

Education

Carnegie Mellon University, Pittsburgh, PA

Ph.D. in Physics Aug. 2009
M.S. in Physics May 2006

University of Science and Technology of China, Hefei, China

B.S. in Applied Physics Jun. 2004

Research Experiences

University of South Florida, Tampa, FL

Assistant Professor at Department of Physics

August 2013 – present

Oak Ridge National Laboratory, Oak Ridge, TN

Postdoctoral Research Associate in laboratory of Dr. John Katsaras (Neutron Sciences Directorate)

May 2011 – July 2013

University of Pittsburgh School of Medicine, Pittsburgh, PA

Postdoctoral Research Associate in laboratory of Prof. Pei Tang (Department of Anesthesiology)

Sep. 2009 – Apr. 2011

Carnegie Mellon University, Pittsburgh, PA

Ph.D. candidate mentored by Prof. John F. Nagle (Department of Physics)

Aug. 2006 – Aug. 2009

Publications

2017

- Nawal K. Khadka, Peng Teng, Jianfeng Cai, and Jianjun Pan*. Modulation of Lipid Membrane Structural and Mechanical Properties by a Peptidomimetic Derived from Reduced Amide Scaffold. *Biochimica et Biophysica Acta - Biomembranes* 2017, 1859: 734-744.
- Alekhya Nimmagadda, Xuan Liu, Peng Teng, Ma Su, Yaqiong Li, Qiao Qiao, Nawal K Khadka, Xiaoting Sun, Jianjun Pan, Hai Xu*, Qi Li*, and Jianfeng Cai*. Polycarbonates with Potent and Selective Antimicrobial Activity toward Gram-Positive Bacteria. *Biomacromolecules* 2017, 18: 87-95.

2016

- Chian Sing Ho, Nawal K. Khadka, Fengyu She, Jianfeng Cai, and Jianjun Pan*. Influenza M2 Transmembrane Domain Senses Membrane Heterogeneity and Enhances Membrane

Curvature. *Langmuir* 2016, 32: 6730-6738.

- Jianjun Pan*, Nawal K. Khadka. Kinetic Defects Induced by Melittin in Model Lipid Membranes: A Solution Atomic Force Microscopy Study. *The Journal of Physical Chemistry B* 2016, 120: 4625-4634.
- Javier Alonso, Hafsa Khurshid, Jagannath Devkota, Zohreh Nemati, Nawal K. Khadka, Hariharan Srikanth, Jianjun Pan*, and Manh-Huong Phan*. Superparamagnetic Nanoparticles Encapsulated in Lipid Vesicles for Advanced Magnetic Hyperthermia and Biodetection. *Journal of Applied Physics* 2016, 119: 083904.
- Chian Sing Ho, Nawal K. Khadka, Fengyu She, Jianfeng Cai, and Jianjun Pan*. Polyglutamine Aggregates Impair Lipid Membrane Integrity and Enhance Lipid Membrane Rigidity. *Biochimica et Biophysica Acta - Biomembranes* 2016, 1858: 661-670.
- Chian Sing Ho, Nawal K. Khadka, and Jianjun Pan*. Sub-Ten-Nanometer Heterogeneity of Solid Supported Lipid Membranes Determined by Solution Atomic Force Microscopy. *Biochimica et Biophysica Acta - Biomembranes* 2016, 1858: 181-188.

