Dusan Racko, PhD

Head of Department of Molecular Simulations of Polymers

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Curriculum:

Dusan Racko did his PhD studies partially at the Polymer Institute of the Slovak Academy of Sciences and partially at the Department of Chemistry of the Florence University and the European Laboratory for Non-linear Spectroscopy in Florence, where he worked in the Molecular spectroscopy & simulations group of Prof Gianni Cardini, in between years 2000 and 2005. The topic of his PhD Thesis were computer simulations of condensed molecular phases.

Later on, he moved on a post-doc stay to Spain where he spent three years partially at the Faculty of Chemistry of the University of Basque Country and partially at the Donostia International Physics Center, starting from September 2007, till September 2010. There he worked on computer molecular dynamics simulations of polymer melts, in the Polymers & soft matter group of Prof Juan Colmenero de León.

After his return at the Polymer Institute of the Slovak Academy of Sciences in 2010, he took a position of Associate Professor at the Department of Molecular Simulations of Polymers, in the group of Prof Peter Cifra, where he has been working on computer molecular dynamics simulations of DNA molecules and complex molecular systems.

Next, Dusan Racko spent four years on an expert stay in Switzerland, at the Center of Integrative Genomics, which is a part of the Faculty of Biology and Medicine of the University of Lausanne, between August 2014 till July 2018. There, he worked in the group of Chromosome and DNA Modeling of Prof Andrzej Stasiak on computer molecular simulations of DNA molecules, studying aspects of DNA topology and molecular biology. In January 2015, the group became also a part of the Swiss Institute of Bioinformatics.

After his return at the Polymer Institute SAS he became the Head of the Department of Molecular Simulations of Polymers, starting from June 2019.

Dusan Racko is the author of about 30 CC publications, with about 400 citations. He presented or participated on about 100 conference contributions, including about 25 lectures in the EU and the US. As yet he received 4 invitations to give talks about his works on computer simulations at the international forums worldwide.

Aside of his scientific activities, Dusan Racko lived also two years in Morocco. Speaks French and English. Likes computer technology, popular science and traveling. Among others, visited CERN in Geneva, the construction site of the world's first fusion power plant (ITER) in Cadarache, the world oldest university in Bologna, the European fastest supercomputer site in the High Performance Computing Center in Stuttgart, etc.

Scientific interests:

computer simulations, molecular simulations, DNA, DNA topology, DNA and condensed matter, polymers and material modeling

Employment:

2018 - Head of Department of Molecular Simulations of Polymers, Polymer Institute, Slovak Academy of Sciences, Department of Molecular Simulations of Polymers, Bratislava, Slovakia

2015 - 2018 Research Associate, Swiss Institute of Bioinformatics, DNA and Chromosome Modeling group, Lausanne, Switzerland

2014 - 2018 Premier Assistant, University of Lausanne, Faculty of Biology and Medicine, Center for Integrative Genomics (CIG), DNA and Chromosome Modeling group, Lausanne, Switzerland

2010 - 2017 Associate Professor, Polymer Institute, Slovak Academy of Sciences, Department of Molecular Simulations of Polymers, Bratislava, Slovakia

2007 - 2010 post-doc, Donostia International Physics Center, Polymers & soft matter group, Donostia-San Sebastián, Spain

2007 - 2010 post-doc, Universidad del País Vasco / Euskal Herriko Unibertsitatea, Department of Chemistry, Polymers & soft matter group, Donostia-San Sebastián, Spain

2003 - 2004 PhD Fellow (Marie-Curie Training Fellowship), University of Florence, Dipartimento di Chimica "Ugo Schiff", Molecular spectroscopy & simulations group, Florence, Italy

2003 - 2004 PhD Fellow (Marie-Curie Training Fellowship), European Laboratory for Non-Linear Spectroscopy, Molecular spectroscopy & simulations group, Florence, Italy

Collaborations

2019- University of Adelaide, Faculty of Sciences, School of Biological Sciences, collaboration with Dr. Ian Dodd on modelling of gene expression by using coarse grained simulations of bacterial DNA

2019- Center of Integrative Genomics, University of Lausanne, Batiment Genopode, CH1015 Lausanne, Switzerland. Formalized collaboration on 3D modeling of genome with Prof Andrzej Stasiak within COST EUTOPIA

2018- GA Drilling Co., Contracted collaboration as external expert on consulting chemistry, engineering and usage of oil based muds and bio-fuels during design, performance and safety of drilling equipment

2010-2012 Department of Composite Materials at Polymer Institute of the Slovak Academy of Sciences, a collaboration with Prof. Igor Krupa formalized within EP7 NOMS project on modelling and design of a nano-mechanical photoactuating device

2000-2003 International Laser Center, Ilkovičova 2961/3, 841 04 Karlova Ves, Bratislava, Slovakia: Informal collaboration on atomistic molecular simulations with Prof Dusan Chrovat

Education:

2000 – 2005 Doctor of Philosophy, Polymer Institute of the Slovak Academy of Sciences, in Bratislava, Slovakia

1995 – 2000 Engineer's title, Faculty of Chemical and Food Technology, Department of Chemical Engineering, Slovak University of Technology, Bratislava, Slovakia

Invited lectures:

[4] **D. Račko et al.:** "Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation", Workshop on Knots and Links in Biological and Soft Matter Systems, 19.-24. September 2016, Trieste, Italy.

[3] **D. Račko:** "What can we learn from various free volume properties as obtained from computer simulations of polymer condensed phases", 24-27. May 2011, Mainz Materials Simulations Days 2011, Mainz, Germany.

[2] **D. Račko:** "The Free Volume of PVME as Computed in a Range of Temperatures and Length Scales up to the nano Region", 39th Seminar on the Positron Annihilation, PSPA10, 20-25 June 2010, Kazimiers, Poland.

[1] **D. Račko:** International Summer school on Polymers, Congress Center of the Slovak Academy of Sciences, 22-26 August 2011, Smolenice, Slovakia.

Awards and memberships:

Memberships:
(June 2019-) Head of Department of Molecular Simulations of Polymers at Polymer Institute SAS. (2020-) Member of Scientific Committee XI. Slovak-Czech Conference on Polymers "Polyméry 2020", (2020-) Board for Communication with Industry, (2019-) Supervising a PhD Thesis "Chromsome and DNA modeling", (2019) Committee member for PhD students, (2019) A Guest Editor in MDPI Computation, (2019) A member of organizing committee BIMac2019, (2017) Review editor in Frontiers in Molecular Biophysics, Frontiers in Physics, (2016) Guest editor in MDPI Polymers, (2014-2018) Member of Scientific board of Polymer Institute of the Slovak Academy of Sciences, (2011) Member of organizing committee of the 10 th International Workshop on Positron and Positronium Chemistry, (2011) Member of Scientific board at the International Summer School on polymers in Smolenice, (2011-) Member of the Slovak Physical Society

Awards:
(2013) 2nd place poster award, at the EUROFILLERS 2014 conference, August 25-29, 2013,
(2011) Best Young Scientist Paper Award at Polymer Institute in 2011, (2011) Certificate of Honor – award by Presidium of the Slovak Academy of Sciences for collection of works for a scientist under 35 years of age (https://tinyurl.com/lqwb2ap), (2005) FP5 Marie Currie Training Fellowship

Publications (WOS):
[32] R. Ruskova, **D. Racko*** "Entropic competition between supercoiled and torsionally relaxed chromatin fibres drives loop extrusion through pseudo-topologically bound cohesin." MDPI Biology, 2020 (submitted)

[31] S. Capponi, F. Alvarez, **D. Racko*** "Free volume in PVME-Water Solution" Macromolecules 2020, 53, 12, 4770–4782.

