

Narges Nikoofard

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Personal Information

Birth: 5 September 1985, Tehran.

Female, Married.

Education

- Farzanegan High School of Kashan (Exceptional Talents School), Sep 1999 – Jun 2003.
- Continuous PhD (This is a 7- to 9-year course which goes directly to PhD), Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran, Sep 2003 – Apr 2012.

Honors

- Ranked 48 in the Iranian universities entrance exams (Among around 400,000 participants), 2003.
- Ranked first among students of the continuous PhD course, 2003 – 2012.
- The “Physical Society of Iran” award, for outstanding young researcher, 2012.
- Referee of Physical Review Letters, American Physical Society, 2012-Now.

Publications

- *Free-energy barrier for electric-field-driven polymer entry into nanoscale channels*, Narges Nikoofard and Hossein Fazli, Physical Review E (Rapid Communications) **83**, 050801 (2011).
- *Electric-field-driven polymer entry into asymmetric nanoscale channels*, Narges Nikoofard and Hossein Fazli, Physical Review E **85**, 021804 (2012).
(Also, selected for publication in Virtual Journal of Nano-scale Science and Technology, Volume 25, Issue 10)
- *Distribution of counterions and interaction between two similarly charged dielectric slabs: Roles of charge discreteness and dielectric inhomogeneity*, Weria Pezeshkian, Narges Nikoofard, Davood Noroozi, Farshid Mohammad-Rafiee, and Hossein Fazli, Physical Review E **85**, 061925 (2012).
- *Directed translocation of a flexible polymer through a cone-shaped channel*, Narges Nikoofard, Hamidreza Khalilian, and Hossein Fazli, Journal of Chemical Physics **139**, 074901 (2013).

Conference Proceedings

- *Polymer Entry Process into Narrow Channel*, Narges Nikoofard, Hossein Fazli, and Mohammad Reza Kolahchi, Proceedings of the 15th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2009.
- *Polymer Entry under the electric field effect into asymmetric nano-channels*, Proceedings of the 18th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2012.
- Abstract: *Polymer entry into an asymmetric channel under the electric field effect*, Narges Nikoofard and Hossein Fazli, Journal of Iranian Chemical Society **9**, A82 (2012) (Proceeding Abstracts of the First International & 11th Iran Biophysical Chemistry Conference).
- *Polymer Translocation through Cone-shaped Nano-channels*, Narges Nikoofard, Hamidreza Khalilian and Hossein Fazli, Proceedings of the 11th Condensed Matter Conference of Physical Society of Iran, University of Shahroud, Jan 2013.

- *Extension of a Flexible Polymer Confined inside a Nano-Channel*, S. Mohammad Hoseinpoor, Narges Nikoofard and Mostafa Zahedifar, Proceedings of the 5th International Conference on Nanostructures (ICNS5), Kish Island, March 2014.

Presentations

- Poster: *Polymer Entry Process into Narrow Channels*, 15th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2009.
- Oral: *Polymer Entry into Narrow Asymmetric Channels*, Weekly seminars of Condensed Matter Group, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2010.
- Oral: *Free-energy barrier for electric-field-driven polymer entry into nanoscale channels*, 18th Spring Physics Conference, School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, June 2010.
- Oral: *Free-energy barrier for electric-field-driven polymer entry into nanoscale channels*, Weekly seminars of Dr. Mohammad Reza Ejtehadi group, Physics Department, Sharif University of Technology, Tehran, Feb 2012.
- Contributed Speaker: *Electric-field-driven polymer entry into asymmetric nanoscale channel*, 18th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2012.
- Poster: *Polymer entry into an asymmetric channel under the electric field effect*, First International & 11th Iran Biophysical Chemistry Conference, Ardabil, Jun 2012.
- Poster: *Polymer Translocation through Asymmetric Nano-channels*, Institute of Computational Physics, University of Stuttgart, Germany, Oct 2012.
- Oral: *Polymer Translocation through Asymmetric Nano-channels*, Group of Dr. Ulrich Rant, Technical University of Munich, Germany, Oct 2012.
- Oral: *Polymer Translocation through Asymmetric Nano-channels*, Group of Prof. Tim Liedl, Ludwig-Maximilians University of Munich, Germany, Oct 2012.
- Poster: *Distribution of counterions and interaction between two similarly charged dielectric slabs: Roles of charge discreteness and dielectric inhomogeneity*, 5th conference on Statistical Physics (Soft Condensed Matter and Complex Systems), Physics Department, University of Tehran, Dec 2012.

- Poster: *Polymer Translocation through Cone-shaped Nano-channels*, 11th Condensed Matter Conference of Physical Society of Iran, University of Shahroud, Jan 2013.
- Invited Speaker: *Single Polymer Dynamics and Polymer Translocation*, Workshop on Physics of Polymers and Biopolymers, Institute for Advanced Studies in Basic Sciences (IPM), Oct 2013.

