

CURRICULUM VITAE

HONG QIAN

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Education & Training

- 1992-1994 Postdoctoral Fellow, California Institute of Technology, Pasadena.
Mathematical biology and neural computation (with J.J. Hopfield)
- 1990-1992 Postdoctoral Fellow, University of Oregon, Eugene.
Biophysical chemistry of peptides, proteins, and DNA (with J.A. Schellman)
- 1983-1989 Ph.D., Washington University, St. Louis. Biochemistry and Biophysics.
Dissertation: Biophysical characterization of biopolymer solutions and gels by fluorescence fluctuation studies (with E.L. Elson)
- 1978-1982 B.A., Peking University, Beijing. Astrophysics.
Thesis: On the effect of finite z-distributions in the density wave theory of spiral structures of galaxies

Professional Experience

- 2011.7-2011.8 Tang Ao-Qing Visiting Professor, College of Mathematics, Jilin University, Changchun.
- 2008.9-2008.10 Visiting Professor, School of Mathematical Sciences, Fudan University, Shanghai.
- 2008.6-2008.7 Visiting Professor, Département de Chimie, École Normale Supérieure, Paris.
- 2006-2008 Boeing Endowed Professorship, University of Washington.
- 2006- Adjunct Professor, Bioengineering, University of Washington.
- 2006- Professor of Applied Mathematics, University of Washington.
- 2005.6-2005.7 Visiting Professor, Center for Theoretical Biology, Peking University, Beijing.
- 2003-2006 Associate Professor of Applied Mathematics, University of Washington.
- 1997-2003 Assistant Professor of Applied Mathematics, University of Washington.
- 1997-2003 Associate Director, National Simulation Resource, University of Washington.
- 1994-1997 Adjunct Assistant Professor of Biomathematics, UCLA School of Medicine.

Honors & Awards

- 1992-1994 Fellow, Program in Mathematics and Molecular Biology at the University of California at Berkeley, supported by the National Science Foundation.
- 2002-2003 Royalty Research Fund, University of Washington.
- 2010 Fellow, American Physical Society, Division of Biological Physics.

Professional Activities

- 2004 Member, NIH Modeling and Analysis of Biological Systems Study Section.
- 2004 Organizer, Institute of Pure and Applied Mathematics Workshop on Molecular Machines, Los Angeles, May, 2004.
- 2004 Organizer, Symposium on Stochastic Modeling in Biology, Annual Meeting of Society for Mathematical Biology, Ann Arbor, July, 2004.
- 2004-2007 Member, Advisory Board, *Biophysical Chemistry*.
- 2004- Member, Editorial Board, *Molecular & Cellular Biomechanics*.
- 2005 Member, Program Committee, IEEE Computer Society Bioinformatics Conference, Stanford, August, 2005.
- 2005 Member, NSF-NIGMS Mathematical Biology Grant Applications Review Panel.
- 2006 Member (*ad hoc*), NIH Modeling and Analysis of Biological Systems (MABS) Study Section.
- 2008-2013 Member, Editorial Board, *Journal of Biophysics*.
- 2008.10 Member (*ad hoc*), NIH Multiscale Physiome Modeling Study Section.
- 2009 Organizer, Kavli Institute for Theoretical Physics China, Program on “Function and Dynamics of Biomolecules”, July-August, 2009.
- 2010-2011 Member, Editorial Board, *Frontiers in Systems Biology*.
- 2010-2012 Member, Editorial Board, *Computers in Biology and Medicine*.
- 2010- Member, Editorial Board, *BMC Systems Biology*.
- 2011 Founding Vice Chair, Gordon Research Conference on “Stochastic Physics in Biology”.
- 2012 Member, NIH Study Section on New Biomedical Frontiers at the Interface of the Life and Physical Sciences
- 2013 Chair, Gordon Research Conference on “Stochastic Physics in Biology”.
- 2013- Member, Editorial Board, *Quantitative Biology*.
- 2013 Organizer, Kavli Institute for Theoretical Physics China, Program on “Small system nonequilibrium fluctuations, dynamic, stochastic, and anomalous behavior”, July-August, 2013.
- 2016 Organizer, Kavli Institute for Theoretical Physics China, Program on “Nonequilibrium processes at the nanoscale”, July-September, 2016.

Teaching Experiences

Undergraduate and graduate *Biophysical Chemistry*; undergraduate, graduate, and specialized *Mathematical Biology*, *Stochastic Mathematics in Biology*, and *Mathematical Genomics*; undergraduate course on *Mathematical Modeling with Continuous Methods*, undergraduate and graduate course on *Dynamical Systems and Applied Stochastic Analysis*.