[30] **D. Racko**, F. Benedetti, J. Dorier, A. Stasiak “Are TAD’s Supercoiled?” Nucleic Acids Res. 47, 521-532 (2019).

[29] F. Benedetti, **D. Racko**, J. Dorier, A. Stasiak, “Introducing supercoiling into models of chromosome structure” Modelling 3D Conformation of Genome, edited by G. Tiana and L. Giorgetti, Series in Computational Biophysics, Chapter 6, pp 115-135 (2019).

[28] **D. Racko**, F. Benedetti, J. Dorier, A. Stasiak “Chromatin Loop Extrusion and Chromatin Unknotting” Polymer 10 (2018).

[27] **Racko D**, Benedetti F, Dorier J, Stasiak A. “Transcription-induced supercoiling as the driving force of chromatin loop extrusion during formation of TADs in interphase chromosomes”, Nucleic Acids Res 46(4) 1648-1660 (2018)

[26] Benedetti F, **Racko D**, Dorier J, Burnier Y, Stasiak A: "Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S. pombe" Nucleic Acids Res., 15, (2017) https://academic.oup.com/nar/article-abstract/doi/10.1093/nar/gkx716/4080665/Transcriptioninduced-supercoiling-explains (+journal cover)

[25] **Racko D**, Benedetti F, Dorier J, Burnier Y, Sasiak A: "Molecular dynamics simulation of supercoiled, knotted and catenated DNA molecules, including modeling of action of DNA gyrase." Bacterial nucleotide, Methods in Molecular Biology vol 1624, ISBN 978-1-4939-7097-1, pp. 263-299 Humana Press, Springer (2017) http://www.springer.com/de/book/9781493970971

[24] Eric J. Rawdon, Julien Dorier, **Dusan Racko**, Kenneth C. Millett, Andrzej Stasiak: How topoisomerase IV can efficiently unknot and decatenate negatively supercoiled DNA molecules without causing their torsional relaxation. Nucleic Acids Research 04/2016; 44(10). DOI:10.1093/nar/gkw311 (+journal cover)

[23] **Dusan Racko**, Fabrizio Benedetti, Julien Dorier, Yannis Burnier, Andrzej Stasiak: Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation. Nucleic Acids Research 07/2015; DOI:10.1093/nar/gkv683

[22] **Dušan Račko***, Peter Cifra: Arm retraction and escape transition in semi-flexible star polymer under cylindrical confinement. Journal of Molecular Modeling 07/2015; 21(7). DOI:10.1007/s00894-015-2735-9

[21] Fabrizio Benedetti, Aleksandre Japaridze, Julien Dorier, **Dusan Racko**, Robert Kwapich, Yannis Burnier, Giovanni Dietler, Andrzej Stasiak: Effects of physiological selfcrowding of DNA

on shape and biological properties of DNA molecules with various supercoiling. Nucleic Acids Research 03/2015; 43. DOI:10.1093/nar/gkv055

[20] Klaudia Czaniková, Igor Krupa, **Dušan Račko**, Vasilij Šmatko, Eva M Campo, Ewa Pavlova, Mária Omastová: In situ electron microscopy of Braille microsystems: Photoactuation of ethylene vinyl acetate/carbon nanotube composites. Materials Research Express 02/2015; 2. DOI:10.1088/2053-1591/2/2/025601

[19] **Dušan Račko***: „The free volume of condensed phases confined in a nanopore as seen by computer simulations and compared to PALS“ Acta Physica Polonica A 125(3) 785-789 (2014).

[18] Czanikova, Klaudia; Torras, Nuria; Esteve, Jaume; **Račko Dušan** et al., Nanocomposite photoactuators based on an ethylene vinyl acetate copolymer filled with carbon nanotubes, SENSORS AND ACTUATORS B-CHEMICAL Volume: 186 Pages: 701-710 Published: SEP 2013

[17] **Račko, Dušan***; Cifra, Peter, Segregation of semiflexible macromolecules in nanochannel, JOURNAL OF CHEMICAL PHYSICS Volume: 138 Issue: 18 Article Number: 184904 Published: MAY 14 2013

[16] Danko, Martin; Andicsova, Anita; Hrdlovic, Pavol, **Račko Dušan**; et al., Spectral characteristics of carbonyl substituted 2,2 '-bithiophenes in polymer matrices and low polar solvents, PHOTOCHEMICAL & PHOTOBIOLOGICAL SCIENCES Volume: 12 Issue: 7 Pages: 1210-1219 Published: 2013

[15] **Račko, Dušan***; Kristiak, Jozef: “The Free Volume Dynamics”, Materials Science Forum Volume: 733 Pages: 33-37 Published: 2013

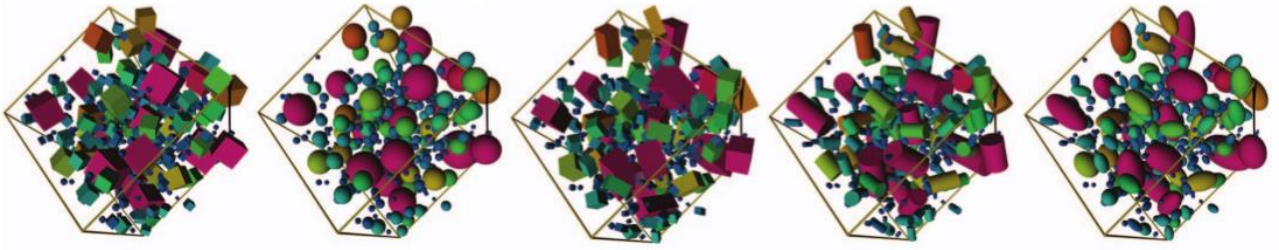
[14] **Račko Dušan***, On the relationship of the relative intensity I-3 and a cavity number as obtained from computer simulations, Materials Science Forum Volume: 733 Pages: 183-189 Published: 2013-

[13] Krupa I.; Nedelčev T.; Chorvát D Jr.; **Račko D.**; Lacík I.; „Glucose diffusivity and porosity in silica hydrogel based on organofunctional silanes“ Eur. Polym J. 47(7), 1477-1484 (2011).

