozsahu s nadväznou fenomenologickou analýzou dielektrických spektier odhalená fyzikálna podstata týchto koincidií v kvapalnom stave PIP 0.8k v príslušných odozvách externých príbovacích techník, ktorá súvisí s rôznymi aspektami tj. vysokofrekvenčnou časťou a maximom stratového píku primárnej ? relaxácie.

2.) Dvojdimenzionálna kvapalinová chromatografia komplexných polymérových systémov.
Two-dimensional liquid chromatography of complex polymer systems.

Zodpovedný riešiteľ: Dušan Berek
Trvanie projektu: 1.1.2012 / 31.12.2014
Evidenčné číslo projektu: 2/0001/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 4 672 €

Dosiahnuté výsledky:

Zdokonaľovanie existujúcich metód a rozširovanie aplikačnej oblasti našich originálnych metód. Prvej oblasti je venovaná publikácia v Journal of Separation Science (výsledky meraní z r. 2012). V druhej oblasti ide jednak o priame aplikácie a jednak o prezentáciu potenciálu našich metód v snahe získať pokračovateľov našich štúdií keď sa tento program v Ústave polymérov uzavrie. Pôvodný zámer pokračovať v rozvoji LC s využitím úplnej adsorpcie a následnej riadenej selektívnej desorpcie sme pre nedostatok kapacity opustili. Záujem prejavil T. Chang v Kórey, ktorému sme odovzdali naše know-how. V hodnotenom období sme sa pre nedostatok kapacity nevenovali ani rozvoju metód LC pri limitných podmienkach entalpických interakcií, LC LC osobitne štúdiu úlohy bariér. O možnostiach LC LC sa podarilo presvedčiť pracovníkov Univerzity Aix- Marseille (M.Rollet a spol), ktorí s našou pomocou zostavili tri LC LC prístroje a dokonca investovali prostriedky do zostavenia preparatívneho LC LC prístroja. Na našom pracovisku sme sa venovali rozšíreniu aplikácií LC LC na blokové kopolyméry a na separáciu štvorkomponentových systémov polymérov, ako základu separácie triblokových kopolymérov. Na propagáciu metód LC všeobecne a metód LC LC osobitne bude slúžiť aj naša pomerne rozsiahla kapitola v knižnej publikácii: Physical Chemistry of Macromolecules, Macro to Nanoscales, Eds: Chin Han Chan, Chin Hua Chia, Sabu Thomas, v Apple Academic Press, ktorá vyjde vo februári 2014 <http://www.appleacademicpress.com/title.php?id=9781926895642>).

Výstupy:

1. ŠIŠKOVÁ, Alena - MACOVÁ, Eva - CORRADINI, D. - BEREK, Dušan. Liquid chromatography of synthetic polymers under critical conditions of enthalpic interactions.4: Sample recovery. In Journal of Separation Science, 2013, vol. 36, p. 2979 - 2985. (2.591 - IF2012).
2. ILLEKOVÁ, E. - KRIŠTIAK, J. - MACOVÁ, Eva - MATKO, I. - ŠAUŠA, O. Rearrangement of hexadecane molecules confined in the nanopores of a controlled pore glass using positron annihilation and differential scanning calorimetry. In Journal of Thermal Analysis and Calorimetry, 2013, vol. 113, p. 1187 - 1196. (1.982 - IF2012).
3. ŠAUŠA, O. - ILLEKOVÁ, E. - KRIŠTIAK, J. - BEREK, Dušan - MACOVÁ, Eva. PALS and DSC study of nanopores partially filled by hexadecane. In Journal of Physics: Conference Series, 2013, vol. 443, 012059.

3.) Simulácie skladania a agregácie polypeptidov.

Simulations of folding and aggregation in polypeptides.

Zodpovedný riešiteľ: Tomáš Bleha
Trvanie projektu: 1.1.2012 / 31.12.2015
Evidenčné číslo projektu: 2/0079/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 3 770 €

Dosiahnuté výsledky:

Pomocou molekulových simulácií sa preskúmali elastické vlastnosti tyčinkovitých α -závitníc pri kompresii a pri ohybe. Ukázalo sa, že pri deformácii α -závitníc dochádza k ich mechanickému zlyhaniu v dôsledku ich vyhnutia (buckling) do tvaru bumerangu. Zistili sme, že závislosť kritickej sily bucklingu f_c od dĺžky helixu L sa dá len veľmi približne popísať klasickou Eulerovou rovnicou pre makroskopické tyče. Stanovili sme aj perzistentnú dĺžku α -závitnice a príslušný elastický modul v ohybe. Získané výsledky sa uplatnia pri interpretácii mechanických vlastností biomateriálov a komplexných bioštruktúr.

Výstupy:

1. PALENČÁR, Peter - BLEHA, Tomáš. Folding of alpha-helices into bundles in long polyalanines. In Computational and Theoretical Chemistry, 2013, vol. 1006, p. 62- 69.
2. PALENČÁR, Peter - BLEHA, Tomáš. Gas-phase compaction of helical polymers. In Polymer: the International Journal for the Science and Technology of Polymers, 2013, vol. 54, p. 4955 - 4962. (3.379 - IF2012).

4.) Netradičné kompozitné nanočastice, nanomateriály a nanokonjugáty: Príprava a kolektívne vlastnosti.

Nontraditional composite nanoparticle, nanomaterials and nanoconjugates: Preparation and collective properties.

Zodpovedný riešiteľ: Ignác Capek
Trvanie projektu: 1.1.2010 / 31.12.2013
Evidenčné číslo projektu: 2/0037/10
Organizácia je koordinátorom projektu: áno

Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 5 594 €

Dosiahnuté výsledky:

Závislosť rýchlosti miniemulznej polymerizácie akrylamidu (AAM) od konverzie je popísaná krivkou s dvoma rýchlostnými intervalmi. Miniemulzná polymerizácia styrénu má tri rýchlostné intervaly. Maximálna rýchlosť polymerizácie (R_{pmax}) AAM a styrénu je lokalizovaná v oblasti nízkych ale aj stredných konverzií v závislosti od reakčných podmienok. Kompozitné nanočastice sa pripravili solubilizáciou prísady (uhlíkové nanotrubičky, polyméry, oligosacharidy,...) v monomérovej násade a jej homogenizáciou a nasledovnou polymerizáciou monoméru. Asociáty polyAAM, AAM a emulgátora vystupujú v úlohe nanočastíc resp. radikálových centier polymerizácie a sú pravdepodobne zodpovedné za pokles rýchlosti polymerizácie pri vysokých konverziách. Výraznejší pokles rýchlosti polymerizácie sa pozoroval v systémoch s prísadami ako napr. CNTs. Variácia rýchlosti polymerizácie s konverziou a koncentráciou emulgátora a monoméru je výsledkom polymerizácie monoméru a interakcie rastúcich radikálov s polymérom a prísadami. R_{pmax} klesá so vzrastom koncentrácie emulgátora v systémoch s AAM a pokles je výraznejší s hydrofilným emulgátorom. Pokles rýchlosti polymerizácie so vzrastom počtu nanočastíc je neočakávaný a poukazuje na osobitý charakter nanočasticovej povahy polymerizácie. Opačný priebeh miniemulznej polymerizácie sa pozoruje v systémoch so styrénom.

Výstupy:

1. CAPEK, Ignác. Nanosuspensions. In Encyclopedia of Colloid and Interface Science. - Springer, 2013, p. 748-782.

5.) Štrukturálne prechody stiesnených semiflexibilných makromolekúl.

Structural transitions of confined semi-flexible macromolecules.

Zodpovedný riešiteľ: Peter Cifra
Trvanie projektu: 1.1.2012 / 31.12.2015
Evidenčné číslo projektu: 2/0093/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 4 999 €

Dosiahnuté výsledky:

V náväznosti na predošlé práce sme sledovali stiesnené makromolekuly v nanokanáloch v súvislosti s analýzou genomických makromolekúl v nanofluidných zariadeniach, ale aj so situáciami v zahustenom biologickom prostredí. Pokles celkového rozmeru makromolekúl pozdĺž kanálu ich lokálnym skladaním/spätým ohybom, spolu so zvýšeným vystretím sekvencií bežiacich v kanáli vedľa seba, je známy a komplikuje linearizačné experimenty v oblasti analýzy DNA pri používaných hrúbkach kanálov. Menej známy je príbuzný efekt za prítomnosti viacerých reťazcov v kanáli pri ich prekryve, dôležitý aj v iných súvislostiach. Záujem o vyhodnotenie segregácie obmedzovaných makromolekúl pochádza aj z oblasti štúdií segregácie v bakteriálnych chromozómoch. Zatiaľ sú tieto štúdie vedené pre ohybné makromolekuly. My sme pristúpili ku vyšetreniu prekryvu a segregácie makromolekúl v kanáli

a rozšírili sme doterajšie štúdie prechodom od ohybných ku reálnejším menej ohybným reťazcom.

Výstupy:

1. RAČKO, Dušan - CIFRA, Peter. Segregation of semiflexible macromolecules in nanochannel. In Journal of Chemical Physics, 2013, vol. 138, art.no. 184904. (3.164 - IF2012).

6.) Fotochemicky aktívne systémy a značky pre polymérny výskum.

Photochemically active systems and probes for polymer research.

Zodpovedný riešiteľ:	Martin Danko
Trvanie projektu:	1.1.2013 / 31.12.2016
Evidenčné číslo projektu:	2/0112/13
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	15 676 €

Dosiahnuté výsledky:

Jednoduchá substitúcia nefluorescenčného bitiofenu karbonylom spôsobuje výrazné preusporiadanie HOMO-LUMO elektrónov, a tým aj spektrálne vlastnosti týchto derivátov. Zároveň komplexné štúdium spektrálnych vlastností tejto série ukázalo možnosti ovplyvňovania fluorescence v závislosti na polarite rozpúšťadla. Spektrálne sa charakterizovali deriváty fluorescenčného kumarínu s fenyl-semikarbazónovým mostíkom a rôznymi elektrón-akceptornými substituentami na fenyle. V excitovanom stave je vysoko polárny komplex s vnútromolekulovým prenosom náboja (ICT) stabilizovaný polárnymi rozpúšťadlami. Pre silne elektrón-akceptorný substituent –NO₂ bola pozorovaná tvorba TICT stavu s nízkym kvantovým výťažkom fluorescence v polárnych rozpúšťadlách, čo môže byť využité na senzorické vlastnosti. Dipól-dipólová interakcia tohto derivátu vedie k tvorbe H-agregátov, ktoré vykazujú fluorescenciu.

Výstupy:

1. DANKO, Martin - ANDICSOVÁ, Anita - HRDLOVIČ, Pavol - RAČKO, Dušan - VÉGH, D. Spectral characteristics of carbonyl substituted 2,2'-bithiophenes in polymer matrices and low polar solvents. In Photochemical and Photobiological Sciences, 2013, vol. 12, p. 1210 - 1219. (2.923 - IF2012).

2. LUKEŠ, V. - DANKO, Martin - ANDICSOVÁ, Anita - HRDLOVIČ, Pavol - VÉGH, D. The synthesis and examination of spectral properties of some 2,2'-bithienyl derivatives with carbonyl-containing substituents. In Synthetic Metals, 2013, vol. 165, p. 17 - 26. (2.109 - IF2012).

3. MOSNÁČEK, Jaroslav - BORSKÁ, Katarína - DANKO, Martin - JANIGOVÁ, Ivica. Photochemically promoted degradation of poly(epsilon-caprolactone) film. In Materials Chemistry and Physics, 2013, vol. 140, p. 191 - 199. (2.072 - IF2012).

4. BORSKÁ, Katarína - DANKO, Martin - MOSNÁČEK, Jaroslav. Photochemical treatment of benzil in poly(epsilon-caprolactone) matrix. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013: book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [P4-25]

7.) Materiály šité na mieru pripravené živou radikálovou polymerizáciou, sieťovaním a očkovaním.

Tailor-made materials prepared by living free radical polymerization, crosslinking and grafting.

Zodpovedný riešiteľ:	Štefan Chmela
Trvanie projektu:	1.1.2011 / 31.12.2013
Evidenčné číslo projektu:	2/0072/11
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	6 061 €

Dosiahnuté výsledky:

Výsledky štúdia sieťovania filmu polystyrénu obsahujúceho 1,4 bisbenzilu ako aditíva poukázali na efektívne sieťovanie filmu v dvoch krokoch. V prvom kroku viditeľné svetlo ($\alpha > 400$ nm) v prítomnosti molekulového kyslíka spôsobuje fotooxidáciu jedného z 1,2-dikarbonylových skupín za vzniku benzoyl peroxidových štruktúr. Vznikajúci peroxid sa následne rozloží absorpciou ďalšieho fotónu za vzniku acyloxy radikálu, ktorý sa aduje na aromatický kruh polystyrénového reťazca. Zostávajúca 1,2-dikarbonylová skupina sa potom fotoperoxiduje za vzniku benzoylperoxidovej štruktúry viazanej v bočnom reťazci polyméru. V druhom kroku sa takto vytvorený benzoylperoxid termicky rozkladá za vzniku acylperoxy radikálu, ktorý je zodpovedný za sieťovanie. Ako konkurenčná reakcia prebieha tiež degradácia polyméru. Výsledná tvorba gélu z polymérneho filmu môže byť je viac ako 80%.

Polymérové makroiniciátory (PS, PMA a PDMA) sa pripravili nitroxidmi riadenou polymerizáciou. Polymerizačná reakcia prebiehala v bloku v prítomnosti TIPNO-MMA a TIPNO pri vysokej teplote. PS a PMA-ový polymér sa použili ako makroiniciátory v post-polymerizačných reakciách s monomérom v mólovom pomere 1:2 (PS:MA; PMA:S) na prípravu kopolymérov. Získané polyméry sa analyzovali GPC a LC LCD metódou. V polymerizačnej násade (PS:MA) sa metódou LC LCD stanovilo iba malé % kopolyméru a v druhom prípade sa zatiaľ táto analýza nerobila. Postpolymerizáciou PS makroiniciátora, ktorý bol pripravený metódou NMRP v prítomnosti značky PyBTX a metylakrylátového monoméru sa stanovilo metódou LC LCD okolo 10 hm % kopolyméru PS-b-PMA v získanom polyméri.

Výstupy:

1. KOLLÁR, Jozef - CHMELA, Štefan - HRDLOVIČ, Pavol. Spectral properties of bichromophoric probes based on pyrene and benzothioxanthene in solution and in polymer matrices. In Journal of Photochemistry and Photobiology A: polymer chemistry, 2013, vol. 270, p. 28 - 36. (2.416 - IF2012).
2. LUKÁČ, Ivan - KÓSA, Csaba - HUSÁR, B. 1,4-Bisbenzil: Visible-light- and heat-assisted crosslinking of polystyrene films; Macromol. Chem. Phys. 2013, DOI: 10.1002/macp.201300553 – prijatá.
3. CHMELA, Štefan - KOLLÁR, Jozef - HRČKOVÁ, Ľudmila. Fluorescent dye-labeled TIPNO type regulator for nitroxide mediated radical polymerization. In Polymer POLYMER-13-1878 – prijatá

8.) Viacfázové polymérne systémy so špeciálnymi vlastnosťami.

Multiphase polymeric systems with special properties.

Zodpovedný riešiteľ:	Ivan Chodák
Trvanie projektu:	1.1.2010 / 31.12.2013

Evidenčné číslo projektu: 2/0185/10
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 13 278 €

Dosiahnuté výsledky:

Získali sa podrobné a originálne výsledky.