Research Interests

Stochastic analysis and statistical physics of living systems: stochastic dynamics, systems biology of cells, nonequilibrium processes, molecular biophysics, and mathematical biology.

- (1) *Dynamic formulation of complex (nonlinear and nonequilibrium) systems, including cellular and evolutionary dynamics*: thermodynamics, reversibility, entropy production, large deviations, and phase transition.
- (2) *Systems biology of cells*: large-scale metabolic and protein interaction networks, cellular signal transduction, and biophysics of muscle contraction and cell motility.

- (3) *Physical chemistry of single molecules and fluctuation measurements and analysis*: stochastic macromolecular mechanics, fluorescence correlation spectroscopy, single-particle tracking, atomic force microscopy, and single-molecule enzymology.
- (4) *Biophysical chemistry*: protein folding and molecular motors.
- (5) *Mathematical modeling*: electrophysiology and neural computation, cancer carcinogenesis and metastasis.

LIST OF TEACHING & SCHOLARLY ACTIVITIES

Teaching:

- Amath 383 *Introduction to Continuous Mathematical Modeling*, Spring 1998, Winter 1999, Spring 2000, Winter 2011, 2012, 2013, 2014, 2016, Autumn 2015.
- Amath 402 *Ordinary Differential Equations, Nonlinear Dynamical Systems and Chaos*, Winter 2007, 2009.
- Amath 422 *Introduction to Mathematical Biology*, Winter, 2000, 2003, 2005. Autumn 2006-2009, Winter 2014.
- Amath 423A *Mathematical Biology: Stochastic Models*, Spring 1998-2006, Winter 2007-2010.
- Amath 423 *Mathematical Analysis in Biology and Medicine*, Spring, 2011, 2012, 2013, 2014, Winter 2016.
- Amath 503 *Mathematical Biology: Dynamic Models*, Autumn 1998-2001, 2003, 2004.
- Amath 504 *Mathematical Biology: Spatial Models*, Spring, 2007, 2008, 2010.
- Amath 519 *Introduction to Applied Stochastic Analysis*, Spring 2001.
- Amath 531 *Mathematical Theory of Cellular Dynamics*, Autumn 2010, 2012, 2014.
- Amath 532 *Mathematics of Genome Analysis and Molecular Modeling*, Autumn 2013.
- Amath 572A *Deterministic and Stochastic Dynamical Systems*, Spring 2002-2004.
- Amath 572 *Introduction to Applied Stochastic Analysis*, Spring 2006, 2008, 2010, 2012, 2014.
- Amath 700 Master Thesis Research for A. Moore: "*Kinetic Model of Motor Protein Kinesin*", Winter 1999.
- Amath 700 Master Thesis Research for C. Lambert: "*A Stochastic Model for Folded DNA*", Autumn 1998.
- Genome 541 *Computational Molecular Biology* (in part, with W. S. Noble), Spring, 2012, 2014.
- Genome 541 *Computational Molecular Biology* (in part, with J. Felsenstein), Spring, 2004, 2008, 2010.
- Bioeng 575 *Molecular Modeling Methods* (participated, D.A. Beard), Winter 2002.
- Bioeng 510 *Bioengineering Seminar Course* (participated, P. Vicini), Autumn 2000.
- Bioeng 510 *Bioengineering Seminar Course* (participated, M. Regnier), Autumn 1999.
- Bioeng 545 *Fractals in Biology and Medicine* (in part, with J.B. Bassingthwaite), Autumn 1997.

Invited Talks Given in the Recent Years:

- 4/16 Institute of Bioinformatics, University of Georgia, Athens, GA.
- 4/16 Department of Physics, Purdue University, West Lafayette, IN.
- 12/15 ICMS/KNAW Complexity Science Winter School, Technical University of Eindhoven, Netherland.
- 8/15 2015 International Congress on Industrial and Applied Mathematics, Beijing.
- 8/15 Summer School on Stochastic Dynamics, Institute of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing.

6/15 Institute of Mechanics, Chinese Academy of Sciences, Beijing.

5/15 AIM Workshop on Stochastic Methods for Nonequilibrium Dynamical Systems, San Jose, CA.

3/15 2015 Eastern North America Region International Biometric Society Meeting, Miami, TX.

3/15 2015 March Meeting of the American Physical Society, San Antonio, TX.

1/15 3rd Gordon Research Conference on Stochastic Physics in Biology, Ventura, CA.