[12] **Račko D**.; Capponi S.; Alvarez F.; et al., “The free volume of poly(vinyl methylether) as computed in a wide temperature range and at length scales up to the nanoregion” J. Chem Phys, 134(4), 044512 (2011).

[11] Krupa I.; Nedelčev T.; **Račko D.**; et al. “Mechanical properties of silica hydrogels prepared and aged at physiological conditions: testing in the compression mode” J. Sol-Gel Sci. Technol., 53(1), 107-114 (2010).

[10] **Račko D.***: “A Computational Model for Nano Scale Cavities in the Atomic Structure of Polymer Melt and Comparisons to PALS”, Mat. Sci. Forum, 666, 15-20 (2011).



[9] **Račko D.**; Capponi S.; Alvarez F.; et al.; “The free-volume structure of a polymer melt, poly(vinyl methylether) from molecular dynamics simulations and cavity analysis” J. Chem Phys., 131(6), 064903 (2009).

[8] Danko M.; Libiszowski J; Wolszczak; **Račko D.**; et al.; “Fluorescence study of the dynamics of a star-shaped poly(epsilon-caprolactone)s in THF: A comparison with a star-shaped poly(L-lactide)s” Polymer, 50(10), 2209-2219 (2009).

[7] Švajdlenková H.; **Račko D**.; Bartoš J.; “Spin probe reorientation and its connections with free volume and relaxation dynamics: Diglycidyl-ether of bis-phenol A” J. Non-Crys. Sol., 354(17), 1855-1861 (2008).

[6] Nedelčev T.; **Račko D.**; Krupa I.; “Preparation and characterization of a new derivative of rhodarnine B with an alkoxysilane moiety”, Dyes and pigments, 76(2), 550-556 (2008).

[5] **Račko D.***; Chelli R.; Cardini G.; et al.; “Free volume from molecular dynamics simulations and its relationships to the positron annihilation lifetime spectroscopy” Theo. Chem Acc., 118(2), 443-448 (2007).

[4] Bartoš J.; **Račko D**.; Šauša O.; et al “Positron annihilation lifetime spectroscopy and atomistic modeling - Effective tools for the disordered condensed system characterization”, SOFT MATTER UNDER EXOGENIC IMPACTS, NATO Science Series II – Mathematics, Physiscs and Chemistry, 242, 113-131 (2007).

[3] Bartoš J.; Andreozzi L; Faetti M.; Šauša O.; **Račko D.**; et al; “Free volume in poly(propylene glycol) and its relationships to spin probe reorientation” J. Non-Cryst Sol., 352(42-49) SI, 4785-4789 (2006).

[2] Bartoš J; Šauša O.; **Račko D.**; et al “Positron annihilation lifetime response and relaxation dynamics in glycerol” J. Non-cryst Sol. 351(33-36), 2599-2604 (2005).

[1] **Račko D.**; Chelli R.; Cardini G.; et al. “Insights into positron annihilation lifetime spectroscopy by molecular dynamics simulations - Free-volume calculations for liquid and glassy glycerol” Eur. Phys J D, 32(3), 289-297 (2005).

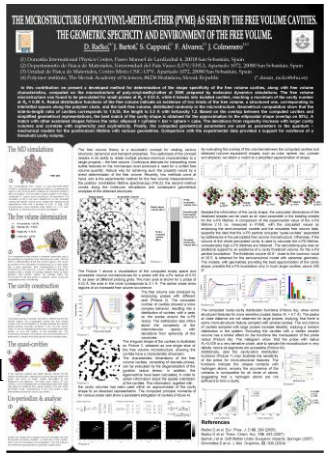
Conference Proceedings:

[1] J. Kuriplach, **D. Račko**, J. Bartoš, O. Šauša, J. Krištiak: „Calculation of positron Llifetime of amorphous solids.“ The 1st International Workshop on Positron as a probe of condensed matter, Smolenice, Slovak Republic, 27.- 30. May 2001 (Poster)

[2] J. Bartoš, **D. Račko**, O. Šauša, J. Krištiak, D. Chorvát: „Free volume in glycerol from modeling by energy minimization.“ The 1st International Workshop on Positron as a probe of condensed matter. Smolenice, Slovak Republic, 27.- 30. May 2001 (Poster)

[3] **D. Račko**, „The hydrogen bonding in Glycerol“, The student’s scientific conference, April, 2002, Department of Chemistry, Commenius University, Slovak Republic (poster)

[4] **D. Račko**: „Country Report on Computational Chemistry“ and „Case study: Hydrogen Bonding in Liquid Glycerol“, Training course on Molecular Design and Computer Assisted Combinatorial Chemistry, Trieste, Italy, 9-12 July 2002 (Lectures)


THE MICROSTRUCTURE OF POLYVINYL-METHYL-ETHER (PVME) AS SEEN BY THE FREE VOLUME CAVITIES.
THE GEOMETRIC SPECIFICITY AND ENVIRONMENT OF THE FREE VOLUME.

[5] **D. Račko**: „The free volume: A Molecular Dynamics Insight into Positron Annihilation Lifetime Spectroscopy“, http://www.lens.unifi.it/index.php?p=seminars.ins, LENS Aula Querzoli, Florence, Italy, 17 November 2003 (Lecture)

[6] J. Bartoš, O. Šauša, J. J. Fontanella, **D. Račko**, J. Krištiak: „Positron annihilation lifetime response and relaxation dynamics by the broadband dielectric spectroscopy in glycerol.“, Book of Abstracts of the 3rd International Conference on Broadband Dielectric Spectroscopy and Its Applications. Delft, The Netherlands, 23-26 August 2004 p.160 (poster)

[7] **D. Račko**, J. Bartoš, „Free-volume microstructure of the condensed phase from computer simulations“, The 3rd Czech and Slovak Days on Polymers, POLYMÉRY 2004, Smolenice, Slovak Republic, 26-29 September 2004 (Poster)

[8] J. Bartoš, **D. Račko**, R. Chelli, G. Cardini, S. Califano: „Free volume microstructure from positron annihilation lifetime spectroscopy, free volume models and atomistic modelling and its relationships to dynamics and transport properties“, Abstract book of International meeting on polymer modelling and its industrial applications, Boras, Sweden, 7-8 June, 2005 (Poster)

[9] J. Bartoš, J. J. Fontanella, O. Šauša, J. Krištiak, L. Andreozzi, **D. Račko**: „Free volume from PALS and its relationships to the dynamic and ion transport properties in undoped and doped poly(propylene glycol)“, Abstract book of the 6th Liquid Matter Conference, Utrecht, The Netherlands, 2-6 June, 2005 (Poster)

