Aram Davtyan

Department of Chemistry, The University of Chicago

Phone: 919-265-8369 • E-Mail: davtyan.aram@gmail.com • www.adavtyan.org

Education

Ph.D., Chemistry, University of Maryland, College Park, USA 2013

M.S., Chemistry, University of North Carolina at Chapel Hill, USA 2010

B.A., Physics, Yerevan State University, Armenia 2007

Physics & Mathematics School, Yerevan State University, Armenia 2003

Academic Experience

Postdoctoral research associate 2017 - present

Center for Theoretical Biological Physics, Rice University

Investigation of the collective dynamics of motor proteins and molecular mechanisms behind function of p53.

Postdoctoral research scholar 2013 - 2017

Department of Chemistry, University of Chicago

Multi-scale molecular modeling; development and implementation of coarse-grained and mesoscopic simulation methods.

Summer research fellow Summer, 2013

Department of Chemistry and Biochemistry, University of Maryland, College Park

Macromolecular coarse-grained modeling; study of protein folding and protein-protein interactions.

Visiting scholar Summer, 2007

Scripps Research Institute, California

Biomedical research in Structural Biology; study of metal-ligand and metal-protein interactions using PDB database.

Publications

- Z. Jarin, **A. Davtyan**, F.-C. Tsai, J. Grime, P. Bassereau, G. A. Voth, "Organization of I-BAR Proteins on Tubular and Vesicular Membranes" (working paper)
- **A. Davtyan**, M. Simunovic, G. A. Voth, "The Mesoscopic Membrane with Proteins Model (MesM-P)", *J. Chem. Phys.,* ***2017****, 147, 044101*
- **A. Davtyan,** G. A. Voth, H. C. Andersen, "Dynamic Force Matching: Construction of Dynamical Coarse-grained Models for Simultaneous Capturing of Translational and Rotational Diffusion Rates", *J. Chem. Phys.*, ***2016****, 145,* 224107
- **A. Davtyan**, M. Simunovic, G. A. Voth, "Multiscale Simulations of Protein Facilitated Membrane Remodeling", *J. Struct. Biol.,* ***2016****, 196(1),* 57-63
- **A. Davtyan**, M. Platkov, M. Gruebele, G. A. Papoian, "Stochastic Resonance in Protein Folding Dynamics", *ChemPhysChem,* ***2016****, 17(9),* 1305-1313
- K. Dave, **A. Davtyan**, M. Platkov, G. A. Papoian, M. Gruebele, "Environmental Fluctuations and Stochastic Resonance in Protein Folding", *ChemPhysChem,* ***2016****, 17(9),* 1341-1348
- **A. Davtyan,** J. F. Dama, G. A. Voth, H. C. Andersen, "Dynamic Force Matching: A Method for Constructing Dynamical Coarse-Grained Models with Realistic Time Dependence", *J. Chem. Phys.*, **2015**, *142*, 154104
- **A. Davtyan,** J. F. Dama, A. V. Sinitskiy, G. A. Voth, "The Theory of Ultra-Coarse-Graining. 2. Numerical Implementation", *J. Chem. Theory Comput.*, **2014**, *10(12)*, 5265-5275

- W. Zheng, N. Schafer, **A. Davtyan**, G. A. Papoian, P. G. Wolynes , "Predictive Energy Landscapes for Protein-Protein Association", *PNAS,* **2012,** *109(47)*, 19244-19249
- **A. Davtyan**, W. Zheng, N. Schafer, C. Clementi, P. G. Wolynes and G. A. Papoian, "AWSEM-MD: Protein Structure Prediction Using Coarse-grained Physical Potential and Bioinformatically Based Local Structure Biasing", *J. Phys. Chem. B.*, **2012**, *116(29)*, 8494-8503

Teaching Experience

Physical Chemistry Lab (CHEM 481L/482L)) Fall 2010, Spring 2009

Department of Chemistry, The University of North Carolina at Chapel Hill

General Chemistry Lab (CHEM 101L) Fall 2008

Department of Chemistry, The University of North Carolina at Chapel Hill

Non-academic Experience

Molsoft LLC 2006 - 2008

Participated in development of "ICM" project; computational chemistry and bioinformatics software. Primary focus: implementation of IUPAC naming of organic molecules

Softmaster LTD 2003 - 2008

Accounting software development using Visual FoxPro, SQL and Microsoft Word/Excel COM Server technology

Selected Conference Presentations

- Theory and Applications of Computational Chemistry (TACC) Conference, August, 2016 (poster)
- SIAM MS16 Conference, Philadelphia, Pennsylvania, May 2016
- XSEDE15 Annual Conference, St. Louis, Missouri, July 2015 (poster)
- The 46th Midwest Theoretical Chemistry Conference (MWTCC), Northwestern University, Evanston, Illinois, June 2014
- Physics of Living Systems Student Research Network & Sackler Symposium, Yale University, New Haven, Connecticut, July 2012
- The APS March Meeting, Boston, Massachusetts, 2012
- Gordon Research Conference, Protein Folding Dynamics, Ventura, California, January 2012 (poster)
- Gordon Research Seminar, Protein Folding Dynamics, Ventura, California, January 2012 (poster)
- An International Symposium, Solvation and Ionic Effects in Bio-molecules: Theory to Experiment, Yerevan, Armenia, May 2010 (poster)

Awards

- Dean's Fellowship, Department of Chemistry and Biochemistry, The University of Maryland, Fall 2012
- Dean's Summer Fellowship Award, Department of Chemistry and Biochemistry, The University of Maryland, 2012
- Best undergraduate student award, Department of Physics, Yerevan State University, Armenia, 2007
- Victor Hambarcumyan monthly scholarship (awarded to one of the top five students), Department of Physics, Yerevan State University, Armenia, 2005 – 2007

Skills

- Languages: Armenian (native), English (fluent), and Russian (fluent)
- Scientific software: Mathematica, Matlab, R, LAMMPS, Gromacs, NAMDE, Amber, VMD, PyMol, ChemDraw, EndNote
- Scientific libraries: Matplotlib, Biopython, MDAnalysis, MDTraj, GNU GSL, NLopt, BLAST, FFTW, Boost, PLUMED
- Programing: C\C++, Cuda, MPI, Python, Shell Script, LaTeX, Java, SQL, PHP, AJAX, WinApp, Visual C++, Borland C++ Builder, Visual Basic, Fox Pro, Java Mobile Edition