12/14 Institute of Mathematics, Academia Sinica, Taipei.

12/14 Department of Mathematics, National Taiwan University, Taipei.

12/14 Workshop on Analysis and Its Applications in Biology and Physiology, National Taiwan University, Taipei.

12/14 Institute of Chemistry, Academia Sinica, Taipei.

12/14 Institute of Physics, Academia Sinica, Taipei.

12/14 Workshop on Nanothermodynamics For Equilibrium and Non-Equilibrium, Lorentz Center, University of Leiden, Netherlands.

7/14 School of Physical Sciences, University of Science and Technology of China, Hefei.

7/14 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University, Beijing.

6/14 Workshop on Stochastic Modelling in Ecosystems, University of Strathclyde, Glasgow.

2/14 Seminar for Undergraduate Program of Applied and Computational Mathematical Sciences, University of Washington.

12/13 Mini-Symposium on Stochastic Biology and Chemical Networks, Luxembourg Centre for Systems Biomedicine, University of Luxembourg.

12/13 Solvay Workshop on Thermodynamics of Small Systems, Brussels, Belgium.

9/13 ElsonFest, Depart. of Biochem. and Mol. Biophys., Wash. U. School of Medicine, St. Louis.

9/13 Colloquium, Department of Mathematics, Washington University, St. Louis.

9/13 Theory seminar, Department of Physics, Washington University, St. Louis.

8/13 School of Mathematics and Statistics, Northeast Normal University, Changchun.

8/13 Center for Quantitative Biology, Peking University, Beijing.

8/13 Biodynamics Optical Imaging Center (BIOPIC), Peking University, Beijing.

7/13 Workshop on Information, probability and inference in Systems Biology, International Centre for Mathematical Sciences (ICMS), Edinburgh.

7/13 School of Life Sciences, Tsinghua University, Beijing.

7/13 Non-Equilibrium Phenomena, Spin Glasses, and Algorithms, Satellite Meeting of STATPHYS 25, Beijing.

5/13 Workshop on Stochastic Modeling of Biological Processes, Institute of Math. Appl., Minneapolis.

3/13 Frontier in Computational and Information Sciences Lecture Series, PNNL, Richland, WA.

10/12 Department of Physics, University of California, Berkeley.

9/12 Department of Mathematics, Penn State University.

8/12 Department of Chemistry, Norwegian University of Science and Technology, Trondheim.

8/12 6th International Workshop on Nonequilibrium Thermodynamics and 3rd Lars Onsager Symposium, Røros, Norway.

8/12 7th International Conference on Nonlinear Sciences and 11st Taiwan International Symposium on Statistical Physics (Taipei)

6/12 Workshop on Characterizing Landscapes: From Biomolecules to Cellular Networks, Telluride.

4/12 NIH Common Fund Single Cell Analysis Workshop, Bethesda.

10/11 Janelia Farm Conference on Single molecules meet systems biology, Washington D.C.

9/11 Laufer Center for Physical and Quantitative Biology Seminar, Stony Brook.

9/11 Department of Applied Mathematics & Statistics, Stony Brook.