2015

- Nawal K. Khadka, Chian Sing Ho, and Jianjun Pan*. Macroscopic and Nanoscopic Heterogeneous Structures in a Three-Component Lipid Bilayer Mixtures Determined by Atomic Force Microscopy. *Langmuir* 2015, 31: 12417-12425.
- Nawal K. Khadka, Xiaolin Cheng, Chian Sing Ho, John Katsaras, and Jianjun Pan*. Interactions of the Anticancer Drug Tamoxifen with Lipid Membranes. *Biophysical Journal* 2015, 108: 2492-2501.
- Norbert Kučerka*, Frederick A. Heberle, Jianjun Pan, and John Katsaras*. Structural Significance of Lipid Diversity as Studied by Small Angle Neutron and X-ray Scattering. *Membranes* 2015, 5: 454-472.
- Evan Lafalce*, Xiaomei Jiang, Jianjun Pan, Christi Whittington, Randy Larsen, Logan Sanow, and Cheng Zhang. Hybrid-State Emission in a Polythiénylenevinylene Derivative with an Electron Deficient Moiety. *The Journal of Chemical Physics* 2015, 142: 164702.
- Norbert Kučerka*, Brad van Oosten, Jianjun Pan, Frederick A. Heberle, Thad A. Harroun, and John Katsaras*. Molecular Structures of Fluid Phosphatidylethanolamine Bilayers Obtained from Simulation-to-Experiment Comparisons and Experimental Scattering Density Profiles. *The Journal of Physical Chemistry B* 2015, 119: 1947-1956.
- Joseph C. Fogarty, Mihir Arjunwadkar, Sagar A. Pandit*, and Jianjun Pan. Atomically Detailed Lipid Bilayer Models for Interpretation of Scattering Data. *Biochimica et Biophysica Acta - Biomembranes* 2015, 1848: 662-672.

2014

- Jianjun Pan, Xiaolin Cheng, Melissa Sharp, Chian-Sing Ho, Nawal Khadka, John Katsaras. Structural and Mechanical Properties of Cardiolipin Lipid Bilayers Determined Using Neutron Spin Echo, Small Angle Neutron and X-ray Scattering, and Molecular Dynamics Simulations. *Soft Matter*, 11:130-138 (2014)
- Jianjun Pan, Drew Marquardt, Frederick Heberle, Norbert Kučerka, John Katsaras. Revisiting the Bilayer Structures of Fluid Phase Phosphatidylglycerol Lipids: Accounting for Exchangeable Hydrogens. *Biochimica et Biophysica Acta - Biomembranes*, 1838: 2966-2969 (2014)
- Jianjun Pan, Xiaolin Cheng, Luca Monticelli, Frederick Heberle, Norbert Kučerka, D. Peter Tieleman, John Katsaras. The Molecular Structure of a Phosphatidylserine Bilayer Determined by Scattering and Molecular Dynamics Simulations. *Soft Matter*, 10: 3716-3725 (2014)
- Jianjun Pan, Norbert Kučerka, Mu-Ping Nieh, Frederick Heberle, Paul Drazba, and John Katsaras. Lipid diversity and its implication on membrane organization. Chapter 7 in *Liposomes, Lipid Bilayers and Model Membranes From Basic Research to Application*. book chapter, ISBN: 978-1-4665-0709-8 Taylor & Francies Group, LLC. p.125-142 (2014)
- Peter Heftberger, Benjamin Kollmitzer, Frederick Heberle, Jianjun Pan, Michael Rappolt, Heinz Amenitsch, Norbert Kučerka, John Katsaras, and Georg Pabst. Global small-angle X-ray scattering data analysis for multilamellar vesicles: the evolution of the scattering density profile model. *Journal of Applied Crystallography* 47: 173-180 (2014)

2013

- Jianjun Pan*, Frederick Heberle, Robin Petruzielo, and John Katsaras*. "Using small-angle neutron scattering to detect nanoscopic lipid domains", *Chemistry and Physics of Lipids* 170: 19-32 (2013)
- Frederick Heberle*, Robin Petruzielo, Jianjun Pan, Paul Drazba, Norbert Kučerka, Robert Standaert, Gerald Feigenson, and John Katsaras*. "Bilayer thickness mismatch controls domain size in model membranes", *Journal of the American Chemical Society* 135 (18): 6853-6859 (2013)
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2012

- Jianjun Pan, Qiang Chen, Dan Willenbring, Ken Yoshida, Tommy Tillman, Ossama B Kashlan, Aina Choen, Xiang-Peng Kong, Yan Xu, and Pei Tang*. "Structure of the pentameric ligand-gated ion channel ELIC cocrystallized with its competitive antagonist acetylcholine", *Nature Communications* 3: 714-721 (2012)