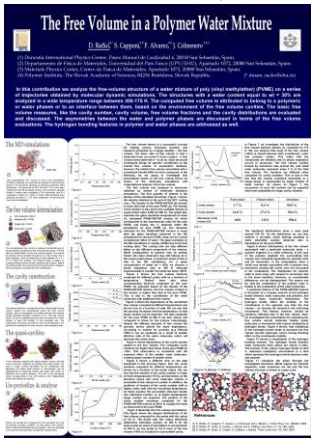
[10] **D. Račko**, J. Bartoš, R. Chelli, G. Cardini a S. Califano: „Free volume microstructure from molecular dynamics and its relationships to the PALS and dynamic properties“, Abstract book of the 5th International Discussion Meeting on Relaxations in Complex Systems, Lille, France, 7-13 July, 2005 (Poster)

[11] J. Bartoš, L. Andreozzi, M. Faetti, O. Šauša, J. Krištiak, **D. Račko**, „The free volume in poly(propyleneglycol) and its relationships to the spin probe reorientation“, Abstract book of the 5th International Discussion Meeting on Relaxations in Complex Systems, Lille, France, 7-13 July, 2005 (Poster)

[12] T. Nedelčev, I. Krupa, **D. Račko**, “Preparation and characterization of a new derivative of Rhodamine B with alkoxysilane moiety”, Advanced Polymeric Materials APM-2006, Bratislava, Slovak Republic, 11-15 June, 2006 (Poster)

[13] J. Bartoš, L. Andreozzi, O.Šauša, M.Faetti, **D. Račko**, F.Zulli, J.Krištiak, “Crossover phenomena in glass - forming liquids as detected by PALS and ESR methods”, Pisa, Italy, September 17-22, 2006 (Poster)

[14] T. Nedelčev, **D. Račko**, I. Krupa, “Preparation and characterization of a new derivative of Rhodamine B with alkoxysilane moiety”, Smolenice, Slovak Republic, November 27-29, 2006 (Poster)



[15] H. Švajdlenková, I. Quintana, V. Majerník, A. Arbe, **D. Račko**, O. Šauša, J. Krištiak, J. Colmenero and J. Bartoš, ”Spin probe reorientation in relation to free volume and phenyl ring dynamics in poly(ethersulphone)”, XXII International EPR Seminar, Kočovce, Slovak Republic, May 30 - June 2, 2007 (Poster)

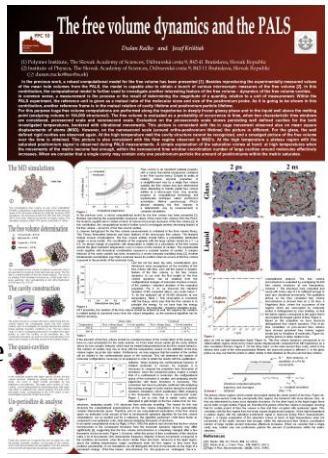
[16] J. Mosnáček, J. Kollár, J. Kronek, **D. Račko**, Cs. Kósa, M. Danko, A. Bílešová, “Aromatic Initiators For Nitroxide Mediated LFRP Synthesis And Molecular Modeling”, European Polymer Congress, Portorož, Slovenia, July 2 - 6, 2007 (Poster), P1.4.83 (poster)

[17] M. Danko, J. Libiszowski, M. Wolszczak, **D. Račko**, A. Duda, “Fluorescence Study Of The Molecular Dynamics Of Star-Tetrahydrofuran As Solvent”, European Polymer Congress, Portorož, Slovenia, July 2 - 6, 2007, P1.4.90 (Poster)

[18] **D. Račko**, J. Bartoš, “Free Volume Microstructure from Computer Simulations - A Straightforward Method for A Direct Free Volume Determination and Analysis”, The 3rd Workshop of Young European Scientists (YES), July 8-13 2007, Krakow, Poland (Poster and Lecture)

[19] **D. Račko**, J. Bartoš, “Free Volume Microstructure from Computer Simulations - A Straightforward Method for A Direct Free Volume Determination and Analysis”, The 1st Bratislava Young Polymer Scientists workshop (BYPOS), August 20-23 2007, Smolenice, Slovak Republic (Poster and Lecture)

[20] **D. Račko**, “Free Volume Microstructure from Computer Simulations (Part 1) - The Method” and “Free Volume Microstructure from Computer Simulations (Part 2) - The PBD Case”, 11. September 2007, A seminar at Donostia International Physics Centre, Donostia-San Sebastian, España (lectures)



[21] **D. Račko**, J. Bartoš, S. Capponi, F. Alvarez, J. Colmenero, “The Microstructure of Poly-(vinylmethylether) as Seen by the Free Volume Cavities. The Geometrical Specificity and Environment of the Free Volume.”, The 10th Granada Seminar on the Computational Physics, 15-19 September 2008, University of Granada, Granada, España” (poster)

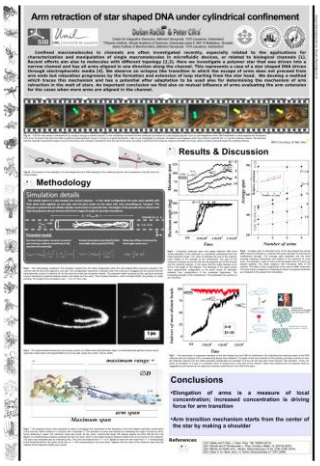
[22] **D. Račko**, S. Capponi, F. Alvarez, J. Colmenero and J. Bartoš, The Effect of temperature on the free volume measures in polymer: PVME, The 6th IDMRCS, 31. August – 4. September 2009, Roma, Italy (poster)

[23] **D. Račko**, S. Capponi, F. Alvarez, J. Colmenero, The Free Volume in Polymer Water Mixture, CONFIT 2010, 2 – 5 March 2010, Grenoble, France (poster)

[24] **D. Račko**, The Free Volume of PVME as Computed in a Range of Temperatures and Length Scales up to the nano Region, 39th Seminar on the Positron Annihilation, PSPA10, 20-25 June 2010, Kazimiers, Poland (lecture)

[25] **D. Račko**, “Free volume in polymer water mixture”, Simulating Soft Matter with ESPResSo (CECAM), 11.-15. October, 2010, Stuttgart, Germany (Poster)

[26] **D. Račko**, Computer Simulations and Discovery – Explorations behind the Free volume theory, 5.october 2010, Polymer institute of the Slovak Academy of Sciences, Bratislava (lecture)



[27] **D. Račko**, What can we learn from various free volume properties as obtained from computer simulations of polymer condensed phases, 24-27. May 2011, Mainz Materials Simulations Days 2011, Mainz, Germany (lecture&poster)

[28] **D. Račko**, The free volume in polymer water mixture, The 10th International Workshop on Positronium Chemistry, 5.-9. September 2011, Smolenice, Slovak Republic (lecture).