9/11 Biophysics Seminar, Rice University, Houston.
9/11 The 22nd Annual NASA Space Radiation Investigators' Workshop, League City, TX.
9/11 Biophysics Seminar, Johns Hopkins University, Baltimore.
7/11 College of Mathematics, Jilin University, Changchun.
7/11 International Conference on Cancer Systems Biology (ICSB2011), Jilin, Changchun.
6/11 School of Mathematical Sciences, Peking University
5/11 Center for Nonlinear Phenomena and Complex Systems, Free University of Brussels, Belgium.
5/11 Snogeholm Workshop on Thermodynamics: Can macro learn from nano? Sweden.
4/11 Department of Applied Mathematics, University of Texas, Arlington.
4/11 NASA Space Radiation Program, Houston.
3/11 Pacific Northwest National Laboratory, Richmond, WA.
1/11 Department of Biostatistics, Fred Hutchinson Cancer Research Center, Seattle.
12/10 Institute of Chemistry, Academia Sinica, Taipei.
12/10 Department of Physics, National Taiwan University, Taipei.
12/10 Institute of Physics, Academia Sinica, Taipei.
12/10 Workshop on Applied Mathematics in Biophysics, National Center for Theoretical Sciences, Hsinchu.
9/10 Mathematical Biology Seminar, Department of Mathematics, University of Utah, Salt Lake City.
9/10 Biophysics seminar, Department of Physics, University of Utah, Salt Lake City.
8/10 Workshop on Emergent Behavior of Biomolecular Ensembles and Networks, Kavli Institute of Theoretical Physics China, Beijing.
7/10 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University, Beijing.
7/10 The 1st Chinese National Conference on Biophysical Chemistry, Beijing.
6/10 College of Life Sciences, Jilin University, Changchun.
6/10 College of Mathematics, Jilin University, Changchun.
5/10 ISTAR-NSF-NSA Workshop on Mathematical Foundations of Open Systems, University of Pennsylvania, Philadelphia.
4/10 Biophysics seminar, University of Illinois, Urbana-Champaign.
1/10 Workshop on Multiscale Stochastic Modeling of Cell Dynamics, Banff.
12/09 The 102nd Statistical Mechanics Conference, Rutgers.
10/09 Computational and Systems Biology seminar, University of Texas Southwestern Medical School, Dallas.
8/09 The 6th Meeting of Chinese Physicists Worldwide, Lanzhou.
7/09 The 355th Xiangshan Science Conference on Single-molecule Imaging, Spectroscopy and Manipulation of Biological Systems, Beijing.
6/09 International Workshop on Probability Theory, Statistics and Their Applications to Biology, Beijing.
5/09 Center of Theoretical Biophysics, University of Californian, San Diego.
5/09 Department of Mathematics, University of Pittsburgh, Pittsburgh.
9/08 School of Life Sciences, Fudan University, Shanghai.
9/08 School of Mathematical Sciences, Fudan University, Shanghai.
7/08 Département de Physique, École Normale Supérieure, Paris.
7/08 Département de Chimie, École Normale Supérieure, Paris.
6/08 XXI Sitges Conference on Statistical Mechanics, Spain.
5/08 Washington University Division of Biology and Biomedical Sciences 35th Anniversary Symposium, St. Louis.
3/08 Applied Mathematics Seminar, York University, Toronto.
1/08 Workshop on Protein Folding, Institute of Mathematics and Its Applications, Minneapolis.

10/07 Chemical Engineering Departmental Seminar, University of Washington College of Engineering.
9/07 Institute of Applied Mathematics, University of British Columbia, Vancouver.
9/07 Mathematical Biology Seminar, University of British Columbia, Vancouver.
7/07 6th International Congress on Industrial and Applied Mathematics (ICIAM), Zurich.
7/07 Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing.
7/07 Center for Theoretical Biology, Peking University, Beijing.
7/07 Computer Science and Applied Mathematics Joint Seminar, Jilin University, Changchun.
7/07 The 5th International Bioinformatic Workshop, Weihai, China.
6/07 Workshop on Stochasticity in Biochemical Reaction Networks, Banff.
6/07 Physiology and Biophysics Departmental Seminar, University of Washington School of Medicine.
4/07 Applied Mathematics Colloquia, University of Notre Dame.
4/07 Pharmacology Departmental Seminar, University of Washington School of Medicine.
10/06 Applied Mathematics Seminar, Michigan State University, East Lansing.
8/06 Workshop on Exploring the Mechanisms and Landscapes of Cellular Networks, Telluride.
6/06 Center for Theoretical Biology, Peking University, Beijing.
6/06 International Symposium on Systems Properties and Evolution in Cell Signaling, Beijing.
5/06 Applied Mathematics Seminar, University of Arizona, Tucson.
7/05 Institute of Theoretical Physics, Chinese Academy of Sciences, Beijing.
7/05 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University, Beijing.
6/05 International Symposium on Protein Folding, Function and Dynamics, Beijing.
5/05 Indiana Seventh Biocomplexity Workshop, Bloomington.
4/05 Applied Mathematics Seminar, University of California, Irvine.
4/05 DOE-ACS Workshop on Single-molecule Research in the New Millennium, Washington D.C.
3/05 Chemical Physics Seminar, California Institute of Technology, Pasadena.
1/05 Department of Biostatistics and Biomathematics, Fred Hutchinson Cancer Research Center, Seattle.
11/04 Department of Chemistry, University of Wisconsin, Madison.
8/04 American Chemical Society Symposium on Biophysical Chemistry and Novel Imaging of Single Molecules and Single Cells, Philadelphia.
7/04 Society of Industrial and Applied Mathematics (SIAM) Life Science Symposium, Portland.
4/04 Wang Ying-lai Memorial Symposium, University of Texas Medical Branch, Galveston.
3/04 The Center for Studies in Physics and Biology, Rockefeller University.
3/04 Applied Mathematics Colloquium, Columbia University.
3/04 Workshop on Signal Transduction, Mathematical Bioscience Institute, Ohio State University.
2/04 Dept. of Biochemistry and Molecular Biophysics, Washington Univ. School of Medicine, St. Louis.
11/03 Chemistry and Chemical Biology Program, University of California School of Medicine, San Francisco.
03/03 American Chemical Society Symposium on Physical Chemistry of Molecular Motors, New Orleans.
10/02 Department of Mathematics, Georgia Institute of Technology, Atlanta.
6/02 Western Sectional Meeting of American Mathematical Society, Portland.
3/02 Molecular and Computational Biology, University of Southern California, Los Angeles
12/01 The 86th Statistical Mechanics Conference, Rutgers University.
3/01 Institute of Theoretical Physics, University of California, Santa Barbara.
2/01 The First Lucian Biersch Symposium on Advances in Science through Mathematics, St. Edward University, Austin, Texas.
11/00 Department of Physics, University of California, San Diego.
11/00 NASA Ames Research Center, Moffett Field, California.