- Jianjun Pan*, Frederick Heberle, Stephanie Tristram-Nagle, Michelle Szymanski, Mary Koepfinger, John Katsaras, and Norbert Kučerka. "Molecular structures of fluid phase phosphatidylglycerol bilayers as determined by small angle neutron and X-ray scattering", *Biochimica et Biophysica Acta* 1818 (9): 2135-2148 (2012)
- Jianjun Pan, Qiang Chen, Dan Willenbring, David Mowrey, Xiang-Peng Kong, Aina Cohen, Christopher Divito, Yan Xu, and Pei Tang*. "Structure of the pentameric ligand-gated ion channel GLIC bound with anesthetic ketamine", *Structure* 20 (9): 1463-1469 (2012)
- Jianjun Pan*, Xiaolin Cheng, Frederick Heberle, Barmak Mostofian, Norbert Kučerka, Paul Drazba, and John Katsaras*. "Interactions between ether phospholipids and cholesterol as determined by scattering and molecular dynamics simulations". *Journal of Physical Chemistry B* 116 (51): 14829-14838 (2012)
- Jianjun Pan*, Frederick Heberle, Justin Carmichael, John Ankner, and John Katsaras*. "Time-of-flight Bragg scattering from aligned stacks of lipid bilayers at the SNS' Liquids Reflectometer". *Journal of Applied Crystallography* 45 (6): 1219-1227 (2012)
- Frederick Heberle*, Jianjun Pan, Robert Standaert, Paul Drazba, Norbert Kučerka, and John Katsaras*. "Model-based approaches for the determination of lipid bilayer structure from small-angle neutron and X-ray scattering data", *European Biophysics Journal* 41 (10): 875-890 (2012)

2009

- Jianjun Pan, Stephanie Tristram-Nagle, and John F. Nagle*. "Effect of cholesterol on structural and mechanical properties of membranes depends on lipid chain saturation", *Physical Review E* 80 (2): 021931 (2009)
- Jianjun Pan, Peter D. Tieleman, John F. Nagle, Norbert Kučerka, and Stephanie Tristram-Nagle*. "Alamethicin in lipid bilayers: combined use of x-ray scattering and MD simulations", *Biochimica et Biophysica Acta* 1788 (6): 1387-1397 (2009)
- Jianjun Pan, Stephanie Tristram-Nagle, and John Nagle*. "Alamethicin aggregation in lipid membranes", *Journal of Membrane Biology* 231 (1): 11-27 (2009)
- Deren Guler, Dipon Golsh, Jianjun Pan, John Mathai, Mark Zeidel, John F. Nagle, and Stephanie Tristram-Nagle*. "Effects of ether vs. ether linkage on lipid bilayer structure and water permeability", *Chemistry and Physics of Lipids* 160 (1): 33-44 (2009)

2008

- Jianjun Pan, Thalia Mills, Stephanie Tristram-Nagle, and John F. Nagle*. "Cholesterol perturbs lipid bilayers nonuniversally", *Physical Review Letters* 100 (19): 198103 (2008)

- Jianjun Pan, Stephanie Tristram-Nagle, Norbert Kučerka, and John F. Nagle*. "Temperature dependence of structure, bending rigidity and bilayer interactions of dioleoylphosphatidylcholine bilayers", *Biophysical Journal* 94 (1): 117-124 (2008)
- Alexander Greenwood, Jianjun Pan, Thalia Mills, John F. Nagle, Richard Epanand, and Stephanie Tristram-Nagle*. "CRAC motif peptide of the HIV-1 gp41 protein thins SOPC membranes and interacts with cholesterol", *Biochimica et Biophysica Acta* 1778 (4): 1120-1130 (2008)
- Norbert Kučerka*, Jason Perlmutter, Jianjun Pan, Stephanie Tristram-Nagle, John Katsaras, and Jonathan Sachs. "The effect of cholesterol on short- and long-chain monounsaturated lipid bilayers as determined by molecular dynamics simulations and x-ray scattering", *Biophysical Journal* 95 (6): 2792-2805 (2008)