[29] **D. Račko** and J. Krištiak, The free volume dynamics, The 10th International Workshop on Positronium Chemistry, 5.-9. September 2011, Smolenice, Slovak Republic (poster).

[30] **D. Račko**, International Summer school on Polymers, Congress Center of the Slovak Academy of Sciences, 22-26 August 2011, Smolenice, Slovakia (lecture)

[31] **D. Račko** and P. Cifra - Effect of Chain Stiffness on Segregation of Macromolecules Confined in a nano-Channel, 12.-19. Oct 2012, ICPB5, Aveiro, Portugal, Book of Abstracts A099. (poster)

[32] **D. Račko** - Effect of Confinement on Molecular Mobility and Free Volume from Computer Simulations and PALS, SKBS2012, 19.-21. Mar. 2012, Univerzita Komenského, Bratislava, Slovensko, Book of Abstracts P18. (poster)

[33] **D. Račko** and P. Cifra - Effect of Chain Stiffness on Segregation of Macromolecules Confined in a nano-Channel, ESPResSo Summer School 2012, 7.-12. Oct. 2012, Institute for Computational Physics, Allmandring 3, 70569 Stuttgart, Germany. (poster)

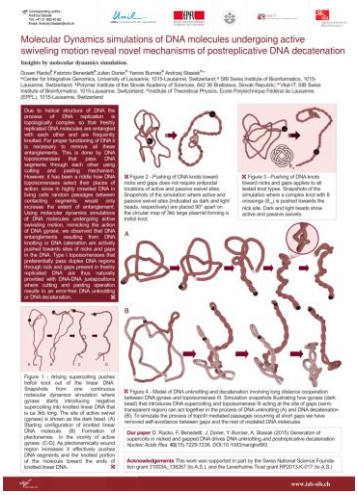
[34] **D. Račko** - Effect of Confinement on Molecular Mobility and Free Volume from Computer Simulations and PALS, ESPResSo Summer School 2012, 7.-12. Oct. 2012, Institute for Computational Physics, Allmandring 3, 70569 Stuttgart, Germany. (poster)

[35] **RAČKO, Dušan** - CIFRA, Peter. Segregation of semiflexible macromolecules in nanochannel. In International Soft Matter Conference 2013 : Rome, Italy, September 15 - 19, 2013 : book of poster abstracts. - Rome, Italy : Sapienza Universita di Roma, 2013, p. 319. (poster)

[36] **RAČKO, Dušan** - CIFRA, Peter. Dynamics of semiflexible star polymers in confinement: octopus transition. In International Soft Matter Conference 2013 : Rome, Italy, September 15 - 19, 2013 : book of poster abstracts. - Roma, Italy : Sapienza Universita di Roma, 2013, p. 685. (poster)

[37] **RAČKO, Dušan**. The free volume ofcondensed phases confined in a nanopore as seen by computer simulations and compared to PALS. In 41st PolishSeminar on Positron Annihilation : Lublin, Poland, September 09 - 13, 2013 : book of abstracts. - Lublin, Poland : Maria Curie-Sklodowska University, 2013, p. 47. (lecture)

[38] CZANIKOVÁ, Klaudia - KRUPA, Igor - KASÁK, Peter - ILČÍKOVÁ, Markéta – TORRAS, N. - JAUME, E. - CHORVÁT, Dušan Jr. - **RAČKO, Dušan** - ŠLOUF, M. – OMASTOVÁ, Mária. Photo-thermal actuation of ethylene vinylacetate/carbon nanotubes 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. 100 - 101. ISBN 978-80-970923-3-7. (poster)


Molecular Dynamics simulations of DNA molecules undergoing active swiveling motion reveal novel mechanisms of postreplicative DNA decatenation

[39] CZANIKOVÁ, Klaudia - KRUPA, Igor - KASÁK, Peter - ILČÍKOVÁ, Markéta - MOSNÁČEK, Jaroslav - MIČUŠÍK, Matej - TORRAS, N. - ESTEVE, J. - CHORVÁT, Dušan Jr. - **RAČKO, Dušan** - PAVLOVÁ, E. - OMASTOVÁ, Mária. Photo-actuation study of ethylene vinyl acetate copolymer filled with modified carbon nanotubes. In EUROFILLERS 2013 : 10th anniversary meeting : Bratislava, Slovakia, August 25 - 29, 2013 : book of abstracts. - Bratislava, Slovakia : Polymer Institute of SAS, Bratislava, 2013, p. 207 - 208. ISBN 978-80-970923-3-7. (poster)

[40] DANKO, Martin - ANDICS, Anita - HRDLOVIČ, Pavol - **RAČKO, Dušan** - VÉGH, Daniel - LUKEŠ, Vladimír. 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. ISSN 1336-7242. (poster)

[41] Peter Cifra, **Dušan Račko**, Segregation and chain extension of overlapping semiflexible molecules in channel, APS March meeting 2014, Colorado Convention Center, Denver CO, USA (lecture)

[42] Zuzana Benkova, **Dušan RAČKO**, Tomáš BLEHA, Peter CIFRA. Confined semiflexible macromolecules: Linear and ring DNA in nanochannels. In Thermodynamics of Complex Fluids and Interfaces : 5th US-Poland Workshop : Warsaw, Poland, June 11-13, 2014 : book of abstracts. - Warsaw, Poland : The University of Warsaw, 2014, p. 20-21. invited lecture, (lecture)

[43] **RAČKO, Dušan** – CIFRA Peter. Coarse grained molecular dynamics simulations of genomic molecules. In ESPResSo, CIG Retreat, Les Diablerets, Switzerland, September 4-5, 2014. (poster)

[44] **RAČKO, Dušan** – CIFRA Peter. Segregation of Semiflexible Molecules in a Nano Channel. In Advanced Workshop on Interdisciplinary Views on Chromosome Structure and Function, Trieste, Italy, September 15-19., 2014. (poster)

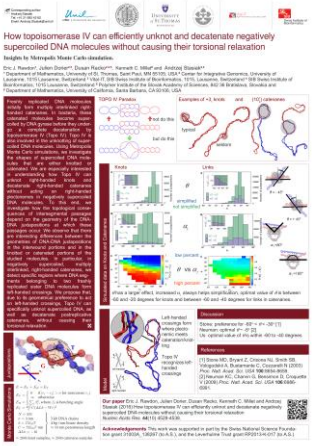
[45] **RAČKO, Dušan** – CIFRA Peter. Semiflexible star polymer confined in channel and octopus-like escape transition. In 9th Liblice conference on liquids, Seč, Česká republika, June 15-20, 2014, no proceedings, (poster)

[46] **RAČKO, Dušan** & Peter Cifra, Arm retraction of star shaped DNA under cylindrical confinement, Rigi Kulm, Switzerland 18.-20. Januar 2015, (lecture)

[47] F. Benedetti, A. Japaridze, J. Dorier, **D. Račko**, R. Kwapich, G. Dietler, Andrzej Stasiak, Effects of physiological selfcrowding of DNA on shape and biological properties of DNA molecules with various supercoiling, Basel Computational Biology Conference [BC]2, 7-10 June, Switzerland, 2015 (poster)

[48] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Arising supercoiling drives unknotting and decatenations, GenPhysChrom-CECAM, 22-26 Jun 2015, Lyon, France(lecture&poster).