Výstupy:

1. HRACHOVÁ, J. - KOMADEL, P. - JOCHEC MOŠKOVÁ, Daniela - KRAJČI, Juraj - JANIGOVÁ, Ivica - ŠLOUF, M. - CHODÁK, Ivan. Properties of organo-clay/natural rubber nanocomposites: Effects of organophilic modifiers. In Journal of Applied Polymer Science, 2013, vol. 127, p. 3447 - 3455. (1.395 - IF2012).
2. OLČÁK, D. - HRONSKÝ, V. - FRIČOVÁ, O. - KOVALÁKOVÁ, M. - DURANKA, P. - CHODÁK, Ivan. Solid and melt-state ¹H NMR studies of relaxation processes in isotactic polypropylenes. In Journal of Polymer Research, 2013, vol. 20, iss.4, art.no.117 (9p.)
3. NOVÁK, Igor - ŠTEVIAR, Marián - POPELKA, Anton - CHODÁK, Ivan - MOSNÁČEK, Jaroslav - ŠPÍRKOVÁ, M. - JANIGOVÁ, Ivica - KLEINOVÁ, Angela - SEDLIAČIK, J. - ŠLOUF, M. Surface modification of polyethylene by diffuse barrier discharge plasma. In Polymer Engineering and Science, 2013, vol. 53, p. 516 - 523. (1.243 - IF2012).
4. NOVÁK, Igor - POPELKA, Anton - LUYT, A. S. - CHEHIMI, M. M. - ŠPÍRKOVÁ, M. - JANIGOVÁ, Ivica - KLEINOVÁ, Angela - STOPKA, P. - ŠLOUF, M. - VANKO, V. - CHODÁK, Ivan - VALENTIN, Marian. Adhesive properties of polyester treated by cold plasma oxygen and nitrogen atmospheres. In Surface and coatings technology, 2013, vol. 235, p. 407 - 416. (1.941 - IF2012). (2013 - SCOPUS).

9.) Vymedzenie podmienok degradácie najmenej stabilných polymérov používaných v umeleckých artefaktoch vplyvom svetla, tepla a za prístupu vlhkosti a kyslíka.

Specification of degradation conditions for the least stable polymers used in the museum artefacts and the effect of light, heat, humidity and oxygen.

Zodpovedný riešiteľ: Ivica Janigová
Trvanie projektu: 1.1.2012 / 31.12.2014
Evidenčné číslo projektu: 1/0147/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 8 606 €

Dosiahnuté výsledky:

V rámci projektu VEGA sa pokračovalo metódami DSC, TG a chemiluminiscencie v štúdiu termickej a termooxidačnej stability celulózy a jej derivátov (metyl, etyl, hydroxyetyl a nitrocelulózy). Okrem rôznej atmosféry (N₂, O₂) počas merania nás zaujímal aj vplyv rôznej rýchlosti ohrevu na termické charakteristiky jednotlivých vzoriek. Podľa predpokladu najnižšia termická stabilita sa prejavila pri nitrocelulóze, kde rozdiel v teplote rozkladu v porovnaní s

nemodifikovanou celulózou je viac ako 100°C. Súčasne na rozdiel od ostatných derivátov sa zaznamenal v atmosfére kyslíka len mierny pokles teploty rozkladu. Výrazný rozdiel však je v intenzite rozkladu, kde hodnoty rozkladného tepla pri najnižšej rýchlosti ohrevu v prítomnosti kyslíka dosahujú takmer dvojnásobok hodnoty tepla pri meraniach v inertnej atmosfére. S rastúcou rýchlosťou ohrevu sa rozdiel v hodnotách tepiel znižuje. Podľa predpokladu s nárastom rýchlosti ohrevu sa teploty rozkladu posúvajú k vyšším hodnotám.

Výstupy:

1. JANIGOVÁ, Ivica - PORUBSKÁ, M. - BABIČ, D. - JOMOVÁ, K. - CHODÁK, Ivan - ŠLOUF, M. Modifikácia vlastností kompozitov na báze polyamidu gama žiarením. In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel: 65. Zjazd chemikov: Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 199.

2. JANIGOVÁ, Ivica - PORUBSKÁ, M. - BABIČ, D. - ŠLOUF, M. - JOMOVÁ, K. - CHODÁK, Ivan. The effect of gamma radiation on morphology and properties of polyamide based composites. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013: book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [P2-76].

10.) Modifikované polymérne povrchy pre využitie v biomedicíne. (*Modified polymer surfaces for biomedical application.*)

Zodpovedný riešiteľ:	Juraj Kronek
Trvanie projektu:	1.1.2012 / 31.12.2014
Evidenčné číslo projektu:	2/0151/12
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	9 983 €

Dosiahnuté výsledky:

V druhom roku riešenia projektu sa získali kovové a polymérne materiály obsahujúce tenkú povrchovú vrstvu tvorenú kovalentne naviazanými reťazcami poly(2-etyl-2-oxazolínu) a poly(2-izopropenyl-2-oxazolínom) využitím elektrochemickej polymerizácie a plazmatického oškovania. Taktiež sa pripravili nanočastice z poly(2=izopropenyl-2-oxazolínu) pre transport liečiv. Po naviazaní troch rôznych hydrofóbných molekúl (pyrén, cholesterol, oktadekánový reťazec) na reťazec polyméru sa získal amfifilný polymér, ktorý vo vode tvoril micely s veľkosťou 100-300 nm v závislosti od koncentrácie polyméru, koncentrácie hydrofóbnej zložky v polyméri a typu hydrofóbnej častice. Meraním in vitro cytotoxicity na dvoch rôznych bunkových líniiach (3T3 fibroblasty, β -pankreatické bunky) pomocou MTT testu sa potvrdila biologická nezávadnosť PIPOX-u. Ďalším testom potvrdzujúcim bionezávadnosť bolo štúdium proliferácie na prietokovom cytometri.

Výstupy:

1. KRONEK, Juraj - NEDELČEV, Tomáš - MIKULEC, Marcel - KLEINOVÁ, Angela - LUSTOŇ, Jozef. Synthesis of cinnamic acid-derived 4,5-dihydrooxazoles. In Chemical Papers, 2013, vol. 67, no. 11, p. 1424 - 1432. (0.879 - IF2012).

11.) Hydrogély modifikované peptidmi pre zlepšenie imunologickej ochrany enkapsulovaných buniek.

Hydrogels modified by peptides for improvement of immunological protection of encapsulated cells.

Zodpovedný riešiteľ: Zuzana Kroneková
Trvanie projektu: 1.1.2012 / 31.12.2014
Evidenčné číslo projektu: 2/0163/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 4 820 €

Dosiahnuté výsledky:

Modifikácia PEGDA hydrogélom s afinitným peptidom k MCP-1 proteínu znížila uvoľňovanie MCP-1 z modifikovaných hydrogélom v porovnaní s nemodifikovanými hydrogélmi. Pre potvrdenie špecifickej väzby peptidu k MCP-1 proteínu bol navrhnutý tzv. kontrolný peptid KP1, ktorý obsahuje tie isté aminokyseniny, ale v "non-sense" poradí. KP1 peptid bol pripravený Fmoc syntézou a bude prečistený na HPLC v dôsledku prítomnosti vedľajších produktov.

Fmoc syntézou sa pripravil aj afinitný peptid k MCP-1 peptidu s glykolovým linkerom (APG1), ktorý by mal zlepšiť prístupnosť väzobného miesta peptidu k proteínu.

Modifikácia alginátu sodného s RGD peptidom sa optimalizuje, keďže pri prvej modifikácii došlo k výraznému zníženiu mechanických vlastností mikrokapsúl. Zatiaľ sme žiadané mechanické vlastnosti modifikovaných mikrokapsúl nezískali.

Výstupy:

1. MIHÁLOVÁ, Andrea - KRONEKOVÁ, Zuzana - KASÁK, Peter - KOLLÁRIKOVÁ, Gabriela - LAHOVÁ, M. - VÁŇA, J. - LACÍK, Igor. Peptide-functionalized hydrogels for enhancing immunolysis of encapsulated cells. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013 : book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [P6-54].

12.) Elektricky vodivé polymérne nanokompozity s modifikovanými plnivami.

Electrically conductive polymeric nanocomposites with modified fillers.

Zodpovedný riešiteľ: Mária Omastová
Trvanie projektu: 1.1.2010 / 31.12.2013
Evidenčné číslo projektu: 2/0064/10
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 10 242 €

Dosiahnuté výsledky:

Kompozitné (hybridné) materiály polypyrol/striebro boli pripravené v jednom reakčnom stupni, chemickou oxidačnou polymerizáciou pyrolu s dusičnanom strieborným vo vodnom roztoku.

Reakciou dvoch nevodivých látok vznikne kompozit, skladajúci sa z dvoch vodičov elektrického prúdu. Reakcia prebieha s vysokým výťažkom, cca 70 hm.%, ale na jeho dosiahnutie je potrebný reakčný čas niekoľko dní. Molárny pomer oxidant/monomér sa menil v týchto experimentoch od 0.5 to 3. Vodivosť väčšiny kompozitov bola rádovo 1000 S cm⁻¹. Štúdium morfológie ukázalo, že striebro je prítomné ako nanočastice veľkosti 50-100 nm, ale aj ako tyčinky a aj makroskopické vločky. Polypyrol (PPy) bol prítomný vo forme nanovlákieň a globúl. PPy bol charakterizovaný FTIR a Ramanovou spektroskopiou, štúdium ukázalo, že je štrukturálne rovnaký ako polypyrol pripravený s inými oxidačnými činidlami. Jednoduchá príprava a vysoká vodivosť polypyrol/strieborných kompozitov z nich robí potenciálne užitočné materiály pre rôzne aplikácie.

Výstupy:

1. CZANIKOVÁ, Klaudia - TORRAS, N. - ESTEVE, J. - KRUPA, Igor - KASÁK, Peter - PAVLOVA, E. - RAČKO, Dušan - CHODÁK, Ivan - OMASTOVÁ, Mária. Nanocomposite photoactuators based on an ethylene vinyl acetate copolymer filled with carbon nanotubes. In Sensors and Actuators B-Chemical, 2013, vol. 186, p. 701 - 710. (3.535 - IF2012).
2. CZANIKOVÁ, Klaudia - ILČÍKOVÁ, Markéta - KRUPA, Igor - MIČUŠÍK, Matej - KASÁK, Peter - PAVLOVA, E. - MOSNÁČEK, Jaroslav - CHORVÁT, D. Jr. - OMASTOVÁ, Mária. Elastomeric photoactuators and their investigation by confocal laser scanning microscopy. In Smart Materials & Structures, 2013, vol. 22, no. 10, art.no. 104001 (10p.)
3. MOSNÁČKOVÁ, Katarína - CHEHIMI, M.M. - FEDORKO, P. - OMASTOVÁ, Mária. Polyamide grafted with polypyrrole: formation, properties, and stability. In Chemical Papers, 2013, vol. 67, no. 8, p. 979 - 994. (0.879 - IF2012).
4. OMASTOVÁ, Mária - MOSNÁČKOVÁ, Katarína - FEDORKO, P. - TRCHOVÁ, M. - STEJSKAL, J. Polypyrrole/silver composites prepared by single-step synthesis. In Synthetic Metals, 2013, vol.166, p. 57 - 62. (2.109 - IF2012).

13.) Nanoštruktúrované polyméry a nanoštruktúra v polyméroch.

Nanostructured polymers and polymer nanostructure.

Zodpovedný riešiteľ:	Dušan Račko
Trvanie projektu:	1.1.2013 / 31.12.2016
Evidenčné číslo projektu:	2/0068/13
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	1 434 €

Dosiahnuté výsledky:

Model na voľnoobjemové kavity a doby života pozitronia bol použitý na simulovanie voľného objemu v kondenzovanej fáze uviaznenej v realistickom póre porózneho skla. Simulácie okrem poskytnutia pohľadu na voľnoobjemovú mikroštruktúru v stesnaní ukázali, že interpretácia existujúcich experimentov (ktorý bol modelovaný) je nesprávna. Odchýlky v nameranom voľnom objeme v danom 6 nm póre nie sú zrejme dôsledkom efektov stesnania, ale experiment meria aj objem kavít v kremíkovom skle. Tieto sú značne veľké (84 Å³), ale zároveň nemenia veľkosť s teplotou pre nízku rozťažnosť skla. Toho je dôsledkom, že sa priemerný voľný objem správa kvalitatívne odlišne.

Výstupy:

1. RAČKO, Dušan. The free volume of condensed phases confined in a nanopore as seen by computer simulations and compared to PALS. Acta Physica Polonica A - odoslané

14.) Mechanizmus a kinetika radikálovej polymerizácie vo vodnej fáze: rýchlostné konštanty propagácie pre kationové monoméry.

Mechanism and kinetics of radical polymerization in aqueous phase: rate constants of propagation for cationic monomers.

Zodpovedný riešiteľ: Marek Stach
Trvanie projektu: 1.1.2012 / 31.12.2014
Evidenčné číslo projektu: 2/0160/10
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 6 270 €

Dosiahnuté výsledky:

Určili sa individuálne rýchlostné konštanty radikálovej polymerizácie vodorozpusťných substituovaných akrylamidov. Študované kationové monoméry vykazujú správanie, ktoré zatiaľ nie sme schopní vysvetliť a tiež je veľmi obtiažne získať primárne výsledky ohľadne kinetiky homopolymerizácie. Definovali sa podmienky stanovenia distribúcie mólových hmotností kationových homopolymérov a kopolymérov gélovou permeačnou chromatografiou.

Výstupy:

1. SCHROOTEN, J. - LACÍK, Igor - STACH, Marek - HESSE, P. - BUBACK, M. Propagation kinetics of the radical polymerization of methylated acrylamides in aqueous solution. In Macromolecular Chemistry and Physics, 2013, vol. 214, p. 2283 - 2294. (2.386 - IF2012).

15.) Grafénové polymérne nanokompozity pre environmentálne monitorovanie.

Graphene containing polymer nanocomposites for environmental monitoring.

Zodpovedný riešiteľ: Zdenko Špitálsky
Trvanie projektu: 1.1.2012 / 31.12.2015
Evidenčné číslo projektu: 2/0119/12
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: 12 295 €

Dosiahnuté výsledky:

Pripravili sme modelový senzor na motorový olej z expandovaného grafitu a polymérnej matrice na báze styrén – izoprén – styrénového kaučuku. Bol detailne študovaný vplyv veľkosti častíc expandovaného grafitu, jeho koncentrácia v polymérnej matici a hrúbka polymérneho kompozitu na rýchlosť odozvy senzora. Zároveň bolo pozorované, že v prípade prednatiahnutia takéhoto senzora na určitú hodnotu výrazne rastie rýchlosť jeho odozvy.

Výstupy:

1. KRUPA, Igor - ŠPITALSKÝ, Zdenko - PROSTREDNÝ, M. - KRAJČI, Juraj - ALMAADEED, M. Electrically conductive composites for development of oil sensors. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 71 - 72.
2. PROSTREDNÝ, M. - ŠPITALSKÝ, Zdenko. Nanokompozity na báze grafénu s využitím pre olejové senzory. In 15. študentská vedecká konferencia: Bratislava, 13.11. 2013. - Bratislava: FCHPT STU v Bratislave, 2013, p. 202 - 203.
3. ŠPITALSKÝ, Zdenko - KRUPA, Igor - PROSTREDNÝ, M. - KRAJČI, Juraj - ALMAADEED, M. A. Electrically conductive composites based on an elastomeric matrix filled with expanded graphite for development of an oil sensor. In Pomerania-Plast 2013: Materiały Polimerowe: Miedzyzdroje, Poland, 4 - 7 czerwca 2013. - Szczecin, Poland: Wydawnictwo Uczelniane Zachodniopomorskiego Uniwersytetu Technologicznego w Szczecinie, 2013, p. 333 - 334.
4. ŠPITALSKÝ, Zdenko - KRUPA, Igor - PROSTREDNÝ, M. - KRAJČI, Juraj - ALMAADEED, M. Electrically conductive composites based on an elastomeric matrix filled with expanded graphite for development of an oil sensors. In EUROFILLERS 2013: 10th anniversary meeting: Bratislava, Slovakia, August 25 - 29, 2013: book of abstracts. - Bratislava, Slovakia: Polymer Institute of SAS, Bratislava, 2013, p. 282.