Attended Seminars and Workshops

- 9-11th School of Physics (entitled: High Energy, Statistical Mechanics, Condensed Matter), Institute for Advanced Studies in Basic Sciences, Zanjan, Winter 2003-2005.
- 12-18th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, June 2006-2012.
- 12th Spring Physics Conference, School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, May 2005.
- The 2nd Workshop on High Performance Computing (HPC09), Institute for Research in Fundamental Sciences (IPM) and Shahid Beheshti University, Tehran, Jan 2009.
- 9th Condensed Matter Conference of Iranian Physical Society, Shahid Chamran University, Ahwaz, Feb 2009.
- The LAMMPS Workshop, Sharif University of Technology, Tehran, Dec 2009.
- Casimir Workshop, Institute for Research in Fundamental Sciences (IPM), Jul 2010.
- 10th Condensed Matter Conference of Iranian Physical Society, University of Shiraz, Shiraz, Jan 2010.
- 18th Spring Physics Conference, School of Physics, Institute for Research in Fundamental Sciences (IPM), Tehran, May 2011.
- Mini workshop on Biological Physics, Physics Department, Sharif University of Technology, Dec 2011.
- First IPM Meeting on Statistical Physics, Soft Matter and Complex Systems, Institute for Research in Fundamental Sciences (IPM), Feb 2012.
- 18th Annual IASBS Meeting on Condensed Matter Physics, Institute for Advanced Studies in Basic Sciences, Zanjan, Jun 2012.

- The First International & 11th Iran Biophysical Chemistry Conference, Ardabil University of Medical Sciences, Jun 2012.
- Summer School on “Simulating Soft Matter with ESPResSo, ESPResSo++ and VOTCA”, Institute of Computational Physics, University of Stuttgart, Germany, Oct 2012.
- 5th conference on Statistical Physics (Soft Condensed Matter and Complex Systems), Physics Department, University of Tehran, Dec 2012.
- 11th Condensed Matter Conference of Physical Society of Iran, University of Shahroud, Jan 2013.
- Workshop on Physics of Polymers and Biopolymers, Institute for Advanced Studies in Basic Sciences (IPM), Oct 2013.
- Workshop on "Molecular Dynamics simulation using LAMMPS", Sharif University of Technology, Dec 2013.
- 5th International Conference on Nanostructures (ICNS5), Sharif University of Technology, March 2014.

Completed Research Projects

- “Asphaltene Precipitation in Reservoir Fluids” and “Miscible Gas Injection into oil reservoirs”, Dr. MohammadReza Razvan group, Ide-pardazan-e Javan (Young Idea-Makings) group, Research Institute of Petroleum Industry, Summer 2005.
- “Molecular Dynamics Simulation of Granular Media under a Periodic Force, and Comparison with Experiment”, with Dr. Mania Maleki, Autumn 2007.
- PhD thesis, entitled “Polymer Translocation through Asymmetric Nano-channels”, Supervisor: Dr. Hossein Fazli, Advisor: Prof. MohammadReza Kolahchi, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran. Oct 2008 – Apr 2012.

Current Research Interests

- Polymers and Biopolymers Confined in Nano-structures
- Self-assembled Nano-structures (Design and Properties)
- Multi-scale Modeling of Polymers
- Electrostatic Interactions at the Nano-scale in Aqueous Environment

Special Courses

- **Hard Condensed Matter:**

Condensed Matter Physics I, II, III

Many Particle Physics I, II

Special Topics in Mesoscopic Physics, Final Project: “Analysis of Zeeman Effect in the Hydrogen Atom up to the Second Order”, “Production and Properties of the 2D Electron Gas”, with Prof. Malek Zareyan, 2005.

- **Soft Condensed Matter:**

Biology I, II

Soft Condensed Matter I, II

Special Topics in Polymer Physics I, II

Special Topics in Diffusion Processes

Special Topics in Renewable Energies, Final Project: “Using Solar Energy in Zanjan and Producing Hot Water for IASBS Restaurant”.

- **Scientific Use of Computer:**

Numerical Analysis, Final Project: “Calculating the Eigenvalues and Eigenvectors of the Hamiltonian of the Perturbed Harmonic Oscillator”.

Computational Physics, Final Project: “Numerical Calculation of the Heat Conduction Equation”.

Others: Group Theory, Differential Geometry, Geophysics, Fluid Mechanics

Skills

- Programming with Fortran, Tcl, C.
- Professional in ESPResSo and experienced with LAMMPS and GROMACS.
- Molecular Dynamics Simulation of Soft Matter Systems.

- Familiar with MATLAB.
- Experienced with Intel Math Kernel Library (MKL).
- Familiar with Bash Scripting and High Performance Computing.
- Translating, writing and speaking English very well.