[49] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, Geometric Energies with Links to Applications, Topology and Open problems, 31. 3. September 2015, Basel, Switzerland (poster).


How topoisomerase IV can efficiently unknot and decatenate negatively supercoiled DNA molecules without causing their torsional relaxation

[50] F. Benedetti, A. Japaridze, J. Dorier, **D. Racko**, R. Kwapich, Y. Burnier, G. Dietler, A. Stasiak. Effects of physiological self-crowding of DNA on shape and biological properties of DNA molecules with various levels of supercoiling, DNA topoisomerases, DNA topology and human health, EMBO Workshop, 13.-17. September 2015, Les Diablerets, Svajciarsko, Abstract book p. 38 (poster).

[51] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Arising supercoiling drives DNA unknotting and postreplicative decatenation, DNA topoisomerases, DNA topology and human health, EMBO Workshop, 13.-17. September 2015, Les Diablerets, Svajciarsko, Abstract book p. 54 (poster).

[52] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, CIG Retreat, 10.-11. September (2015), Les Diablerets, Switzzerlnad (poster)

[53] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Molecular Dynamics simulations of DNA molecules undergoing active swiveling motion reveal novel mechanisms of postreplicative DNA decatenation, Lausanne Genomics Days 2016, Center of Integrative Genomics, Universite de Lausanne, 18.-19. february 2016, Lausanne, Switzerland. (poster)

[54] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Arising supercoiling drives unknotting and decatenations, 2.-3. June 2016, CIG Symposium, Center of Integrative Genomics, Universite de Lausanne, 18.-19. february 2016, Lausanne, Switzerland. (poster)

[55] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Molecular Dynamics simulations of DNA molecules undergoing active swiveling motion reveal novel mechanisms of postreplicative DNA decatenation, Swiss Institute of Bioinformatics Days 2016, 7.-8. June 2016, Biel/Bienne, Switzerland. (poster)

[56] F. Benedetti, A. Japaridze, J. Dorier, **D. Racko**, R. Kwapich, Y. Burnier, G. Dietler, A. Stasiak. Effects of physiological self-crowding of DNA on shape and biological propertiesof DNA molecules with various levels of supercoiling, Swiss Institute of Bioinformatics Days 2016, 7.-8. June 2016, Biel/Bienne, Switzerland. (poster)

[57] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, CIG Retreat, 1.-2. September (2016), Leysin, Switzzerland (poster)

[58] Eric J. Rawdon, Julien Dorier, **Dusan Racko**, Kenneth C. Millet and Andrzej Stasiak, How topoisomerase IV can efficiently unknot and decatenate negatively supercoiled DNA molecules

without causing their torsional relaxation, CIG Retreat, 1.-2. September (2016), Leysin, Switzerland (poster).

[59] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Workshop on Knots and Links in Biological and Soft Matter Systems, 19.-24. September 2016, Trieste, Italy. (Invited lecture)

[60] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Unknotting and Decatenation in Biological Systems" Vital-IT webinar series, 17. March 2017, CIG Batiment Genopode, Lausanne, Switzerland (lecture)

[61] F. Benedetti, **D. Račko**, J. Dorier, Y. Burnier, A. Stasiak, "Transcription-induced ...", CECAM meeting on "Multiscale Modeling and Experimental Approaches to Genome Organization", 2.-7. April 2017, Les Houches, France (joint first author, poster)

[62] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Coarse Grained Molecular Dynamics simulations of DNA molecules undergoing active swiveling reveal novel mechanisms of postreplicative DNA decatenation", CECAM meeting on "Multiscale Modeling and Experimental Approaches to Genome Organization", 2.-7. April 2017, Les Houches, France (poster)

[63] Rawdon E, Dorier J, **Racko D.**, Millet KC, Stasiak A, "How topoisomerase IV can efficiently unknot and decatenate negatively supercoiled DNA molecules without causing their torsional relaxation" , CECAM meeting on "Multiscale Modeling and Experimental Approaches to Genome Organization", 2.-7. April 2017, Les Houches, France (poster)

[64] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Coarse Grained Molecular Dynamics simulations of DNA molecules undergoing active swiveling reveal novel mechanisms of postreplicative DNA decatenation", Knot Summer School 2017, 5.-10. June 2017, Freiburg, Germany (poster)

[65] Rawdon E, Dorier J, **Racko D**., Millet KC, Stasiak A, "How topoisomerase IV can efficiently unknot and decatenate negatively supercoiled DNA molecules without causing their torsional relaxation" , CECAM meeting on "Multiscale Modeling and Experimental Approaches to Genome Organization", 2.-7. April 2017, Les Houches, France (poster)

[66] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Knotted and linked biopolymers in biological systems by coarse-grained computer simulations" CIG Symposium, 15.-16. June 2017, CIG Batiment Genopode, Lausanne, Switzerland. (poster)

[67] F. Benedetti, **D. Račko**, J. Dorier, Y. Burnier, A. Stasiak, "Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S. pombe", CIG Symposium, 15.-16. June 2017, CIG Batiment Genopode, Lausanne, Switzerland (joint first author, poster)

[68] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Knotted and linked biopolymers in biological systems by coarse-grained computer simulations" Danube Vltava Sava Polymer Meeting, 5.-8. September 2017, Basel, Switzerland. (poster/lecture)

[69] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, "Knotted and linked biopolymers in biological systems by coarse-grained computer simulations" BC2 Conference, 12.-15. September 2017, Vienna, Austria. (poster/lecture)

[70] F. Benedetti, **D. Račko**, J. Dorier, Y. Burnier, A. Stasiak, “Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S. pombe”, CIG Retreat, 7.-8. September (2017), Diablerets, Switzerland (poster)

[71] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, CIG Retreat, 7.-8. September (2017), Diablerets, Switzerland (poster)

[72] F. Benedetti, **D. Račko**, J. Dorier, Y. Burnier, A. Stasiak, “Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S. pombe”, LS2 Satellite Meeting: DNA Topoisomerases and DNA Topology, 16.-17. September (2017), Diablerets, Switzerland (poster)

[73] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, LS2 Satellite Meeting: DNA Topoisomerases and DNA Topology, 16.-17. September (2017), Diablerets, Switzerland (poster)

[74] F. Benedetti, **D. Račko**, J. Dorier, Y. Burnier, A. Stasiak, “Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S. pombe”, EMBO Workshop: DNA Topoisomerases and DNA Topology, 16.-17. September (2017), Diablerets, Switzerland (poster)

[75] **D. Račko**, F. Benedetti, J. Dorier, Y. Burnier, A. Stasiak, Generation of supercoils in nicked and gapped DNA drives DNA unknotting and postreplicative decatenation, EMBO Workshop: DNA Topoisomerases and DNA Topology, 16.-17. September (2017), Diablerets, Switzerland (poster)

[76] **D. Racko**, F. Benedetti, J. Dorier, A. Stasiak. “Transcription-induced supercoiling as the driving force of chromatin loop extrusion during formation of TADs in interphase chromosomes.”, Compbio2017, EPFL-Swiss Federal Institute of Technology in Lausanne, Switzerland, SV building, conference room SV1717, 4. October 2017 (poster).