Programy: APVV

16.) Imobilizačné techniky pre prípravu biokatalyzátorov na priemyselnú produkciu prírodných aróm.

Immobilization techniques for preparation of biocatalysts for industrial production of of natural flavours.

Zodpovedný riešiteľ: Marek Bučko
Zodpovedný riešiteľ v organizácii SAV: Igor Lacík
Trvanie projektu: 1.5.2011 / 31.10.2014
Evidenčné číslo projektu: APVV-0302-10
Organizácia je koordinátorom projektu: nie
Koordinátor:
Počet spoluriešiteľských inštitúcií: 3 - Slovensko: 3
Čerpané financie: APVV: 7719 €

Dosiahnuté výsledky:

Modelové bakteriálne bunky boli imobilizované v dvoch typoch matríc – v polyelektrolytových mikrokapsulách a komerčných polyvinylalkoholových hydrogélových časticiach. Oba typy imobilizačných materiálov boli charakterizované rôznymi fyzikálno-chemickými metodikami pre pochopenie vplyvu matrice na biokatalytický potenciál imobilizovaných buniek.

17.) Fotoaktívne hybridné nanomateriály s luminiscenčnými a antimikrobiálnymi vlastnosťami

Photoactive hybrid nanomaterials with luminescent and antimicrobial properties.

Zodpovedný riešiteľ: Juraj Bujdák

Zodpovedný riešiteľ v organizácii SAV: Martin Danko
Trvanie projektu: 1.7.2012 / 31.12.2015
Evidenčné číslo projektu: APVV-0291-11
Organizácia je koordinátorom projektu: nie
Koordinátor:
Počet spoluriešiteľských inštitúcií: 3 - Slovensko: 3
Čerpané financie: APVV: 13730 €

Dosiahnuté výsledky:

Uskutočnila sa modifikácia PEG koncových hydroxylov fluorescenčným Rhodamínom B s kationovým nábojom a benzotioxantónovým chromofórom bez náboja. Modifikácie boli potvrdené FTIR spektroskopiou a GPC analýzou s fluorescenčnou a RI detekciou. Signál z RI detektora pre polymer mal rovnaký retenčný čas ako signál z FI. detektora, čo hovorí, že polymér je značený fluorofórom. Fluorescenčný PEG bude použitý na modifikáciu vrstevnatých silikátov.

Výstupy:

1. DANKO, Martin - ANDICSOVÁ, Anita - HRDLOVIČ, Pavol - RAČKO, Dušan - VÉGH, D. Spectral characteristics of carbonyl substituted 2,2'-bithiophenes in polymer matrices and low polar solvents. In Photochemical and Photobiological Sciences, 2013, vol. 12, p. 1210 - 1219. (2.923 - IF2012).

18.) Biodekorované kompozitné magnetické nanočastice: Príprava, kolektívne vlastnosti a ich aplikácie.

Biodecorated composite magnetic nanoparticles: Preparation, collective properties and applications.

Zodpovedný riešiteľ: Ignác Capek
Trvanie projektu: 1.7.2012 / 31.12.2015
Evidenčné číslo projektu: APVV-0125-11
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 2 - Slovensko: 2
Čerpané financie: APVV: 29 806 €

Dosiahnuté výsledky:

Závislosť rýchlosti miniemulznej polymerizácie butyl akrylátu (BA) od konverzie je popísaná krivkou s dvoma a štyrmi rýchlostnými intervalmi. Dva rýchlostné intervaly sa pozorovali v systéme s kationovým emulgátorom (cetyltrimetylamonium bromid) a štyri rýchlostné intervaly sa pozorovali v systémoch s aniónovým emulgátorom (dodecylsulfát sodný). Variácia rýchlosti polymerizácie s konverziou sa diskutovala v zmysle rôznych typov iniciujúcich radikálov a sily gel efektu. Rýchlosť polymerizácie prudko klesala s koncentráciou montmorilonitu. Pokles sa pripísal deaktivácii radikálov pri interakcii s ílovou prísadou.

Kompozitné magnetické nanočastice stabilizované kyselinou citrónovou sa ďalej modifikovali dextranom, DNA aptamérmi, oligosacharidmi a rastlinnými vírusmi.

Výstupy:

1. CAPEK, Ignác. Nanosuspensions. In Encyclopedia of Colloid and Interface Science. - Springer, 2013, p. 748-782.

2. CAPEK, Ignác - CAPEK, P. - HLOUŠKOVÁ, Zuzana. Decoration of iron-oxide nanoparticles by biomolecules. In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel: 65. Zjazd chemikov: Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 223 - 224.

19.) Nanoštruktúra v makromolekulových systémoch indukovaná stesnaním.

Nanostructure in macromolecular systems induced by confinement.

Zodpovedný riešiteľ: Peter Cifra
Trvanie projektu: 1.7.2012 / 31.12.2015
Evidenčné číslo projektu: APVV-0451-11
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 34 105 €

Dosiahnuté výsledky:

Porovnali sme režimy stesnania lineárnych a dlhých cyklických makromolekúl obmedzovaných v nano-kanáloch. Ďalej sme vyšetrili prekryv a segregácie makromolekúl v kanáli a rozšírili sme doterajšie štúdie prechodom od ohybných ku reálnejším menej ohybným reťazcom. Výsledky sú založené jednak na simuláciach voľnej energie pri rôznom stesnaní a tiež na priamych simuláciach procesu segregácie makromolekúl. Pre voľnú energiu sme potvrdili z teórie predpovedaný protichodný trend s rastúcou tuhosťou reťazcov pri miernom a silnom stesnaní kanálom. Dva rôzne prístupy poskytli konzistentné výsledky v súlade s teoretickou analýzou a ukázali silnejšiu tendenciu ku segregácii pre ohybnejšie makromolekuly oproti menej ohybným, aj v miere segregácie aj v jej dynamike. Vzájomné priestorové vylúčenie medzi prekrývajúcimi sa reťazcami v kanáli vedie ku zvýšeniu vystretia prekrývajúcich sa reťazcov a tento efekt je opäť silnejší pre ohybné makromolekuly, avšak slabý pre tuhšie reťazce akou je DNA. Kľúčové pri tejto analýze bolo počas segregácie zobrať správne do úvahy premenlivé predĺženie reťazcov v kanáli pre rôznu mieru prekryvu reťazcov.

Výstupy:

1. BENKOVÁ, Zuzana - CIFRA, Peter. Comparison of linear and ring DNA macromolecules moderately and strongly confined in nanochannels. In Biochemical society transactions, 2013, vol. 41, p.625 -629. (2.587 - IF2012).

2. RAČKO, Dušan - CIFRA, Peter. Segregation of semiflexible macromolecules in nanochannel. In Journal of Chemical Physics, 2013, vol. 138, art.no. 184904. (3.164 - IF2012).

20.) Technológia prípravy tenkých vrstiev karbidu kremíka: Výskum a vývoj technológií prípravy tenkých vrstiev karbidu kremíka pre aplikácie v solárnych článkoch a v tenkovrstvových súčiastkách.

Silicon carbide thin film technologies: Research and development of silicon carbide thin film technologies for application in solar cells and thin film devices.

Zodpovedný riešiteľ: Jozef Huran
Zodpovedný riešiteľ v organizácii SAV: Angela Kleinová
Trvanie projektu: 1.10.2013 / 31.12.2016

Evidenčné číslo projektu: APVV-0443-12
Organizácia je koordinátorom projektu: nie
Koordinátor: Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 485 €

Dosiahnuté výsledky:

Uskutočnili sa prvé experimenty týkajúce sa výberu podmienok meraní infračervených spektier SiC platničiek.

21.) Gumárenské zmesi s novými netradičnými plnivami pre špeciálne aplikácie.

Rubber compounds with new types of fillers for special applications.

Zodpovedný riešiteľ: Ivan Hudec
Zodpovedný riešiteľ v organizácii SAV: Ivan Chodák
Trvanie projektu: 1.10.2013 / 30.9.2016
Evidenčné číslo projektu: APVV-0694-12
Organizácia je koordinátorom projektu: nie
Koordinátor: Fakulta chemickej a potravinárskej technológie STU, Bratislava
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 4200 €

Dosiahnuté výsledky:

Projekt začal v októbri 2013 a zatiaľ sa urobili prvé práce týkajúce sa výberu škrobu ako plniva z obnoviteľných zdrojov a predbežné experimenty, zamerané na prípravu termoplastickej modifikácie, vhodnej na zamiešanie do elastomérskej matrice.

22.) Organoíly a ich kompozity s polymérmi.

Organoclay and their polymer composites.

Zodpovedný riešiteľ: Peter Komadel
Zodpovedný riešiteľ v organizácii SAV: Ivan Chodák
Trvanie projektu: 1.5.2011 / 31.10.2014
Evidenčné číslo projektu: APVV-0362-10
Organizácia je koordinátorom projektu: nie
Koordinátor: Ústav anorganickej chémie SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 29183 €

Dosiahnuté výsledky:

Prípravili sa íly povrchovo modifikované zosyntetizovanými modifikátormi (kvartérne amóniové soli s organickými ligandami) s rozličným parametrom rozpustnosti. Vyvinula sa

metóda stanovenia kompatibility modifikovaných plnív metódou reológie disperzií.

Výstupy:

1. HRACHOVÁ, J. - KOMADEL, P. - JOCHEC MOŠKOVÁ, Daniela - KRAJČI, Juraj - JANIGOVÁ, Ivica - ŠLOUF, M. - CHODÁK, Ivan. Properties of organo-clay/natural rubber nanocomposites: Effects of organophilic modifiers. In Journal of Applied Polymer Science, 2013, vol. 127, p. 3447 - 3455. (1.395 - IF2012).

23.) Využitie biofonických nanotechnológií k štúdiu mechanizmov bunkovej smrti s cieľom zvýšenia citlivosti detekcie a selektivity liečby nádorov.

Towards increased sensitivity of cancer detection and selectivity of cancer treatment: biophotonic nanotechnology applications.

Zodpovedný riešiteľ:	Pavol Miškovský
Zodpovedný riešiteľ v organizácii SAV:	Juraj Kronek
Trvanie projektu:	1.7.2012 / 31.12.2015
Evidenčné číslo projektu:	APVV-0242-11
Organizácia je koordinátorom projektu:	nie
Koordinátor:	Prírodovedecká fakulta UPJŠ Košice
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	APVV: 7157 €

Dosiahnuté výsledky:

Pokračovalo sa v štúdiu inkorporácie dextránového derivátu do LDL častice a charakterizácia dex/LDL nanočastíc. Testovalo sa použitie syntetického LDL a porovnávalo sa s LDL izolovaným z buniek.

Výstupy:

1. BUZOVÁ, D. - KASÁK, Peter - MIŠKOVSKÝ, P. - JANČURA, D. Solubilization of poorly soluble. In General Physiology And Biophysics, 2013, vol. 32, p. 201–208. (0.852 - IF2012).

24.) Progresívne polymérne technológie v biomedicíne: Polymérne mikrokapsule pre imunitnú ochranu transplantovaných pankreatických ostrovčekov v liečbe cukrovky.

Advanced polymer technologies in biomedicine: Polymer microcapsules for immunoprotection of transplanted pancreatic islets in diabetes treatment.

Zodpovedný riešiteľ:	Igor Lacík
Trvanie projektu:	1.5.2011 / 31.10.2014
Evidenčné číslo projektu:	APVV-0486-10
Organizácia je koordinátorom projektu:	áno
Koordinátor:	Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií:	8 - Nórsko: 3, Slovensko: 2, USA: 3
Čerpané financie:	APVV: 42 320 €

Dosiahnuté výsledky:

Mikrokapsule dizajnované v posledných rokoch na ÚPo SAV sú tolerované v paviánoch po

transplantácii do brušnej dutiny v prípade prázdných mikrokapsúl aj mikrokapsúl obsahujúcich paviatie pankreatické ostrovčeky. Vyjadrenie názoru na oblasť liečby cukrovky transplantáciou enkapsulovaných ostrovčiek v prehľadových článkoch. Tri pozvané prednášky na medzinárodných konferenciách.

Výstupy:

1. ROKSTAD, A. M. - BREKKE, O. L. - STEINKJER, B. - RYAN, L. - KOLLÁRIKOVÁ, Gabriela - STRAND, B. L. - SKJAK-BRAEK, G. - LAMBRIS, J. D. - LACÍK, Igor - MOLLNES, T. E. - ESPEVIK, T. The induction of cytokines by polycation containing microspheres by a complement dependent mechanism. In Biomaterials, 2013, vol. 34, p. 621-630. (7.604 - IF2012).
2. LACÍK, Igor. Current status on immunoprotection of transplanted islets: Focus on islet microencapsulation. In Micro and Nanosystems, 2013, vol. 5, no. 3, p. 168 - 176.
3. QI, M. - MCGARRIGLE, J. J. - WANG, Y. - MARCHESE, E. - BOCHENEK, M. A. - VACA, P. - DAVIS, M. E. - AHN, S. J. - SCHWARTZ, A. - STRAND, B. - LACÍK, Igor - OBERHOLZER, J. Transplantation of pancreatic islets immobilized in alginate-based microcapsules: From animal studies to clinical trials. In Micro and Nanosystems, 2013, vol. 5, no. 3, p. 186-193.

25.) Nanoštruktúrne materiály pre senzoriku.

Nanostructured materials for sensorics.

Zodpovedný riešiteľ:	Peter Lobotka
Zodpovedný riešiteľ v organizácii SAV:	Matej Mičušík
Trvanie projektu:	1.7.2012 / 31.12.2015
Evidenčné číslo projektu:	APVV-0593-11
Organizácia je koordinátorom projektu:	nie
Koordinátor:	Elektrotechnický ústav SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	APVV: 19056 €

Dosiahnuté výsledky:

Pripravili sa a charakterizovali pomocou UV-Vis rôzne kovové nanočastice pripravené na Elektrotechnickom ústave naprašovaním na povrch iónových kvapalín. Pre problémy s elektrochemickou polymerizáciou sme naštartovali alternatívnu cestu prípravy senzorických materiálov na báze elastomérnych matric a uhlíkových plnív (uhlíkové nanotrubičky, sadze). Tieto materiály sa po predbežných testoch javia ako zaujímavé senzory hlavne na detekciu priemyselných rozpúšťadiel ako n-hexán, toluén, tetrahydrofurán a pod. Túto cestu plánujeme rozšíriť o amfifilné matrice, ktoré okrem nepolárnych organických rozpúšťadiel by mohli byť citlivé aj na polárne ako napr. voda, etanol.

