Janhavi Giri

Visiting Research Faculty
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Education –

- Ph.D., Bioengineering, University of Illinois at Chicago and Rush University Medical Center, Chicago, IL, USA, May 2011
  - Thesis Title – *Study of Selectivity and Permeation in Voltage-Gated Ion Channels,*
  - Thesis Advisor – Prof. Robert S. Eisenberg, Chairman, Department of Molecular Biophysics and Physiology, Rush University Medical Center, Chicago, IL, USA.
- M.Sc., Physics, Mohanlal Sukhadia University, Udaipur, India, 2004
- M.Sc., Applied Mathematics, University of Bristol, Bristol, U.K., 2003
- B.Sc., Physics, Mathematics and Computer Science, Mohanlal Sukhadia University, Udaipur, India, 2001

Research Experience –

- Visiting Research Faculty, Permeation group, Department of Molecular Biophysics and Physiology, Rush University Medical Center, Chicago, IL, USA, currently hold this position. Research Area: Biophysics of Ion Channels.
- Graduate Research Assistant, Department of Molecular Biophysics and Physiology, Rush University Medical Center, Chicago, IL, USA, February 2007-May 2011. Research Area: Biophysics of Ion Channels. Advisor: Prof. Robert S. Eisenberg, Chairman, Department of Molecular Biophysics and Physiology, Rush University Medical Center, Chicago, IL, USA.
- Research Assistant, National Chemical Laboratory, Pune, India, May 2004-July 2005. Research Area: Time Series Analysis, Stochastic Modeling of Complex Systems, Nonlinear Dynamics and Chaos. Advisor: Dr. B. D. Kulkarni, Chemical Engineering and Process Development Division, National Chemical Laboratory, Pune, India.

Awards –

- Student Travel Award, Biophysical Society, 54th Annual Meeting, San Francisco, CA, USA, 2010.
- Deiss Award in Biomedical Research, Graduate College, University of Illinois at Chicago, Chicago, IL, USA, Fall 2009.
- Commonwealth Scholarship in Physics from Government of India for academic year 2002-03 in U.K.
- Student Merit Award, Guru Nanak Girl's College, Mohanlal Sukhadia University, Udaipur, India, 2001.

Society Membership –

- Member, Biophysical Society, 2007-12.

Publications –

- Dirk Gillespie, **Janhavi Giri** and Michael Fill, "*Reinterpreting the Anomalous Mole Fraction Effect: The Ryanodine Receptor Case Study*", Biophysical Journal, 97(8), 2212-2221, (2009).
- **Janhavi Giri**, James E. Fonseca, Dezső Boda, Douglas Henderson and Bob Eisenberg, "*Self-Organized Models of Selectivity in Calcium Channels*", Physical Biology, 8 026004, (2011).
- Dezső Boda, **Janhavi Giri**, Douglas Henderson, Bob Eisenberg and Dirk Gillespie, "*Free Energy Landscape of Selective Binding of Na^+ and Ca^{2+} in the Selectivity Filter of a Calcium Channel*", Journal of Chemical Physics, 134, 055102, (2011), *selected for JCP website Research Highlights*.

- **Janhavi Giri**, John M. Tang, Christophe Wirth, Caroline M. Peneff, Tilman Schirmer and Bob Eisenberg, "*Single Channel Measurements of N-Acetylneuraminic Acid-Inducible Outer Membrane Channel in Escherichia coli"*, European Biophysics Journal, 2011 (*accepted*).
- **Janhavi Giri**, John M. Tang, Christophe Wirth, Caroline M. Peneff, Tilman Schirmer and Bob Eisenberg, "*Sialic Acid Transport in E. coli: Role of Outer Membrane Porin NanC*", 2011 (*in progress*).

Conference Proceedings –

- "*Single Channel Measurements of N-Acetylneuraminic Acid-Inducible Channel (NanC) in E. coli"*, **Janhavi Giri**, John M. Tang, Christophe Wirth, Caroline M. Peneff, Tilman Schirmer and Bob Eisenberg, Biophysical Society Annual Meeting, 2011, Baltimore, MD, USA.
- *"Sialic Acid Transport in E. coli: Role of Outer Membrane Porin NanC"*, **Janhavi Giri**, John M. Tang, Christophe Wirth, Caroline M. Peneff, Tilman Schirmer and Bob Eisenberg, Biophysical Society Annual Meeting, 2011, Baltimore, MD, USA.
- "*Monte Carlo Simulation of Free Energy Components: Energetics of Selective Binding in a Reduced Model of L-type Ca Channels*", **Janhavi Giri**, Bob Eisenberg, Dirk Gillespie, Douglas Henderson and Dezső Boda , Biophysical Society Annual Meeting, 2010,San Francisco, CA, USA.
- *"Self-Organized Model of Selectivity in Ca and Na Channels*", Bob Eisenberg, Dezső Boda, **Janhavi Giri**, James E. Fonseca, Dirk Gillespie, Douglas Henderson and Wolfgang Nonner, Biophysical Society Annual Meeting, 2009, Boston, MA, USA.
- "*The Anomalous Mole Fraction Effect in Calcium Channels: The Ryanodine Receptor Case Study*", Dirk Gillespie, **Janhavi Giri** and Michael Fill, Biophysical Society Annual Meeting, 2009, Boston, MA, USA.
- " *Stochastic Modeling of Complex Systems: Prediction, Model Identification, Parameter Estimation and Noise Reduction*", **Janhavi Giri**, V. Ravi Kumar and B.D. Kulkarni, Chemical Engineering and Process Development Division, National Chemical Laboratory, Pune, India, February, 2005.

Research Interests –

- Bioinstrumentation
- Ion channel pharmacology
- Molecular modeling and simulations
- Biophysics of ion channels
- Protein engineering
- Modeling of complex systems

Technical Expertise –

Experimental

- Designing and conducting electrophysiology experiments for measuring function of a single ion channel in a planar lipid bilayer.
- Analysis and interpretation of single channel measurements.

Modeling and Simulations

- Coarse grained modeling of membrane proteins.
- Monte Carlo simulations of reduced model of voltage-gated calcium and sodium ion channels.

Teaching Experience –

- Teaching Assistant, Department of Bioengineering, University of Illinois at Chicago, (2006-07)
  - BIOE 339, Biostatistics I (Fall 2006),
  - BIOE 433, Bioinstrumentation and Measurements Laboratory II (Spring 2007).

Internship –

- Summer Internship, Physical Research Laboratory, Ahmedabad, India, 2001. Research Project: "*Fermi-Pasta-Ulam problem*". Advisor: Prof. V. B. Sheorey, Physical Research Laboratory, Ahmedabad, India.