[77] **D. Racko**, F. Benedetti, J. Dorier, A. Stasiak. “Transcription-induced supercoiling as the driving force of chromatin loop extrusion during formation of TADs in interphase chromosomes.”, Scientific Board of Polymer Institute SAS and Slovak Chemical Society, Polymer Institute SAS, Bratislava, 21 December 2018 (lecture)

[78] F. Benedetti, **D. Racko**, J. Dorier, D. Goundaroulis, A. Stasiak “Mechanisms of Chromatin Unknotting” AMS Sectional Meeting, Northeastern University, Boston, Massachusetts USA, April 21-21 (2018) (lecture)

[79] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Biological Systems” AMS Sectional Meeting, Northeastern University, Boston, Massachusetts USA, April 21-21 (2018) (poster)

[80] **D. Racko**, F. Benedetti, J. Dorier, A. Stasiak, “Transcription-induced supercoiling as the driving force of chromatin loop extrusion during formation of TADs in interphase chromosomes.” Epigenetics and Multiscale Genomics (CECAM), 2-4 May 2018, Lausanne, Switzerland (poster)

[81] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Biological Systems” Visit of Scientific and Advisory Committee at CIG, University Lausanne, Switzerland, 7.-8. June 2018 (poster)

[82] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Biological Systems” CIG Symposium, Batiment Genopode, 21-22 June 2018, Lausanne, Switzerland (poster)

[83] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Biological Systems” , SIB Days 2018 “20 Years of Swiss Institute of Bioinformatics”, Biel/Bienne, 26-27 June, Switzerland (poster)

[84] F. Benedetti, **D. Racko**, J. Dorier, A. Stasiak “Transcription-induced supercoiling explains formation of self-interacting chromatin domains in S.pombe” SIB Days 2018 “20 Years of Swiss Institute of Bioinformatics”, Biel/Bienne, 26-27 June, Switzerland (poster)

[85] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Bilogical Systems” EMBO | EMBL Symposium: Principles of Chromosome Structure and Function, 5.-9. September 2018 Heidelberg, Germany.

[86] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Efficeint Mechanisms of DNA and Chromatin Unknotting in Biological Systems” A Weekend with Slovak Academy of Sciences, public presentation of the Polymer Institute, Town Hall of Bratislava Old City, 7.-8. September 2018, Bratislava, Slovakia

[87] **D. Racko**, P. Čakánek “Computer simulations in polymer science” Open Door Days at Polymer Institute, Slovak Academy of Sciences, Dúbravská cesta 9, Bratislava, November 2018, Slovakia

[88] **D. Racko**, F. Benedetti, J. Dorier, D. Goundaroulis, A. Stasiak “Chromatin Loop Extrusion and Chromatin Unknotting” The 1st EUTOPIA COST Action Meeting, ECT* Villa Tambosi, 4.-9. February, Trento, Italy

[89] **D. Račko**, S. Capponi, F. Alvarez, J. Colmenero The Free Volume In A Polymer Water Mixture: Poly (Vinyl Mether Eather) Case. XXXIII Bratislava International Conference on Macromolecules BIMac2019, Falkensteiner Hotel, Pilarikova 5, 811 03 Bratislava, 30. June-3. July 2019, Slovakia

[90] **D. Racko**, Fabrizio Benedetti, Julien Dorier, Andrzej Stasiak Introducing Supercoiling Into Models Of DNA And Chromosome Structure. XXXIII Bratislava International Conference on Macromolecules BIMac2019, Falkensteiner Hotel, Pilarikova 5, 811 03 Bratislava, 30. June-3. July 2019, Slovakia

[91] **D. Racko**, Fabrizio Benedetti, Dimos Goundaroulis and Andrzej Stasiak Chromatin Loop Extrusion and Chromatin Unknotting XXXIII Bratislava International Conference on Macromolecules BIMac2019, Falkensteiner Hotel, Pilarikova 5, 811 03 Bratislava, 30. June-3. July 2019, Slovakia

[92] **Dušan Račko** Comparison Of Methods For Modeling Chromatin Loop Extrusion: Constant Force And Constant Speed Motors. XXXIII Bratislava International Conference on Macromolecules BIMac2019, Falkensteiner Hotel, Pilarikova 5, 811 03 Bratislava, 30. June-3. July 2019, Slovakia

[93] RUSKOVÁ, Renáta - **RAČKO, Dušan**. Computer simulations of DNA and chromatin: DNA trefoil in confinement. - 4D Epigenome, Palazzo Cavalli-Franchetti – S.Marco, 2842, 30124 Venice, Italy, 3-5 Október 2019, Vývеska

[94] **RAČKO, Dušan** – STASIAK, Andrzej. Introducing Supercoiling Into Models Of DNA And Chromosome Structure: From Mechanic towards Entropic Loop Extrusion The Second COST Main Meeting, 3.-8. November, Spain, San Sebastian 2019. P

[95] **RAČKO, Dušan****. Modelling of bio-macromoleculaes and polymer systems in studies of chromatin dynamics and organization. In Polyméry 2020 : XI. Slovensko - Česká konferencia : kniha príspevkov a program. - Bratislava : Ústav polymérov SAV, 2020, s. 20. ISBN 978-80-89841-14-1.

[96] RUSKOVÁ, Renáta** - **RAČKO, Dušan**.** Computer simulations of chiral DNA knots in confinement. In Polyméry 2020 : XI. Slovensko - Česká konferencia : kniha príspevkov a program. - Bratislava : Ústav polymérov SAV, 2020, s. 62-63. ISBN 978-80-89841-14-1. Dostupné na internete:

[97] **Racko, D.** "Entropic competition between supercoiled and torsionally relaxed chromatin fibres drives loop extrusion through pseudo-topologically bound cohesin at low levels of supercoiling" 3D Genomics 2020, Organized by CNRS/CECAM/COST INC as online conference.