Výstupy:

1. MIČUŠÍK, Matej - OMASTOVÁ, Mária. Carbon nanotubes/polypyrrole hybrids. In Applied Surface Chemistry of Nanomaterials. - Paris: Nova Science Publishers, 2013, chapter. 10, p. 279 - 300.
2. TABAČIAROVÁ, Jana - MIČUŠÍK, Matej - POTSCHKE, P. - PIONTECK, J. - OMASTOVÁ, Mária. Liquid sensors based on carbon nanotubescontaining composites. In CNPComp 2013: 6th International Conference on Carbon Nanoparticle Based Composites: Dresden, Germany, September 22 to 25, 2013: collection of extended abstracts. - Dresden, Germany: Leibnitz-Institut fur Polymerforschung Dresden, 2013, [P24].

3. TABAČIAROVÁ, Jana - MIČUŠÍK, Matej - PIONTECK, J. - OMASTOVÁ, Mária. Príprava kompozitov na báze elastomérskej matrice a uhlíkových nanotrubičiek pre senzorické aplikácie. In ChemZi: slovenský časopis o chémii pre chemické vzdelávanie, výskum a priemysel: 65. Zjazd chemikov: Tatranské Matliare: 9. - 13. 9. 2013, 2013, roč. 9, č. 1, s. 207.

26.) Živá/kontrolovaná polymerizácia: Optimalizácia polymerizačného procesu pre prípravu dobre definovaných polymérov s cieľovou architektúrou a vlastnosťami - LIVICOP. *Living/controlled polymerizations: Optimization of polymerization process toward well defined polymers with targeted architecture and properties – LIVICOP.*

Zodpovedný riešiteľ: Jaroslav Mosnáček
Trvanie projektu: 1.5.2011 / 31.10.2014
Evidenčné číslo projektu: APVV-0109-10
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 65 438 €

Dosiahnuté výsledky:

V rámci vývoja LC LCD sa identifikoval vysokoselektívny systém pre separáciu materských homopolymérov z kopolymérov polystyrén - blok - poly(metyl akrylát) pomocou kvapalinovej chromatografie pri limitných podmienkach desorpcie, LC LCD. Taktiež sa našiel systém na separáciu homopolymérov poly(L-laktid) a poly(ε-kaprolaktón). Pripravili sa i poly(L-laktid) a poly(ε-kaprolaktón) obsahujúce koncové benzilové skupiny, ktoré budú následne použité na fotochemickú iniciáciu vinylových monomérov. V rámci vývoja nových techník radikálovej polymerizácie s vratnou aktiváciou, sa preštudovala photochemicky indukovaná radikálová polymerizácia s prenosom atómu v DMSO.

Výstupy:

1. CZANIKOVÁ, Klaudia - ILČÍKOVÁ, Markéta - KRUPA, Igor - MIČUŠÍK, Matej - KASÁK, Peter - PAVLOVA, E. - MOSNÁČEK, Jaroslav - CHORVÁT, D. Jr. - OMASTOVÁ, Mária. Elastomeric photo-actuators and their investigation by confocal laser scanning microscopy. In Smart Materials & Structures, 2013, vol. 22, no. 10, art.no. 104001 (10p.)
2. ILLEKOVÁ, E. - KRIŠTIAK, J. - MACOVÁ, Eva - MAŤKO, I. - ŠAUŠA, O. Rearrangement of hexadecane molecules confined in the nanopores of a controlled pore glass using positron annihilation and differential scanning calorimetry. In Journal of Thermal Analysis and Calorimetry, 2013, vol. 113, p. 1187 - 1196. (1.982 - IF2012).
3. KOLLÁR, Jozef - CHMELA, Štefan - HRDLOVIČ, Pavol. Spectral properties of bichromophoric probes based on pyrene and benzothioxanthene in solution and in polymer matrices. In Journal of Photochemistry and Photobiology A : polymer chemistry, 2013, vol. 270, p. 28 - 36. (2.416 - IF2012).
4. ŠIŠKOVÁ, Alena - MACOVÁ, Eva - CORRADINI, D. - BEREK, Dušan. Liquid chromatography of synthetic polymers under critical conditions of enthalpic interactions.4: Sample recovery. In Journal of Separation Science, 2013, vol. 36, p. 2979 - 2985. (2.591 - IF2012). ISSN 1615-9306.
5. ŠAUŠA, O. - ILLEKOVÁ, E. - KRIŠTIAK, J. - BEREK, Dušan - MACOVÁ, Eva. PALS and DSC study of nanopores partially filled by hexadecane. In Journal of Physics: Conference Series, 2013, vol. 443, 012059. (2013 - SCOPUS).

27.) Karbonická anhydráza IX ako funkčný komponent nádorovej progresie: úloha v epitelo - mezenchýmovej tranzícii a v prenose medzibunkových signálov.

Carbonic anhydrase IX as a functional component of cancer progression: the role in epithelial-mesenchymal transition and intercellular signaling.

Zodpovedný riešiteľ: Silvia Pastoreková
Zodpovedný riešiteľ v organizácii SAV: Igor Lacík
Trvanie projektu: 1.7.2012 / 31.12.2015
Evidenčné číslo projektu: APVV-0658-11
Organizácia je koordinátorom projektu: nie
Koordinátor: Virologický ústav SAV
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: APVV: 20220 €

Dosiahnuté výsledky:

Pochopenie významu parametrov prípravy chitozánových nanočastíc na ich stabilitu vo fyziologických podmienkach. Imobilizácia protilátok voči karbonickej anhydráze IX v rôznych typoch mikrokapsúl s dlhodobým účinkom inhibície.

Výstupy:

1. SEMAK, Vladislav – VNUKOVÁ, Dominika – KASÁK, Peter – JANIKOVIČOVÁ, L. – TAKÁČOVÁ, M. – ZAŤOVIČOVÁ, M. – PASTOREKOVÁ, S. – LACÍK, Igor. Chitosan nanoparticles with the inhibiting effect on carbonic anhydrase in tumor diagnosis and treatment. In Australian - Slovenian Polymer Meeting - ASPM 2013, 3-5 April 2013, Bled, Slovenia: el. zborník. - Ljubljana, Slovenia: Centre of Excellence PoliMat, 2013, p. 198.
2. VNUKOVÁ, Dominika - SEMAK, Vladislav - KASÁK, Peter - JANIKOVIČOVÁ, L. - LACÍK, Igor. Preparation and stability of chitosan nanoparticles. In Workshop Career in Polymers V: book of abstracts. - Prague, Czech Republic: Institute of Macromolecular Chemistry AS CR, v.v.i., 2013, p. [L13].
3. VNUKOVÁ, Dominika - SEMAK, Vladislav - KASÁK, Peter - JANIKOVIČOVÁ, L. - LACÍK, Igor. Stability of chitosan nanoparticles. In XXI International Conference on Bioencapsulation: Berlin, Germany, August 28 -30, 2013: abstract book. - Berlin, Germany: TU Berlin, Bioencapsulation Research Group, 2013, p. 218 - 219.

28.) Príprava nanoštrukturovaných filmov, ich integrácia s biorozpoznávacími elementami a ich následné využitie.

Preparation of nanostructured interphases, their integration with bioelements and subsequent use.

Zodpovedný riešiteľ: Ján Tkáč
Zodpovedný riešiteľ v organizácii SAV: Jaroslav Mosnáček
Trvanie projektu: 1.7.2012 / 31.12.2015
Evidenčné číslo projektu: APVV-0282-11
Organizácia je koordinátorom projektu: nie
Koordinátor: Chemický ústav SAV
Počet spoluriešiteľských inštitúcií: 0

Čerpané financie: APVV: 4580 €

Dosiahnuté výsledky:

Zosyntetizovali a aplikovali sa deriváty lipoovej kyseliny s zwitteriónovým charakterom na báze sulfo- a karboxybetaínov, ktoré po príprave monovrstiev znižujú nešpecifickú adsorpciu proteínov a zvyšujú selektivitu detekcie.

Výstupy:

1. BERTÓK, T. - KLUKOVA, L. - SEDIVA, A. - KASÁK, Peter - SEMAK, Vladislav - MIČUŠÍK, Matej - OMASTOVÁ, Mária - CHOVANOVÁ, L. - VLČEK, M. - IMRICH, R. - VIKARTOVSKÁ, A., Welwardová - TKÁČ, J. Ultrasensitive impedimetric lectin biosensors with efficient antifouling properties applied in glycoprofiling of human serum samples. In Analytical Chemistry, 2013, vol. 85, p. 7324 - 7332. (5.695 - IF2012).
2. SOBOLČIAK, Patrik - ŠPÍREK, M. - KATRLÍK, J. - GEMEINER, P. - LACÍK, Igor - KASÁK, Peter. Light-switchable polymer from cationic to zwitterionic form: Synthesis, characterization, and interactions with DNA and bacterial cells. In Macromolecular Rapid Communications, 2013, vol. 34, p. 635 - 639. (4.929 - IF2012).
3. BERTÓK, T. - KASÁK, Peter - TKÁČ, J. Electrochemical evaluation of the sensitivity, detection limit and non-specific interactions of the nanostructured protein-based affinity biosensor. In Current Opinion in Biotechnology, 2013, vol. 24 Suppl., p. S64.

Programy: Štrukturálne fondy EÚ Regionálny operačný program

29.) Moderné ekologicky nezávadné polyméry.

Advanced Bio-Friendly Polymers.

Zodpovedný riešiteľ: Jaroslav Mosnáček
Trvanie projektu: 1.10.2012 / 30.9.2014
Evidenčné číslo projektu: HUSK/1101/1.2.1/0209
Organizácia je koordinátorom projektu: áno
Koordinátor: Ústav polymérov SAV
Počet spoluriešiteľských inštitúcií: 1 - Maďarsko: 1
Čerpané financie: 261 886 €
MVTs: 5 000 €

Dosiahnuté výsledky:

Prešetrili sa spektrálne, termické a mechanické vlastnosti biodegradovateľných fólií na báze poly(L-laktidu) a poly(hydroxybutyrátu), ako aj Ecoflexu pred a po rôznom čase ich ožarovania v kolotoči, Spectramate a v kvetináči na slnku. Zistila sa výrazná oxidácia častí fólií, ktoré boli nielen vystavené slnečnému žiareniu ale i tých častí, ktoré boli prikryté zeminou a teda ich fotooxidácia bola minimálna a pravdepodobne muselo teda dochádzať čiastočne i k ich biooxidácii.

Pripravili sa i nové typy superabsorbérov - hydrogélův tvorených kopolymérmi akrylamidu so sodnou soľou 2-hydroxyakrylovej kyseliny.

Výstupy:

1. MOSNÁČEK, Jaroslav - BORSKÁ, Katarína - DANKO, Martin - JANIGOVÁ, Ivica. Photochemically promoted degradation of poly(epsilon-caprolactone) film. In Materials Chemistry and Physics, 2013, vol. 140, p. 191 - 199. (2.072 - IF2012).

2. MOSNÁČEK, Jaroslav - MOSNÁČKOVÁ, Katarína - RYCHLÝ, Jozef - CHMELA, Štefan - DANKO, Martin - KOLLÁR, Jozef - LACÍK, Igor. Structural changes of LDPE mulching foils after one season of application. In Natural and Artificial Ageing of Polymers: 6th European Weathering Symposium: Bratislava, 11-13 September 2013: CEEES Publication no. 16. - Pfinztal, Germany: Gessellschaft fur Umweltsimulation e.V. GUS, 2013, p. 173 - 183.

3. STLOUKAL, P. - RYCHLÝ, Jozef - RYCHLÁ, Lýdia - VERNEY, V. - COMMEREUC, S. - KOUTNÝ, M. Chemiluminescence from pre-oxidized ecoflex polymers. In Natural and Artificial Ageing of Polymers: 6th European Weathering Symposium: Bratislava, 11-13 September 2013: CEEES Publication no. 16. - Pfinztal, Germany: Gessellschaft fur Umweltsimulation e.V. GUS, 2013, p. 347 - 356.

Programy: Štrukturálne fondy EÚ Výskum a vývoj

30.) Reinžiniering produktového portfólia VIPO, a.s.

Adjusting the product portfolio of VIPO.

Zodpovedný riešiteľ:	Jozef Preťo
Zodpovedný riešiteľ v organizácii SAV:	Ivan Chodák
Trvanie projektu:	1.2.2010 / 28.2.2013
Evidenčné číslo projektu:	26220220091 OP VaV-2009/2.2/03-SORO
Organizácia je koordinátorom projektu:	nie
Koordinátor:	VIPO a.s., Partizánske
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	988 €

Dosiahnuté výsledky:

V rámci projektu úlohou ústavu bola podrobná charakterizácia adhezív, vyvinutých vo VIPO. Merali sa parametre adhézie, viskozita, lesk a povrchové vlastnosti.

Výstupy:

1. NOVÁK, Igor - POPELKA, Anton - SEDLIAČIK, J. - CHODÁK, Ivan - KLEINOVÁ, Angela - JURKOVIČ, P. Surface properties of oak wood treated by barrier discharge plasma. In Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 1st International Conference on Wood Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 – 19 September, 2013 - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 162 - 165.

2. NOVÁK, Igor - POPELKA, Anton - CHODÁK, Ivan - SEDLIAČIK, J. - VANKO, V. - PREŤO, J. Pre-treatment of beech wood by radio-frequency plasma. In Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 1st International Conference on Wood Composites, Modification and Machining: Kiry, Koscielisko, Poland, 17 – 19 September, 2013 - Kiry, Poľsko: Conference Center Kiry, 2013, no. 81, p. 166 - 169.

3. NOVÁK, Igor - CHODÁK, Ivan - SEDLIAČIK, J. - VANKO, V. - MATYAŠOVSKÝ, J. - ŠIVOVÁ, Mária. Pre-treatment of beech wood by cold plasma. In Annals of Warsaw University of Life Sciences - SGGW : Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21th Century“: Warsaw (Rógow), Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 288-291.

4. NOVÁK, Igor - POPELKA, Anton - CHODÁK, Ivan - SEDLIAČIK, J. - PREŤO, J. – PRACHÁR, Jozef - CHEHIMI, M. M. - ŠIVOVÁ, Mária. Modification of polyester-based foil by cold plasma for furniture applications. In Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21th Century“: Warsaw (Rógow),

Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 283 - 287. ISSN 1898-5912. Pozvaná prednáška – IN

5. NOVÁK, Igor - POPELKA, Anton - SEDLIAČIK, J. - CHODÁK, Ivan - VANKO, V. – TÓTH, A. - JURKOVIČ, P. - PRACHÁR, Jozef - ŠIVOVÁ, Mária. Modification of polyamide foil by diffuse coplanar barrier discharge plasma for furniture applications. In Annals of Warsaw University of Life Sciences - SGGW: Forestry and Wood Technology, 27th International Conference „Wood – the Material of 21th Century“: Warsaw (Rógow), Poland, 18 – 20 November, 2013 - Rógow, Poľsko: Conference Center Rógow, 2013, no. 83, p. 292 - 296.

6. NOVÁK, Igor - VALENTIN, Marian - CHODÁK, Ivan - ŠPÍRKOVÁ, M. - SEDLIAČIK, J. - KLEINOVÁ, Angela - VANKO, V. Oak wood modification by atmospheric discharge plasma. In CCT 2013: 44th International Conference on Coatings Technology: Pardubice, Czech Republic, May 20 -22, 2013: conference proceedings. - Pardubice, Czech Republic: University of Pardubice, 2013, vol. 44, P. 229 - 234.

31.) Výskum aplikačného potenciálu obnoviteľných a recyklovaných materiálov a informačných technológií v gumárskom priemysle.

Research on application potential of renewable and recycled materials and information technologies in rubber industry.

Zodpovedný riešiteľ:	Jozef Preťo
Zodpovedný riešiteľ v organizácii SAV:	Ivan Chodák
Trvanie projektu:	1.7.2012 / 31.12.2014
Evidenčné číslo projektu:	828524, kód výzvy OPVaV-2011/2.2/07-SORO
Organizácia je koordinátorom projektu:	nie
Koordinátor:	VIPO a.s., Partizánske
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	6 329 €

Dosiahnuté výsledky:

Vyvinul sa spôsob analýzy typov gumovej drviny pochádzajúcej z neznámych zdrojov, ktorý umožňuje spoľahlivú kontrolu použitia materiálu pre konkrétnu aplikáciu.

Vyvinul sa postup fyzikálnej modifikácie škrobu, ktorý umožňuje zapracovanie škrobu do gumárskych zmesí vo forme termoplastického materiálu.

Výstupy: Interné správy

Programy: Centrá excelentnosti SAV

32.) Výskum medicínsky významných sacharidových derivátov.

Research on medicinally significant saccharide derivatives.

Zodpovedný riešiteľ:	Slavomír Bystrický
Zodpovedný riešiteľ v organizácii SAV:	Juraj Kronek
Trvanie projektu:	1.2.2009 / 31.1.2013
Evidenčné číslo projektu:	Akronym Glykomed
Organizácia je koordinátorom projektu:	nie

Koordinátor: Chemický ústav SAV - koordinátor
Počet spoluriešiteľských inštitúcií: 0
Čerpané financie: SAV: 1114 €

Dosiahnuté výsledky:

Projekt sa ukončil štúdiom modelovej reakcie poly(2-isopropenyl-2-oxazolínu) s kyselinou D-glukurónovou ako možnosťou prípravy polysacharidových vakcín.

Výstupy:

1. KRONEK, Juraj - MIKULEC, Marcel - ZAHORANOVÁ, Anna - KRONEKOVÁ, Zuzana - PAULOVÍČOVÁ, E. - PAULOVÍČOVÁ, L. - FARKAŠ, P. Poly(2-oxazolines) with different architecture for drug delivery. In EPF 2013: European Polymer Congress: Pisa, Italy, June 16 - 21, 2013 : book of abstract. - Pisa, Italy: European Polymer Federation, 2013, p. [06-36].

33.) Centrum Excelentnosti pre Funkcionalizované viacfázové materiály – FUN-MAT.
Center of Excellence for Functionalized Multiphase Materials – FUN-MAT.

Zodpovedný riešiteľ: Marián Krajčí
Zodpovedný riešiteľ v organizácii SAV: Jaroslav Mosnáček
Trvanie projektu: 1.8.2011 / 31.12.2014
Evidenčné číslo projektu: Akronym FUN-MAT
Organizácia je koordinátorom projektu: nie
Koordinátor: Fyzikálny ústav SAV
Počet spoluriešiteľských inštitúcií: 5 - Slovensko: 5
Čerpané financie: SAV: 3342 €

Dosiahnuté výsledky:

Pripravili sa kompozity s rôznymi plnivami ako napr. Striebornými časticami, Kovalentne sa modifikovali povrchy rôznych plniv ako uhlíkových nanotrubičiek alebo karbonyl železa. Zamiešaním takýchto plniv do polymérnych matric sa pripravili kompozity s novými vlastnosťami. Modifikácia uhlíkových nanotrubičiek zabezpečila dobrú dispegovateľnosť a kompatibilitu s blokovým kopolymérom styrén-b-izopréen-b-styrén, pričom sa pripravili fotoaktujúce termoplastické elastoméry. Modifikácia karbonyl železa cholesterylovými skupinami zlepšila stabilitu magnetoreologických suspenzií. Modifikovali sa taktiež povrchy polymérnych filmov. Benzilové skupiny v bočnom reťazci polymérov sa použili na očkovanie polymérnych filmov. Foto- a termostabilizátory obsahujúce fotolabilnú diazóniovú skupinu sa použili na modifikáciu povrchov oplazmovaných polypropylénových filmov, čím sa zastabilizovala ich hydrofilnosť. Benzil sa taktiež použil na fotochemicky riadenú degradovateľnosť filmov na báze poly(epsilon-kaprolaktónu). Svetlo sa použilo i na cielené uvoľňovanie DNA a bakteriálnych buniek z polyméru.

Výstupy:

1. MOSNÁČEK, Jaroslav - LUKÁČ, Ivan - BERTOLDO, M. - CIARDELLI, F. Applicability of photochemically generated pendant benzoyl peroxides in both grafting from an grafting to techniques. In Chemical Papers, 2013, vol. 67, no. 1, p. 9 - 17. (0.879 - IF2012).

2. MOSNÁČEK, Jaroslav - BORSKÁ, Katarína - DANKO, Martin - JANIGOVÁ, Ivica. Photochemically promoted degradation of poly(epsilon-caprolactone) film. In Materials Chemistry and Physics, 2013, vol. 140, p. 191 - 199. (2.072 - IF2012).

3. MOUČKA, R. - MRLÍK, M. - ILČÍKOVÁ, Markéta - ŠPITALSKÝ, Zdenko - KAZANTSEVA, N. - BOBER, P. - STEJSKAL, J. Electrical transport properties of poly(aniline-co-p-phenylenediamine) and its composites with incorporated silver particles. In Chemical Papers, 2013, vol. 67, no. 8, p. 1012 - 1019. (0.879 - IF2012).
4. MRLÍK, M. - ILČÍKOVÁ, Markéta - PAVLÍNEK, V. - MOSNÁČEK, Jaroslav - PEER, P. - FILIP, P. Improved thermooxidation and sedimentation stability of covalently-coated carbonyl iron particles with cholesteryl groups and their influence on magnetorheology. In Journal of Colloid and Interface Science, 2013, vol. 396, p. 146 - 151. (3.172 - IF2012).
5. NOVÁK, Igor - ŠTEVIAR, Marián - POPELKA, Anton - CHODÁK, Ivan - MOSNÁČEK, Jaroslav - ŠPÍRKOVÁ, M. - JANIGOVÁ, Ivica - KLEINOVÁ, Angela - SEDLIAČIK, J. - ŠLOUF, M. Surface modification of polyethylene by diffuse barrier discharge plasma. In Polymer Engineering and Science, 2013, vol. 53, p. 516 - 523. (1.243 - IF2012).
6. ILČÍKOVÁ, Markéta - CZANIKOVÁ, Klaudia - MOSNÁČEK, Jaroslav - MIČUŠÍK, Matej - KASÁK, Peter - OMASTOVÁ, Mária - CHORVÁT, D. Jr. - KRUPA, Igor - ŠLOUF, M. - KOYNOV, K. Photoactuating of materials designed for haptic aid-tablets for visually impaired people based on styrene-b-isoprene-b-styrene block copolymer nanocomposites. In Chemik: miesiecznik naukowo-techniczny, 2013, tom. 67, nr. 3, p. 228 - 231.
7. SOBOLČIAK, Patrik - ŠPÍREK, M. - KATRLÍK, J. - GEMEINER, P. - LACÍK, Igor - KASÁK, Peter. Light-switchable polymer from cationic to zwitterionic form: Synthesis, characterization, and interactions with DNA and bacterial cells. In Macromolecular Rapid Communications, 2013, vol. 34, p. 635 - 639. (4.929 - IF2012).

Programy: Iné projekty

34.) Centrum aplikovaného výskumu nových materiálov a transferu technológií.

Centre for applied research of new materials and technology transfer.

Zodpovedný riešiteľ:	Jaromír Pastorek
Zodpovedný riešiteľ v organizácii SAV:	Mária Omastová
Trvanie projektu:	1.9.2013 / 31.8.2015
Evidenčné číslo projektu:	kód ITMS projektu 262 402 200 88
Organizácia je koordinátorom projektu:	nie
Koordinátor:	P SAV
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	0 €

Dosiahnuté výsledky:

Začalo sa s budovaním Centra aplikovaného výskumu nových materiálov a transferu technológií. Dodávateľ dodal na pracovisko prvých sedem prístrojov, ktoré skvalitňujú výskumnú základňu Ústavu polymérov SAV.

Programy: Vedecko-technické projekty

35.) Otestovanie vhodnosti spracovania laboratórne vyvinutého biodegradovateľného materiálu technológiou vstrekovania a príprava materiálu pre prevádzkové skúšky v rámci prenosu výsledkov výskumu do praxe. *(Testing the applicability of developed biodegradable material for injection – molding technology and preparation of material for pilot tests aimed to technology transfer.)*

Zodpovedný riešiteľ:	Peter Šišovský
Zodpovedný riešiteľ v organizácii SAV:	Ivan Chodák
Trvanie projektu:	1.12.2012 / 31.3.2013
Evidenčné číslo projektu:	Dotácie na vedecko-technické služby č. 2012-16023/44330:1-11
Organizácia je koordinátorom projektu:	nie
Koordinátor:	Slovenský plastikársky klaster
Počet spoluriešiteľských inštitúcií:	0
Čerpané financie:	10 000 €

Dosiahnuté výsledky:

Vyvinutá kompozícia na báze biodegradovateľných plastov sa v rámci projektu otestovala v spolupráci s firmou ATIX Liptovský Ján z hľadiska výroby vstrekovateľných produktov. Pre experiment v poloprevádzkovom meradle sa pripravilo 100 kg granulátu a tento sa testoval na bežnom zariadení pre injekčné vstrekovanie, na ktorom sa použilo niekoľko typov foriem. Po počiatočných drobných úpravách postupu, ktoré spočívali výlučne v úprave teplotného režimu, bolo možné vyrobiť z hľadiska kvality dokonalé výlisky pri použití foriem niekoľkých typov.

Príloha C

Publikačná činnosť organizácie (zoradená podľa kategórií)

ABA Články (štúdie a state) v časopisoch a zborníkoch v rozsahu vedeckej monografie vydané v zahraničných vydavateľstvách

Počet záznamov: 1

ABA01

1. CAPEK, Ignác. Nanosuspensions. In *Encyclopedia of Colloid and Interface Science*. - Springer, 2013, p. 748-782. ISBN 978-3-642-20664-1.

ABC Kapitoly vo vedeckých monografiách vydané v zahraničných vydavateľstvách

Počet záznamov: 2

ABC01

1. KRONEK, Juraj - PAULOVÍČOVÁ, E. - PAULOVÍČOVÁ, L. - KRONEKOVÁ, Zuzana - LUSTOŇ, Jozef. Biocompatibility and immunocompatibility assessment of poly(2-oxazolines). In *Practical applications in biomedical engineering*. - Rijeka, Croatia: InTech, 2012, chapter 11, p. 258 - 284. ISBN 978-953-51-0924-2.

ABC02

2. MIČUŠÍK, Matej - OMASTOVÁ, Mária. Carbon nanotubes/polypyrrole hybrids. In *Applied Surface Chemistry of Nanomaterials*. - Paris: Nova Science Publishers, 2013, chapter. 10, p. 279 - 300. ISBN 978-1-62808-351-4.

ADCA Vedecké práce v zahraničných karentovaných časopisoch impaktovaných

Počet záznamov: 47

ADCA01

1. ATTIA, M. F. - AZIB, T. - SALMI, Z. - SINGH, A. - DECORSE, P. - BATTAGLINI, N. - LECOQ, Helene - OMASTOVÁ, Mária - HIGAZY, A. A. - ELSHAFEI, A. M. - HASHEM, M. M. - CHEHIMI, M. M. One-step UV-induced modification of cellulose fabrics by polypyrrole/silver nanocomposite films. In *Journal of Colloid and Interface Science*, 2013, vol. 393, p. 130 - 137. (3.172 - IF2012). ISSN 0021-9797.

ADCA02

2. BARTOŠ, Josef - ŠVAJDLENKOVÁ, Helena - ZALESKI, R. - EDELMANN, M. - LUKEŠOVÁ, Miroslava. Spin probe dynamics in relation to free volume in crystalline organics by means of ESR and PALS: n-Hexadecane. In *Physica B: Condensed Matter*, 2013, vol. 430, p. 99 - 105. (1.327 - IF2012). ISSN 0921-4526.

ADCA03

3. BARTOŠ, Josef - ŠVAJDLENKOVÁ, Helena - YU, Y. - DLUBEK, G. - KRAUSE-REHBERG, R. Molecular probe dynamics and free volume in glass-formers: 1,2- and 2,4-poly(butadiene)s. In *Chemical Physics Letters*, 2013, vol. 584, p. 88 - 92. (2.145 - IF2012). ISSN 0009-2614.

ADCA04

4. BENKOVÁ, Zuzana - CIFRA, Peter. Comparison of linear and ring DNA macromolecules moderately and strongly confined in nanochannels. In *Biochemical society transactions*, 2013, vol. 41, p. 625 - 629. (2.587 - IF2012). ISSN 0300-5127.

ADCA05

5. BERTÓK, T. - KLUKOVA, L. - SEDIVA, A. - KASÁK, Peter - SEMAK, Vladislav - MIČUŠÍK, Matej - OMASTOVÁ, Mária - CHOVANOVÁ, L. - VLČEK, M. - IMRICH, R. - VIKARTOVSKÁ, Alica, Welwardová - TKÁČ, J. Ultrasensitive impedimetric lectin biosensors with efficient antifouling properties applied in glycoprofiling of human serum samples. In *Analytical Chemistry*, 2013, vol. 85, p. 7324 - 7332. (5.695 - IF2012). ISSN 0003-2700.

ADCA06

6. BONNEFOND, A. - MIČUŠÍK, Matej - PAULIS, M. - LEIZA, J. R. - TEIXEIRA, R. F.A. - BON, S.A.F. Morphology and properties of waterborne adhesives made from hybrid polyacrylic/montmorillonite clay colloidal dispersions showing improved tack and shear resistance. In *Colloid and Polymer Science*, 2013, vol. 291, p. 167 - 180. (2.161 - IF2012). ISSN 0303-402X.

ADCA07

7. CZANIKOVÁ, Klaudia - TORRAS, N. - ESTEVE, J. - KRUPA, Igor - KASÁK, Peter - PAVLOVA, E. - RAČKO, Dušan - CHODÁK, Ivan - OMASTOVÁ, Mária. Nanocomposite photoactuators based on an ethylene vinyl acetate copolymer filled with carbon nanotubes. In *Sensors and Actuators B-Chemical*, 2013, vol. 186, p. 701 - 710. (3.535 - IF2012). ISSN 0925-4005.

ADCA08

8. CZANIKOVÁ, Klaudia - ILČÍKOVÁ, Markéta - KRUPA, Igor - MIČUŠÍK, Matej - KASÁK, Peter - PAVLOVA, E. - MOSNÁČEK, Jaroslav - CHORVÁT, D. Jr. - OMASTOVÁ, Mária. Elastomeric photo-actuators and their investigation by confocal laser scanning microscopy. In *Smart Materials & Structures*, 2013, vol. 22, no. 10, art.no. 104001 (10p.) ISSN 0964-1726.

ADCA09

9. DANKO, Martin - MIČUŠÍK, Matej - OMASTOVÁ, Mária - BUJDÁK, Juraj - CHORVÁT, Dušan Jr. Spectral characterisation of new organic fluorescent dyes with an alkoxysilane moiety and their utilisation for the labelling of layered silicates. In *Chemical papers*, 2013, vol. 67, no. 1, p. 18-28. (0.879 - IF2012). ISSN 0366-6352 Print.

ADCA10

10. DANKO, Martin - ANDICSOVÁ, Anita - HRDLOVIČ, Pavol - RAČKO, Dušan - VÉGH, D. Spectral characteristics of carbonyl substituted 2,2'-bithiophenes in polymer matrices and low polar solvents. In *Photochemical and Photobiological Sciences*, 2013, vol. 12, p. 1210 - 1219. (2.923 - IF2012). ISSN 1474-905X.