[98] D. Racko and R. Ruskova, "Coarse Grained Simulations of Bio-polymers" Open Door Sessions at Polymer Institute SAS 2020, virtual presentations https://fb.watch/1N7AFXN52C/

Coordination of projects (principal investigator):
[4] VEGA 2/0102/20 "Molecular dynamics simulations of topologically constrained and confined polymers" 1.1.2020/30.12.2023

[3] STSM 44913 / CA 17139 "Transcription induced supercoiling in 4D genome organization" 11.8.2019/25.8.2019

[2] VEGA 2/0068/13 "Nanostructured polymers and polymer nanostructures", Polymer Institute of the Slovak Academy of Sciences, Dúbravská cesta 9, 841 14 Bratislava, Slovakia (01/01/2013-31/12/2016)

[1] Marie Curie Training Fellowship "Free volume from computer simulations" within HPMT-CT-2000-00123 European laboratory for Non-Linear Spectroscopy, Largo E. Fermi 2, Università di Firenze, 50125 FIRENZE, Italy (01/05/2003-01/05/2004)

Rejected Proposals
[3] JRDF 201307832 Diffusion kinetics of glucose and proteins in alginate-based microspheres: experiment and simulation 2019

[2] A project on computer simulations of DNA and chromatin in different topological conditions and development of new computational models submitted to Marie Curie Sklodowska Actions within the H2020, Individual Fellowships / Reintegration Panel (2019).

[1] A project on free volume simulations of condensed phases and development of computational tools for the free volume analysis submitted to Marie Curie Sklodowska Actions within the 6th Framework Program, Individual fellowships / Standard panel (2006).

Collaboration on projects:
[13] COST 17139 European Topology Interdisciplinary Action (EUTOPIA) Luca Tubiana (Uni Trento) 2018-2023

[12] APVV-16-0369 “Physical properties of organic compounds and water confined in mesopores of inorganic matrices” (01/07/2017-30/06/2021, principal investigator Ondrej Sausa)

[11] APVV-15-0323 “Structural transitions of (bio)macromolecules in nanochannels” (01/07/2016-30/06/2020, principal investigator Peter Cifra)

[10] APVV-11-0451 „Nanostructure in macromolecular systems induced by confinement“, (26/03/2015-25/03/2018, principal investigator Peter Cifra)

[9] MACHINA (Stage II.), Center for materials, layers and systems for applications and chemical processes under extreme conditions Stage II, which is supported by the Research & Development Operational Program and funded by the ERDF 2010-2013.

[8] EC228916/ FP7-NMP-2008-SMALL-2, collaboration on “Nano-Optical Mechanical Systems (NOMS)” within the 7th Framework Program “FP7-NMP - Specific Programme "Cooperation": Nanosciences, Nanotechnologies, Materials and new Production Technologies” (2009-2012)

[7] VEGA 2/0093/12 „Structural transitions of confined semi-flexible macromolecules“ (principal investigator Peter Cifra)

[6] MACHINA (Stage I.), Centre for materials, layers and systems for applications and chemical processes under extreme conditions supported by the Research & Development Operational Program funded by the ERDF, 2007-2010.

[5] No. IT-436-07 Basque Government and Spanish MEC Grant No. CSD2006-53 (principal investigator Juan Colmenero de Leon)

[4] MAT2007-63681 Spanish Ministry of Education, Donostia International Physics Center (principal investigator Juan Colmenero de Leon)

[3] APVT 51-045302, “Free volume of molecular and polymer systems and their transport and dynamic properties.” (principal investigator J. Kristiak)

[2] APVT-51-004904 „New aromatic nitroxides and alkoxyamines. Synthesis, characterization and use in LFPR and stabilization of polyolefins“ 2004-2007 (principal investigator Jaroslav Mosnáček)

[1] HPMT-CT-2000-00123 “Cold atoms and quantum degeneracy”, Human Resources and Mobility, FP5-Human potential: Programme for research, technological development and demonstration on "Improving the human research potential and the socio-economic knowledge base", European laboratory for Non-Linear Spectroscopy, Largo E. Fermi 2, Università di Firenze, 50125 Florence, Italy (01/09/2000-31/08/2004)

Training

[17] CADMOS HPC Course 2018, Hôtel Suisse in Champéry, Switzerland, 9.-11. July 2018

[16] 5th Lausanne CompBio Meeting, Meeting of various UNIL/EPFL groups that are active in research related to Computational Biology, November 30 2017, Auditorium “C”, Building Genopode, Universite de Lausanne, Lausanne, Switzerland.

[15] 4th Lausanne CompBio Meeting, Meeting of various UNIL/EPFL groups that are active in research related to Computational Biology, May 30 2017, Auditorium “Charlotte Olivier”, main building of the Central University Hospital of Vaud (CHUV), Lausanne, Switzerland.

[14] 3rd Lausanne CompBio Meeting, Meeting of various UNIL/EPFL groups that are active in research related to Computational Biology, January 18 2017, Auditorium at Biophore, University of Lausanne, Lausanne, Switzerland.

[13] 2nd Lausanne CompBio Meeting, Meeting of various UNIL/EPFL groups that are active in research related to Computational Biology, September 14 2016, Auditorium at Biophore, University of Lausanne, Lausanne, Switzerland.

[12] 1st Lausanne CompBio Meeting, Meeting of various UNIL/EPFL groups that are active in research related to Computational Biology, May 3 2016, Auditorium “Maternity”, Central University Hospital of Vaud (CHUV), Lausanne, Switzerland.

[11] High Performance Computing in Life Sciences, Infrastructure training, Vital-IT Swiss Institute Bionformatics, Center of Integrative Genomics, Genopode, 11. February 2015, Lausanne, Switzerland.

[10] 2nd High-Performance Computing workshop, 11-13. November 2013, Congress Center of the Slovak Academy of Sciences

[9] 1st High-Performance Computing workshop, 21.-22. November 2012, Congress Center of the Slovak Academy of Sciences

[8] ESPResSo Summer School (CECAM). 8.-12 October 2012, Stuttgart, Germany

[7] Simulating Soft Matter with ESPResSo, University of Stuttgart, 11.-15. October, Stuttgart, Germany

[6] 2nd International Workshop on Grid Computing for Complex Problems, Institute of Informatics, Slovak Academy of Sciences, 28-30 November 2006, Bratislava, Slovakia

[5] 1st International Workshop on Grid Computing for Complex Problems, Institute of Informatics SAS, 29-30 November 2005, Bratislava, Slovakia

[4] Developing skills for future career under EC FP7, the Slovak Academic Information Agency

[3] TRVS XI “Time resolved vibrational spectroscopy”, May 24-29 2003, Castiglione della Pescaia, Italy.

[2] Training course on Molecular Design and Computer Assisted Combinatorial Chemistry, Trieste, Italy, 9-12 July 2002.

[1] Courses of English language at the Institute of Languages, Slovak Academy of Sciences (October 2000 – May 2001)

Bratislava, 30.03.2019 Dušan Račko