ADCA11

11. GALÁŘ, P. - DZURNÁK, B. - MALÝ, P. - ČERMÁK, J. - KROMKA, A. - OMASTOVÁ, Mária - REZEK, B. Chemical changes and photoluminescence properties of UV modified polypyrrole. In *International Journal of Electrochemical Science*, 2013, vol. 8, p. 57 - 70. ISSN 1452-3981.

ADCA12

12. HRACHOVÁ, J. - KOMADEL, P. - JOCHEC MOŠKOVÁ, Daniela - KRAJČI, Juraj - JANIGOVÁ, Ivica - ŠLOUF, M. - CHODÁK, Ivan. Properties of organo-clay/natural rubber nanocomposites: Effects of organophilic modifiers. In *Journal of Applied Polymer Science*, 2013, vol. 127, p. 3447 - 3455. (1.395 - IF2012). ISSN 0021-8995.

ADCA13

13. HRONEC, M. - FULAJTÁROVÁ, K. - MIČUŠÍK, Matej. Influence of furanic polymers on selectivity of furfural rearrangement to cyclopentanone. In *Applied Catalysis A: General*, 2013, vol. 468, p. 426 - 431. (3.410 - IF2012). ISSN 0926-860X.

ADCA14

14. HUDEC, B. - HUŠEKOVÁ, K. - ROŠOVÁ, A. - ŠOLTÝS, J. - RAMMULA, R. - KASIKOV, A. - UUSTARE, T. - MIČUŠÍK, Matej - OMASTOVÁ, Mária - AARIK, J. - FRÖHLICH, K. Impact of plasma treatment on electrical properties of TiO₂/RuO₂ based DRAM capacitor. In *Journal of Physics D: Applied Physics*, 2013, vol. 46, 385304. (2.528 - IF2012). (2013 - Current Contents, WOS, SCOPUS). ISSN 0022-3727.

ADCA15

15. HURAN, J. - VALOVIČ, A. - BOHÁČEK, P. - SHVETSOV, V.N. - KOBZEV, A.P. - BORZAKOV, S.B. - KLEINOVÁ, Angela - SEKÁČOVÁ, M. - ARBET, J. - SASINKOVÁ, V. The effect of neutron irradiation on the properties of SiC and SiC(N) layer prepared by plasma enhanced chemical vapor deposition. In *Applied Surface Science*, 2013, vol. 269, p. 88-91. (2.112 - IF2012). (2013 - Current Contents, WOS, SCOPUS). ISSN 0169-4332.

ADCA16

16. HURAN, J. - BOHÁČEK, P. - SHVETSOV, V. N. - KOBZEV, A. P. - KLEINOVÁ, Angela - BORZAKOV, S.B. - HRUBČÍN, L. - SEKÁČOVÁ, M. - BALALYKIN, N. I. Neutron-irradiation effect on the electrical characteristics of amorphous silicon carbide and nitrogen-doped silicon carbide films prepared by PECVD technology. In *Physica status solidi A. Applications and materials science*, 2013, vol. 210, p. 2756-2761. (1.469 - IF2012). (2013 - Current Contents). ISSN 1862-6300.

ADCA17

17. CHUBAR, N. - GERDA, V. - MEGANTARI, O. - MIČUŠÍK, Matej - OMASTOVÁ, Mária - HEISTER, K. - MAN, P. - FRAISSARD, J. Applications versus properties of Mg-Al layered double hydroxides provided by their syntheses methods: Alkoxide and alkoxide-free sol-gel syntheses and hydrothermal precipitation. In *Chemical Engineering Journal*, 2013, vol. 234, p. 284 - 299. (3.473 - IF2012). ISSN 1385-8947.

ADCA18

18. ILLEKOVÁ, E. - KRIŠTIÁK, J. - MACOVÁ, Eva - MAŤKO, I. - ŠAUŠA, O. Rearrangement of hexadecane molecules confined in the nanopores of a controlled pore glass using positron annihilation and differential scanning calorimetry. In *Journal of Thermal Analysis and Calorimetry*, 2013, vol. 113, p. 1187 - 1196. (1.982 - IF2012). ISSN 1388-6150.

ADCA19

19. KOLLÁR, Jozef - CHMELA, Štefan - HRDLLOVIČ, Pavol. Spectral properties of bichromophoric probes based on pyrene and benzothioxanthene in solution and in polymer matrices. In *Journal of Photochemistry and Photobiology A : polymer chemistry*, 2013, vol. 270, p. 28 - 36. (2.416 - IF2012). ISSN 1010-6030.

ADCA20

20. KOSIDLO, U. - OMASTOVÁ, Mária - MIČUŠÍK, Matej - ĆIRIĆ-MARJANOVIĆ, G. - RANDRIAMAHAZAKA, H. - WALLMERSPERGER, T. - AABLOO, A. - KOLARIC, I. - BAUERNHANS, T. Nanocarbon based ionic actuators - a review. In *Smart Materials & Structures*, 2013, vol. 22, art.no. 104022 [30 p.]. (2.024 - IF2012). (2013 - Current Contents). ISSN 0964-1726.

ADCA21

21. KRATOCHVÍLA, Ján - BOUDENNE, A. - KRUPA, Igor. Effect of filler size on thermophysical and electrical behavior of nanocomposites based on expanded graphite nanoparticles filled in low-density polyethylene matrix. In *Polymer Composites*, 2013, vol. 34, iss. 2, p. 149 - 155. (1.482 - IF2012). ISSN 0272-8397.

ADCA22

22. KRONEK, Juraj - NEDELČEV, Tomáš - MIKULEC, Marcel - KLEINOVÁ, Angela - LUSTOŇ, Jozef. Synthesis of cinnamic acid-derived 4,5-dihydrooxazoles. In *Chemical Papers*, 2013, vol. 67, no. 11, p. 1424 - 1432. (0.879 - IF2012). ISSN 0366-6352.

ADCA23

23. KRUPA, Igor - CECEN, V. - BOUDENNE, A. - PROKEŠ, J. - NOVÁK, Igor. The mechanical and adhesive properties of electrically and thermally conductive polymeric composites based on high density polyethylene filled with nickel powder. In *Materials and Design*, vol. 51, /2013), p. 620 - 628. ISSN 0261-3069.

ADCA24

24. LUKEŠ, V. - DANKO, Martin - ANDICS, A. - HRDLLOVIČ, Pavol - VÉGH, D. The synthesis and examination of spectral properties of some 2,2'-bithienyl derivatives with carbonyl-containing substituents. In *Synthetic Metals*, 2013, vol. 165, p. 17 - 26. (2.109 - IF2012). ISSN 0379-6779.

ADCA25

25. MOSNÁČEK, Jaroslav - LUKÁČ, Ivan - BERTOLDO, M. - CIARDELLI, F. Applicability of photochemically generated pendant benzoyl peroxides in both grafting from an grafting to techniques. In *Chemical Papers*, 2013, vol. 67, no. 1, p. 9 - 17. (0.879 - IF2012). ISSN 0366-6352

ADCA26

26. MOSNÁČEK, Jaroslav - BORSKÁ, Katarína - DANKO, Martin - JANIGOVÁ, Ivica. Photochemically promoted degradation of poly(epsilon-caprolactone) film. In *Materials Chemistry and Physics*, 2013, vol. 140, p. 191 - 199. (2.072 - IF2012). ISSN 0254-0584.

ADCA27

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ADDA Vedecké práce v domácich karentovaných časopisoch impaktovaných

Počet záznamov: 1

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Počet záznamov: 1

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Počet záznamov: 10

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AEC Vedecké práce v zahraničných recenzovaných vedeckých zborníkoch (aj konferenčných), monografiách

Počet záznamov: 15

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AEC07

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AEC11

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AEC12

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AEC13

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AEC14

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AEC15

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AED Vedecké práce v domácich recenzovaných vedeckých zborníkoch (aj konferenčných), monografiách

Počet záznamov: 4

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AED02

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AED03

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AED04

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AEGA Stručné oznámenia, abstrakty vedeckých prác v zahraničných karentovaných časopisoch impaktovaných

Počet záznamov: 1

AEGA01

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AFBA Publikované pozvané príspevky na medzinárodných vedeckých konferenciách poriadaných v SR

Počet záznamov: 4

AFBA01

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AFBA02

2. CHODÁK, Ivan - NOVÁK, Igor - POPELKA, Anton. Plasma initiated modification of polymer surfaces for various applications. In *SAPP : 19th Symposium on Application of Plasma Processes : Workshop on Ion Mobility Spectrometry : Vrátna, Slovakia, 26 - 31 January 2013: book of contributed papers*. - Bratislava : Comenius University, 2013, p. 80 - 83.

AFBA03

3. MATYAŠOVSKÝ, J. - JURKOVIČ, P. - DUCHOVIČ, P. - NOVÁK, Igor. Vplyv modifikácií kolagénu na parametre a mikrobiotickú stabilitu termoplastických lepidiel. In *Pokroky vo výrobe a použití lepidiel v drevopriemysle : XXI. sympóziu : zborník referátov*. - Zvolen : Technická univerzita vo Zvolene, 2013, p. 128 - 138. ISBN 978-80-228-2529-0.

AFBA04

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AFDA Publikované príspevky na medzinárodných vedeckých konferenciách poriadaných v SR

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1. [1.1] DAVIDSON, R.M. - SENEFF, S. The initial common pathway of inflammation, disease, and sudden death. In *ENTROPY*. ISSN 1099-4300, AUG 2012, vol. 14, no. 8, p. 1399-1442., WOS

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• ADEA02 142638

MOUČKA, R. - MRAVČÁKOVÁ, Miroslava - VILČÁKOVÁ, J. - OMASTOVÁ, Mária - SÁHA, P. Electromagnetic absorption efficiency of polypropylene/montmorillonite/polypyrrole nanocomposites. In *Materials and Design*, 2011, vol. 32, p. 2006 - 2011. (1.694 - IF2010). ISSN 0261-3069.

Ohlasy:

1. [1.1] WANG, Y. - HUANG, Y. - WANG, Q.F. - HE, Q. - CHEN, L. Preparation and electromagnetic properties of polyaniline(polypyrrole)-BaFe₁₂O₁₉/Ni_{0.8}Zn_{0.2}Fe₂O₄ ferrite nanocomposites. In APPLIED SURFACE SCIENCE. ISSN 0169-4332, OCT 15 2012, vol. 259, p. 486-493., WOS
2. [1.1] STEFANESCU, E.A. - STEFANESCU, C. Flexible polymer/clay nanocomposite films as oxygen supply materials. In MACROMOLECULAR MATERIALS AND ENGINEERING. ISSN 1438-7492, MAR 2012, vol. 297, no. 3, p. 249-256., WOS
3. [1.1] KHANJANZADEH, H. - TABARSA, T. - SHAKERI, A. Morphology, dimensional stability and mechanical properties of polypropylene-wood flour composites with and without nanoclay. In JOURNAL OF REINFORCED PLASTICS AND COMPOSITES. ISSN 0731-6844, MAR 2012, vol. 31, no. 5, p. 341-350., WOS

ADEA03 142672

- ROKSTAD, A. M. - BREKKE, O. L. - STEINKJER, B. - RYAN, L.- KOLLÁRIKOVÁ, Gabriela - STRAND, B. L. - SKJAK-BRAEK, G.- LACÍK, Igor - ESPEVIK, T. - MOLLNES, T. E. Alginate microbeads are complement compatible, in contrast to polycation containing microcapsules, as revealed in a human whole blood model. In *Acta biomaterialia*, 2011, vol. 7, p. 2566 - 2578. (4.822 - IF2010). ISSN 1742-7061.

Ohlasy:

1. [1.1] GAWEL, K. - GAO, M. - STOKKE, B.T. Impregnation of weakly charged anionic microhydrogels with cationic polyelectrolytes and their swelling properties monitored by a high resolution interferometric technique. Transformation from a polyelectrolyte to polyampholyte hydrogel. In EUROPEAN POLYMER JOURNAL. ISSN 0014-3057, NOV 2012, vol. 48, no. 11, p. 1949-1959., WOS
2. [1.1] SOKOLOV, A. - HELLERUD, B.C. - JOHANNESSEN, E.A. - MOLLNES, T.E. Inflammatory response induced by candidate biomaterials of an implantable microfabricated sensor. In JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART A. ISSN 1549-3296, MAY 2012, vol. 100A, no. 5, p. 1142-1150., WOS
3. [1.1] ACARREGUI, A. - MURUA, A. - PEDRAZ, J.L. - ORIVE, G. - HERNANDEZ, R.M. A perspective on bioactive cell microencapsulation. In BIODRUGS. ISSN 1173-8804, 2012, vol. 26, no. 5, p. 283-301., WOS
4. [1.1] MAHOU, R. - TRAN, N.M. - DUFRESNE, M. - LEGALLAIS, C. - WANDREY, C. Encapsulation of Huh-7 cells within alginate-poly(ethylene glycol) hybrid microspheres. In JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE. ISSN 0957-4530, JAN 2012, vol. 23, no. 1, p. 171-179., WOS

ADEB Vedecké práce v zahraničných nekarentovaných časopisoch neimpaktovaných

ADEB01 076540

- BORSIG, Eberhard - UJHELYOVÁ, A. - MLYNARČÍKOVÁ, Z. - KAEMFER, D. - MÜLHAUPT, R.- MARCINČIN, A. - BEREK, Dušan. DSC study of syndiotactic polypropylene-organoclay nanocomposite fibers: crystallization and melting behavior. In *International Journal of Polymeric Materials*, 2007, vol. 56, p. 771-788. ISSN 0091-4037.

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1. [1.1] ALVAREZ, V.A. - PEREZ, C.J. Effect of different inorganic filler over isothermal and non-isothermal crystallization of polypropylene homopolymer. In JOURNAL OF THERMAL ANALYSIS AND CALORIMETRY. ISSN 1388-6150, FEB 2012, vol. 107, no. 2, p. 633-643., WOS
2. [1.1] KAKATI, K. - PUGAZHENTHI, G. - IYER, P.K. Effect of organomodified Ni-Al layered double hydroxide (LDH) on the properties of polypropylene (PP)/LDH nanocomposites. In INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS. ISSN 0091-4037, 2012, vol. 61, no. 12, p. 931-948., WOS
3. [1.1] RUAN, C.L. - LIANG, K.F. - GUO, L.M. - LI, W. Computer Modeling and Simulation for 3D Crystallization of Polymers. I. Isothermal Case. In POLYMER-PLASTICS TECHNOLOGY AND ENGINEERING. ISSN 0360-2559, 2012, vol. 51, no. 8, p. 810-815., WOS
4. [1.1] JOSE, A.J. - ALAGAR, M. - APREM, A.S. Thermal and barrier properties of organoclay-filled polysulfone nanocomposites. In INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS. ISSN 0091-4037, 2012, vol. 61, no. 7, p. 544-557., WOS

ADEB02 114473

- CAPEK, Ignác. On the inverse miniemulsion copolymerization and terpolymerization of acrylamide, N,N-methylene bis(acrylamide) and methacrylic acid. In *Central European Journal of Chemistry*, 2003, vol. 3, p. 291-304. ISSN 1895-1066.

Ohlasy:

1. [1.1] KLINGER, D. - LANDFESTER, K. Stimuli-responsive microgels for the loading and release of functional compounds: Fundamental concepts and applications. In POLYMER. ISSN 0032-3861, OCT 26 2012, vol. 53, no. 23, p. 5209-5231., WOS

ADEB03 170376

- HRDLOVIČ, Pavol. Photochemical reactions and photophysical processes: Optical thin film polymer sensors based on fluorescent dyes bound to hydrophilic copolymers, application to aqueous halide sensing. In *Polymer News*, 2004, vol. 29, no. 8, p. 247 - 252. ISSN 0032-3918.

Ohlasy:

1. [1.2] LIAW, D.J.- WANG, K.L.- HUANG, Y.C.- LEE, K.R.- LAI, J.Y.- HA, C.S. Advanced polyimide materials: Syntheses, physical properties and applications. (2012) *Progress in Polymer Science*, 37 (7), p. 907-974., Scopus

ADEB04 187153

- HRDLOVIČ, Pavol. Photochemical reactions and photophysical processes. In *Polymer News*, 2004, vol. 29, no. 6, p. 187 - 193. ISSN 0032-3918.

Ohlasy:

1. [1.2] RAJAN, V.V.- WÄBER, R.- WIESER, J. Comparative investigation of the ultraviolet stabilization of polycarbonate/poly(acrylonitrile-butadiene-styrene) with different ultraviolet absorbers. (2012) *Journal of Applied Polymer Science*, 124 (5), p. 3988-3995., Scopus
2. [1.2] RAJAN, V.V.- WÄBER, R.- WIESER, J. Influence of different types of UV absorber/UV stabilizer combination on the photodegradation of PC/ABS blend. (2012) *Journal of Applied Polymer Science*, 124 (5), p. 4007-4015., Scopus

ADEB05 153246

- HUNKELER, D. - MACKO, Tibor - BEREK, Dušan. Critical conditions in the liquid chromatography of polymers. In *ACS Symposium Series*, 1993, vol. 521, p. 90 - 102.

Ohlasy:

1. [1.1] LI, Y.J. - ZHANG, B.Y. - HOSKINS, J.N. - GRAYSON, S.M. Synthesis, purification, and characterization of "perfect" star polymers via "Click" coupling. In JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY. ISSN 0887-624X, MAR 15 2012, vol. 50, no. 6, p. 1086-1101., WOS

ADEB06 076433

- KRIPOTOU, S. - APEKIS, L. - RAPTI, Ch. - VARTZELI - NIKAKI, K. - PISSIS, P. - MRAVČÁKOVÁ, Miroslava - OMASTOVÁ, Mária. Thermal transitions of polypropylene in blends and composites with polypyrrole and polypyrrole/montmorillonite. In *International Journal of Polymeric Materials*, 2007, vol. 56, p. 865-884. ISSN 0091-4037.

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1. [1.1] RAMESAN, M.T. In Situ synthesis, characterization and conductivity of copper sulphide/polypyrrole/polyvinyl alcohol blend nanocomposite. In *POLYMER-PLASTICS TECHNOLOGY AND ENGINEERING*. ISSN 0360-2559, 2012, vol. 51, no. 12, p. 1223-1229., WOS
2. [1.1] ZHOU, Y. - YIN, B. - LI, L.P. - YANG, M.B. - FENG, J.M. Characterization of PP/EPDM/HDPE ternary blends: The role of two EPDM with different viscosity and processing method. In *POLYMER-PLASTICS TECHNOLOGY AND ENGINEERING*. ISSN 0360-2559, 2012, vol. 51, no. 10, p. 983-990., WOS

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- MOJUMDAR, S. C. - CAPEK, Ignác - CAPEK, P. - FIALOVÁ, Lenka - BEREK, Dušan. Preparation of composite nanoparticles on the base of starch. In *Research Journal of Chemistry and Environment*, 2007, vol. 11, p. 5-12.

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1. [1.2] RISHIKESHI, S. N. - JOSHI, S. (2012). In: *Journal of Thermal Analysis and Calorimetry*, 109(3), 1473-1479., SCOPUS

ADEB08 119553

- TAVMAN, Ismail - CECEN, Volkan - OZDEMIR, I. - TURGUT, Alparslan - KRUPA, Igor - OMASTOVÁ, Mária - NOVÁK, Igor. Preparation and characterization of highly electrically and thermally conductive polymeric nanocomposites. In *Archives of Materials Science*, 2008, vol. 29, no. 1 - 2, p. 77 - 83. ISSN 1734-9885.

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1. [1.2] SEDLIAČIK, J.- ŠMIDRIAKOVÁ, M. Heat resistance of adhesive joints for wood constructions [Tepelná odolnosť lepených spojov pre drevné konštrukcie](2012) *Acta Facultatis Xylologiae*, 54 (2), p. 79-94., Scopus
2. [1.2] ROJEK, M.- STABIK, J.- SZYMICZEK, M.- SUCHOŃ, Ł.- MROWIEC, K. Research on polyamide matrix composites filled with hard coal (2012) *Archives of Materials Science and Engineering*, 57 (1), p. 13-20., Scopus

AEE Vedecké práce v zahraničných nerecenzovaných vedeckých zborníkoch (aj konferenčných), monografiách

AEE01 133925

- ZOIS, H. - APEKIS, L. - OMASTOVÁ, Mária. Electrical properties and percolation phenomena in carbon black filled polymer composites. In *Proceedings : International Symposium on Electrets*, 1999, P. 529 - 532.

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1. [1.2] MAHMOUD, W.E. The physical properties of carbon nanoparticles dispersed into NBR/LLDPE nanocomposites for corrosion protection applications. (2012) *Journal of Applied Polymer Science*, 123 (5), p. 2667-2675, Scopus

AEGA Stručné oznámenia, abstrakty vedeckých prác v zahraničných karentovaných časopisoch impaktovaných

AEGA01 089742

- MOSNÁČEK, Jaroslav - MATYJASZEWSKI, K. Atom transfer radical polymerization of Tulipalin

A: A naturally renewable monomer. In *Macromolecules*, 2008, vol. 41, no. 15, p. 5509 - 5511. (4.411 - IF2007). (2008 - Current Contents). ISSN 0024-9297.

Ohlasy:

1. [1.1] SHIN, J. - LEE, Y. - TOLMAN, W.B. - HILLMYER, M.A. Thermoplastic elastomers derived from menthane and Tulipalin A. In *BIOMACROMOLECULES*. ISSN 1525-7797, NOV 2012, vol. 13, no. 11, p. 3833-3840., WOS
2. [1.1] HIGAKI, Y. - OKAZAKI, R. - TAKAHARA, A. Semirigid biobased polymer brush: Poly(alpha-methylene-gamma-butyrolactone) brushes. In *ACS MACRO LETTERS*. ISSN 2161-1653, SEP 2012, vol. 1, no. 9, p. 1124-1127., WOS
3. [1.1] ISHIDO, Y. - KANAZAWA, A. - KANAOKA, S. - AOSHIMA, S. New degradable alternating copolymers from naturally occurring aldehydes: well-controlled cationic copolymerization and complete degradation. In *MACROMOLECULES*. ISSN 0024-9297, MAY 22 2012, vol. 45, no. 10, p. 4060-4068., WOS
4. [1.1] OKUDA, T. - ISHIMOTO, K. - OHARA, H. - KOBAYASHI, S. Renewable Biobased polymeric materials: facile synthesis of itaconic anhydride-based copolymers with poly(L-lactic acid) g rafts. In *MACROMOLECULES*. ISSN 0024-9297, MAY 22 2012, vol. 45, no. 10, p. 4166-4174., WOS
5. [1.1] LEE, C.W. - NAKAMURA, S. - KIMURA, Y. Synthesis and characterization of polytulipalin-g-poly lactide copolymers. In *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*. ISSN 0887-624X, MAR 15 2012, vol. 50, no. 6, p. 1111-1119., WOS
6. [1.1] HU, Y.J. - MIYAKE, G.M. - WANG, B.L. - CUI, D.M. - CHEN, E.Y.X. ansa-rare-earth-metal catalysts for rapid and stereoselective polymerization of renewable methylene methylbutyrolactones. In *CHEMISTRY-A EUROPEAN JOURNAL*. ISSN 0947-6539, MAR 2012, vol. 18, no. 11, p. 3345-3354., WOS
7. [1.1] ZHANG, Y.T. - MIYAKE, G.M. - JOHN, M.G. - FALIVENE, L. - CAPORASO, L. - CAVALLO, L. - CHEN, E.Y.X. Lewis pair polymerization by classical and frustrated Lewis pairs: acid, base and monomer scope and polymerization mechanism. In *DALTON TRANSACTIONS*. ISSN 1477-9226, 2012, vol. 41, no. 30, p. 9119-9134., WOS
8. [1.1] ZHANG, Y.T. - CHEN, E.Y.X. Conjugate-addition organopolymerization: rapid production of acrylic bioplastics by n-heterocyclic carbenes. In *ANGEWANDTE CHEMIE-INTERNATIONAL EDITION*. ISSN 1433-7851, 2012, vol. 51, no. 10, p. 2465-2469., WOS
9. [1.1] TSCHAN, M.J.L. - BRULE, E. - HAQUETTE, P. - THOMAS, C.M. Synthesis of biodegradable polymers from renewable resources. In *POLYMER CHEMISTRY*. ISSN 1759-9954, 2012, vol. 3, no. 4, p. 836-851., WOS
10. [1.1] MATHERS, R.T. How Well can renewable resources mimic commodity monomers and polymers?. In *JOURNAL OF POLYMER SCIENCE PART A-POLYMER CHEMISTRY*. ISSN 0887-624X, JAN 1 2012, vol. 50, no. 1, p. 1-15., WOS

AFDA Publikované príspevky na medzinárodných vedeckých konferenciách poriadaných v SR

AFDA01 120834

- NOVÁK, Igor - SYSEL, P. - CHODÁK, Ivan - ŠPIRKOVÁ, M. - JANIGOVÁ, Ivica. Surface properties of poly(imide-co-siloxane) block copolymers. In *Chemické listy*, 2009, roč. 103, č. S, s. 76 -78. (0.593 - IF2008). (2009 - Current Contents, WOS, SCOPUS). ISSN 0009-2770.

Ohlasy:

1. [1.2] GHOSH, A.- SEN, S.K.- BANERJEE, S.- VOIT, B. Solubility improvements in aromatic polyimides by macromolecular engineering(2012) *RSC Advances*, 2 (14), p. 5900-5926, Scopus

BDEB Odborné práce v zahraničných nekarentovaných časopisoch neimpaktovaných

BDEB01 119210

- DECKER, C. - FAURE, J. - FIZET, M. - RYCHLÁ, Lýdia. Elimination of oxygen inhibition in photopolymerization. In *Photographic Science and Engineering*, 1978, vol. 23, no. 3, p. 137 - 140.

Ohlasy:

1. [1.1] KIM, S.K. - GUYMON, C.A. Effects of polymerizable organoclays on oxygen inhibition of acrylate and thiol-acrylate photopolymerization. In *POLYMER*. ISSN 0032-3861, APR 3 2012, vol. 53, no. 8, p. 1640-1650., WOS

BDEB02 136515

- SKALKOVÁ, P. - JOCHEC MOŠKOVÁ, Daniela - JANIGOVÁ, Ivica. Zmesi PE-LD/Glukurónoxylán: Príprava a štúdium mechanických a termických vlastností. In *Plasty a kaučuk*, 2010, roč. XLVII, č. 11 - 12, s. 327 -332. ISSN 0322-7340.

Ohlasy:

1. [1.1] KOSTIAL, P. - JANCIKOVA, Z. - STYSKALA, V. - KUBLIHA, M. - MADAJ, R. - RUZIAK, I. - DEDICOVA, J. - HREHUS, R. - JONSTA, P. The influence of carbon fillers on thermal transport in polyurethane. In *DIFFUSION IN SOLIDS AND LIQUIDS VII*. ISSN 1012-0386, 2012, vol. 326-328, p. 69-74., WOS

Štatistika: kategória ohlasov

1.1	Citácie v zahraničných publikáciách registrované v citačných indexoch	1153
	Web of Science	
1.2	Citácie v zahraničných publikáciách registrované v databáze Scopus	151
2.2	Citácie v domácich publikáciách registrované v databáze Scopus	1
3	Citácie v zahraničných publikáciách neregistrované v citaných indexoch	1
Súčet		1306

Štatistika: kategória publikačnej činnosti

ADCA	Vedecké práce v zahraničných karentovaných časopisoch impaktovaných	416
ADCB	Vedecké práce v zahraničných karentovaných časopisoch neimpaktovaných	2
ADDA	Vedecké práce v domácich karentovaných časopisoch impaktovaných	7
ADEA	Vedecké práce v zahraničných nekarentovaných časopisoch impaktovaných	3
ADEB	Vedecké práce v zahraničných nekarentovaných časopisoch neimpaktovaných	8
AEE	Vedecké práce v zahraničných nerecenzovaných vedeckých zborníkoch (aj konferenčných), monografiách	1
AEGA	Stručné oznámenia, abstrakty vedeckých prác v zahraničných karentovaných časopisoch impaktovaných	1
AFDA	Publikované príspevky na medzinárodných vedeckých konferenciách poriadaných v SR	1
BDEB	Odborné práce v zahraničných nekarentovaných časopisoch neimpaktovaných	2
Súčet		441

Príloha D

Údaje o pedagogickej činnosti organizácie

Semestrálne prednášky:

prof. Ing. Tomáš Bleha, DrSc.

Názov semestr. predmetu: Teória a technológia spracovania plastov

Počet hodín za semester: 13

Názov katedry a vysokej školy: Materiálovotechnologická fakulta STU v Trnave, 1. Ročník inžinierskeho štúdia

prof., RNDr. Ignác Capek, DrSc.

Názov semestr. predmetu: Technológia prípravy materiálov

Počet hodín za semester: 24

Názov katedry a vysokej školy: Fakulta priemyselných technológií TnUAD v Púchove

RNDr. Peter Cifra, DrSc.

Názov semestr. predmetu: Makromolekulová chémia

Počet hodín za semester: 16

Názov katedry a vysokej školy: Prírodovedecká fakulta UK, 4-5 ročník

prof. Ing. Ivan Chodák, DrSc.

Názov semestr. predmetu: Fyzika polymérov – vybrané state

Počet hodín za semester: 8

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, 4. Ročník Ústavu polymérnych materiálov

Mgr. Juraj Kronek, PhD.

Názov semestr. predmetu: Makromolekulová chémia

Počet hodín za semester: 6

Názov katedry a vysokej školy: Prírodovedecká fakulta UK, 4-5 ročník

Ing. Igor Novák, PhD.

Názov semestr. predmetu: Adhézia a povrchová energia polymérnych materiálov a Špeciálne adhezíva – výskum a vývoj

Počet hodín za semester: 4

Názov katedry a vysokej školy: Materiálovotechnologická fakulta STU v Trnave, 4. ročník štúdia

Semestrálne cvičenia:

Semináre:

Terénne cvičenia:

Individuálne prednášky:

prof. Ing. Ivan Chodák, DrSc.

Názov semestr. predmetu: Makromolekulová chémia

Počet hodín za semester: 4

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, Prednášky pre doktorandov

Ing. Igor Lacík, DrSc.

Názov semestr. predmetu: Mikrokapsuly pre liečbu cukrovky

Počet hodín za semester: 2

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, pre doktorandov odbor Makromolekulová chémia

Ing. Igor Lacík, DrSc.

Názov semestr. predmetu: Moderné techniky v kinetike radikálovej polymerizácie

Počet hodín za semester: 2

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, pre doktorandov - odbor Makromolekulová chémia

Ing. Igor Novák, PhD.

Názov semestr. predmetu: Povrchové vlastnosti modifikovaných polymérov

Počet hodín za semester: 2

Názov katedry a vysokej školy: Univerzita T. Bati, Zlín, Česká Republika, Fakulta technologická - pre doktorandov

Ing. Mária Omastová, DrSc.

Názov semestr. predmetu: Makromolekulová chémia

Počet hodín za semester: 2

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, pre doktorandov - odbor Makromolekulová chémia

Mgr. Zdenko Špitálsky, PhD.

Názov semestr. predmetu: Elektricky vodivé polymérne kompozity

Počet hodín za semester: 2

Názov katedry a vysokej školy: Fakulta chemickej a potravinárskej technológie STU, pre doktorandov - odbor Makromolekulová chémia

Príloha E**Medzinárodná mobilita organizácie****(A) Vyslanie vedeckých pracovníkov do zahraničia na základe dohôd:**

Krajina	D r u h d o h o d y					
	MAD, KD, VTS		Medziústavná		Ostatné	
	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní
Argentína	Alena Šišková	15				
Austrália			Dalimír Jurčák	20		
			Lýdia Rychlá	8		
			Jozef Rychlý	8		
Belgicko			Mária Omastová	3		
Bulharsko			Juraj Kronek	6	Igor Lacík	2
			Marcel Mikulec	6		
Česko	Ivica Janigová	9	Martin Danko	1	Tomáš Bleha	2
	Mária Omastová	4	Anita Eckstein	2	Ivan Chodák	1
			Markéta Ilčíková	10	Juraj Kronek	2
			Markéta Ilčíková	5	Igor Lacík	1
			Markéta Ilčíková	5	Igor Lacík	1
			Markéta Ilčíková	10	Igor Lacík	1
			Juraj Kronek	1	Igor Lacík	1
			Matej Mičušík	2	Filip Rázga	1
			Matej Mičušík	1	Jozef Rychlý	1
			Miroslav Mrlík	3		
			Mária Omastová	2		
			Mária Omastová	1		
			Eva Papajová	1		
			Jozef Rychlý	1		
			Alena Šišková	32		
			Alena Šišková	2		
			Zdenko Špitálsky	2		
			Zdenko Špitálsky	3		
Čína					Daniela Moravčíková	7
Francúzsko	Dušan Berek	10	Mária Omastová	30	Dušan Berek	5
Grécko			Klaudia Czaniková	7		
			Matej Mičušík	7		
Chorvátsko			Miroslava Lukešová	30		
India			Dušan Berek	16		
Írsko			Marta Malíková	3		
Katar			Peter Kasák	365		
			Igor Krupa	365		
			Anton Popelka	224		
			Patrik Sobolčiak	214		
Lichtenštajsko					Štefan Chmela	3
					Juraj Pavlinec	3

Maďarsko			Igor Lacík	1		
			Jaroslav Mosnáček	1		
Nemecko			Ignác Capek	12		
			Ignác Capek	31		
			Klaudia Czaniková	14		
			Ivan Chodák	2		
			Anna Chovancová	4		
			Igor Lacík	2		
			Igor Lacík	6		
			Matej Mičušík	4		
			Matej Mičušík	3		
			Mária Omastová	3		
			Mária Omastová	8		
			Marek Stach	4		
			Marek Stach	2		
			Helena Švajdlenková	2		
			Helena Švajdlenková	61		
			Jana Tabačiarová	27		
Nový Zéland					Lýdia Rychlá	9
					Jozef Rychlý	9
Poľsko	Katarína Borská	4	Martin Danko	5	Mária Omastová	2
	Martin Danko	5	Ivan Chodák	2		
	Anna Chovancová	3	Ivan Chodák	3		
	Juraj Kronek	3	Marta Malíková	3		
	Marcel Mikulec	3	Jaroslav Mosnáček	5		
	Jaroslav Mosnáček	5	Igor Novák	3		
	Marek Stach	3	Igor Novák	4		
			Silvia Podhradská	2		
Portugalsko			Zuzana Benková	87		
			Klaudia Czaniková	9		
			Markéta Ilčíková	9		
Rakúsko			Igor Lacík	1	Branislav Husár	273
					Igor Lacík	1
					Igor Lacík	1
Rumunsko	Alena Šišková	6	Alena Šišková	8		
Španielsko			Josef Bartoš	31		
			Josef Bartoš	6		
			Helena Švajdlenková	6		
			Helena Švajdlenková	31		
Švajčiarsko			Vladislav Semak	3	Igor Lacík	2
Taiwan			Dušan Berek	16		

			Markéta Ilčíková	5		
Taliansko			Josef Bartoš	5	Mária Omastová	4
			Anita Eckstein	7		
			Mária Omastová	10		
			Helena Švajdlenková	3		
Turecko					Dušan Berek	8
					Igor Lacík	3
USA			Zuzana Kroneková	7		
			Igor Lacík	7		
			Filip Rázga	7		
Veľká Británia			Mária Omastová	3		
Počet vyslaní spolu	12	70	80	1871	24	343

(B) Prijatie vedeckých pracovníkov zo zahraničia na základe dohôd:

Krajina	D r u h d o h o d y					
	MAD, KD, VTS		Medziústavná		Ostatné	
	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní	Meno pracovníka	Počet dní
<i>Argentína</i>	Meira G.	13	Falco L.	36		
<i>Česko</i>	Kovářová J.	7	Babyan V.	3	Hrubý M.	1
	Stejskal J.	5	Kazantseva N.	2	Kotek J.	1
	Trchová M.	5	Moučka R.	5	Netopílek M.	1
			Moučka R.	5		
			Moučka R.	5		
			Moučka R.	3		
			Sedlačík M.	3		
			Shah R.	91		
			Vilčáková J.	2		
			Vyroubal R.	76		
<i>Egypt</i>	Mohamed Abd Al-Raheem Abu Saied	30				
	Mohamed Al Sayed Ali Hasan	30				
	Mohamed Ramadan ABD El-Megid	30				
<i>Francúzsko</i>	Pelletier B.	4				
	Rollet M.	4				
<i>Grécko</i>			Moustakas Ch. Ch	8		
			Pissis P.	8		
			Skarmoutsou A.	18		
<i>Kanada</i>			Preusser C.	152		
			Rooney T.	5		
<i>Nemecko</i>	Liebscher M.	15	Pippig F.	91		

	Müller M. T.	11				
	Pionteck J.	11				
	Pötschke P.	11				
<i>Pol'sko</i>	Baško M.	11				
	Mendrek B.	5				
	Utrapa-Wesolek A.	5				
<i>Portugalsko</i>			Amaral F.	14		
			de Miranda I.M.V.	30		
			Graca P.	14		
<i>Taiwan</i>	Jhuang Chao-Huei	14				
	Tsai Shin-Chin	14				
	Tsiang Chien-Chao R.	14				
	Tsiang Chien-Chao R.	6				
	Wang Kuam-Chieh	14				
	Yeh Cheng-Yang	14				
<i>Ukrajina</i>			Pidluzhna A.	31		
Počet prijatí spolu	22	273	21	602	3	3

(C) Účast' pracovníkov pracoviska na konferenciách v zahraničí (nezahrnutých v "A"):

Krajina	Názov konferencie	Meno pracovníka	Počet dní
<i>Česko</i>	44 th International Conference on Coatings Technology	Igor Novák	3
	Modeling Interactions in Biomolecules IV	Peter Palenčár	5
	Workshop Career in Polymers V	Dominika Vnuková	4
	Workshop Career in Polymers V	Anna Zahoranová	4
<i>Francúzsko</i>	Bioencapsulation Research Group – Summer School	Dominika Vnuková	5
	POLYCHAR	Dušan Berek	3
<i>Chorvátsko</i>	19 th Int. Symp.l on Separation Sciences	Dušan Berek	5
	19 th International Symposium on Separation Science	Alena Šišková	6
<i>India</i>	ICRRM 2013	Dušan Berek	4
<i>Írsko</i>	Sustainable Energy Storage in Buildings Conference	Ján Kratochvíla	4
<i>Katar</i>	Quatar Foudation - Annual Research Conference 2013	Igor Novák	6
<i>Nemecko</i>	12 th IC Polymers Advanced Technologies PAT 2013	Igor Lacík	4
	12 th IC Polymers Advanced Technologies PAT 2013	Jaroslav Mosnáček	4
	6 th IC on Carbon Nanoparticles Based Composites	Matej Mičušík	4
	CNPComp 2013, 6 th IC on Carbon NanoParticle Based	Jana Tabačiarová	4
	Nanobrücken-Dresden: A Nanomechanical Testing Work	Marian Valentin	4
	XXI. International Conference on Bioencapsulation	Igor Lacík	4
	XXI. International Conference on Bioencapsulation	Dušana Treľová	4
	XXI. International Conference on Bioencapsulation	Dominika Vnuková	4
<i>Pol'sko</i>	3 rd Int. Plastics Conference Future of Bioplastics	Ivan Chodák	3
	41 st Polish Seminar on Positron Annihilation	Dušan Račko	5
	5 th Int. sem. on Modern Polymeric Materials for En	Mária Omastová	4

	Materialy Polimerowe Pomerania-Plast 2013	Martin Danko	5
	Materialy Polimerowe Pomerania-Plast 2013	Markéta Ilčíková	5
	Materialy Polimerowe Pomerania-Plast 2013	Jaroslav Mosnáček	5
	Materialy Polimerowe Pomerania-Plast 2013	Zdenko Špitálsky	5
Rakúsko	15 th Austrian Chemistry Days	Klaudia Czaniková	4
	15 th Austrian Chemistry Days	Zuzana Nógellová	4
	15 th Austrian Chemistry Days	Mária Omastová	3
	15 th Austrian Chemistry Days	Andrea Oravcová	4
Slovinsko	Austrian-Slovenian Polymer Meeting 2013	Igor Lacík	5
	Austrian-Slovenian Polymer Meeting 2013	Vladislav Semak	5
Španielsko	3 rd IS Frontiers in Polymer Science	Ivan Chodák	5
	7 th Int. Disc. Meeting on Relaxations in Complex S	Josef Bartoš	6
	7 th International Discussion Meeting on Relaxation	Helena Švajdlenková	6
	CECAM/Psi-k Research Conference:	Peter Palenčár	6
Švajčiarsko	3 rd IC on Electromech. Active Polymer (EAP)Transdu	Matej Mičušík	4
Taiwan	13 th Polymer Pacific Conference 2013	Dušan Berek	6
	13 th Polymer Pacific Conference 2013	Markéta Ilčíková	6
Taliansko	15 th EC on Applications of Surface and Interface A	Mária Omastová	7
	EPF 2013	Tomáš Bleha	8
	EPF 2013	Martin Danko	8
	EPF 2013	Ivan Chodák	6
	EPF 2013	Ivica Janigová	6
	EPF 2013	Juraj Kronek	8
	EPF 2013	Zuzana Kroneková	8
	EPF 2013	Marcel Mikulec	8
	EPF 2013	Mária Omastová	8
	EPF 2013	Marek Stach	6
	International Soft Matter Conference 2013	Zuzana Benková	5
	International Soft Matter Conference 2013	Tomáš Bleha	6
	International Soft Matter Conference 2013	Peter Cifra	6
	International Soft Matter Conference 2013	Dušan Račko	5
Turecko	44 th World Chemistry Congress IUPAC 2013	Markéta Ilčíková	8
	47 th General Assembly and 44 th W Ch Congress IUPAC	Alena Šišková	10
	Int.l Porous and Powder Materials Symposium and Ex	Dušan Berek	7
USA	American Physics Society Meeting	Peter Cifra	7
Veľká Británia	10 th IC on Advanced Polymers via Macromolecular En	Dušan Berek	6
Spolu	36	58	310

Vysvetlivky: MAD - medziakademické dohody, KD - kultúrne dohody, VTS - vedecko-technická spolupráca v rámci vládnych dohôd

Skratky použité v tabuľke C:

American Physics Society Meeting - American Physics Society Meeting
 10th IC on Advanced Polymers via Macromolecular En - 10th International Conference on Advanced Polymers via Macromolecular Engineering
 12th IC Polymers Advanced Technologies PAT 2013 - 12th International Conference Polymers Advanced Technologies PAT 2013
 13th Polymer Pacific Conference 2013 - 13th Polymer Pacific Conference 2013
 15th Austrian Chemistry Days - 15th Austrian Chemistry Days
 15th EC on Applications of Surface and Interface A - 15th European Conference on Applications of Surface and

Interface Analysis

19th Int. Symp.l on Separation Sciences - 19th International Symposium on Separation Sciences
19th International Symposium on Separation Science - 19th International Symposium on Separation Sciences
3rd IC on Electromech. Active Polymer (EAP)Transdu - 3rd International Conference on Electromechanically
Active Polymer (EAP)Transducers and Artificial Muscles
3rd Int. Plastics Conference Future of Bioplastics - 3rd International Plastics Conference Future of Bioplastics
3rd IS Frontiers in Polymer Science - 3rd International Symposium Frontiers in Polymer Science
41st Polish Seminar on Positron Annihilation - 41st Polish Seminar on Positron Annihilation
44th International Conference on Coatings Technolo - 44th International Conference on Coatings Technology
44th World Chemistry Congress IUPAC 2013 - 44th World Chemistry Congress IUPAC 2013
47th General Assembly and 44th W Ch Congress IUPAC - 47th General Assembly and 44th World Chemistry
Congress IUPAC 2013
5th Int. sem. on Modern Polymeric Materials for En - 5th International seminar on Modern Polymeric Materials for
Environmental Applications
6th IC on Carbon Nanoparticles Based Composites - 6th International Conference on Carbon Nanoparticles Based
Composites
7th Int. Disc. Meeting on Relaxations in Complex S - 7th International Discussion Meeting on Relaxations in
Complex Systems
7th International Discussion Meeting on Relaxation - 7th International Discussion Meeting on Relaxations in
Complex Systems
Austrian-Slovenian Polymer Meeting 2013 - Austrian-Slovenian Polymer Meeting 2013
Bioencapsulation Research Group – Summer School - Bioencapsulation Research Group – Summer School
CECAM/Psi-k Research Conference: - CECAM/Psi-k Research Conference: Multi-scale Modeling from First
Principles
CNPComp 2013, 6th IC on Carbon NanoParticle Based - CNPComp 2013, 6th International Conference on Carbon
NanoParticle Based Composites
EPF 2013 - EPF 2013
ICRRM 2013 - International Conference on Rubber and Rubber-like Materials-ICRRM 2013
Int. Soft Matter Conference 2013 - International Soft Matter Conference 2013
Int.l Porous and Powder Materials Symposium and Ex - International Porous and Powder Materials Symposium and
Exhibition
International Soft Matter Conference 2013 - International Soft Matter Conference 2013
Materialy Polimerowe Pomerania-Plast 2013 - Materialy Polimerowe Pomerania-Plast 2013
Modeling Interactions in Biomolecules IV - Modeling Interactions in Biomolecules IV
Nanobrücken-Dresden: A Nanomechanical Testing Work - Nanobrücken-Dresden: A Nanomechanical Testing
Workshop & Hysitron User Meeting
POLYCHAR - Rouen Symposium on Advanced Materials - POLYCHAR
Quatar Foudation - Annual Research Conference 2013 - Quatar Foudation - Annual Research Conference 2013
Sustainable Energy Storage in Buildings Conference - Sustainable Energy Storage in Buildings Conference
Workshop Career in Polymers V - Workshop Career in Polymers V
XXI. International Conference on Bioencapsulation - XXI. International Conference on Bioencapsulation