- 10/00 Carl Zeiss International Symposium on Fluorescence Correlation Spectroscopy & Related Methods, St. Louis.
- 8/00 Annual Meeting of the Society for Mathematical Biology, Salt Lake City.
- 7/00 International Conference on Bioinformatics & Theoretical Biology, Peking University, Beijing.
- 5/00 Applied Mathematics Seminar, Program in Applied Mathematics, Stanford University.
- 4/00 Biophysics Program, University of California School of Medicine, San Francisco.
- 9/99 Symposium on Nonlinear Dynamics in Biology and Chemistry, University of California, Davis.
- 8/99 Workshop on Mathematical Cellular Biology, Pacific Institute for Mathematical Sciences, University of British Columbia, Vancouver, Canada.
- 1/99 Department of Biological Chemistry, Johns Hopkins University.
- 11/98 Department of Physics, Washington University, St. Louis.
- 11/98 Dept. of Biochemistry and Molecular Biophysics, Washington Univ. School of Medicine, St. Louis.
- 10/98 Biomedical Engineering Society Annual Meeting, Cleveland.
- 7/98 Department of Biochemistry, Stanford University Medical Center.
- 3/98 Sixth Annual Pacific Northwest Workshop in Mathematical Biology, Friday Harbor Laboratories, WA.
- 3/98 Department of Mathematics, University of Science and Technology, Hong Kong.
- 3/98 Department of Biochemistry, University of Science and Technology, Hong Kong.
- 6/97 Institute of Molecular Biology, University of Oregon, Eugene.
- 2/96 Department of Biochemistry, Kansas State University, Manhattan.
- 2/96 Institute of Theoretical Dynamics, University of California, Davis.
- 11/95 Program in Bioengineering, Columbia University.

Referee:

Applied Mathematics:

Bulletin of Mathematical Biology, Discrete and Continuous Dynamical Systems, Journal of Computational and Graphical Statistics, Journal of Atmospheric Sciences, Journal of Computational Biology, Journal of Dynamics and Differential Equations, Journal of Mathematical Biology, Journal of Statistical Physics, Multiscale Modeling and Simulation, Mathematical and Computer Modeling, Mathematical Biosciences, SIAM Journal of Applied Mathematics, SIAM Journal of Uncertainty Quantification, SIAM Review.

Physics and Chemistry:

Advances in Protein Chemistry, Angewandte Chemie, Biophysical Journal, Chemical Physics Letters, Europhysics Letter; Journal of American Chemical Society; Journal of Chemical Physics, Journal of Physical Chemistry, Nature Physics, PCCP, Physica A, Physica D, Physics Letters A, Physical Review E, Physical Review Letters, Reviews of Modern Physics, Review of Scientific Instruments.

Biochemistry, Biology, and Bioengineering:

Annals of Biomedical Engineering, Bioinformatics, Biopolymers, BMC Bioinformatics, BMC Systems Biology, Biophysical Chemistry, Genomic Research, Journal of Bioinformatics and Computational Biology, Journal of Molecular Biology; Journal of Royal Society Interface, Journal of Theoretical Biology, Nature Oncogene, Nucleic Acids Research, PLoS Computational Biology, PLoS One, Proceedings of Royal Society Interface, Progress in Biophysics and Molecular Biology, Protein Engineering, Protein Science, Proteins: Structure-Function-Genomics.

General:

Comptes Rendus de L'Academie des Sciences, Proceedings of the National Academy of Sciences USA, Science, Nature.

Research Grants:

- Principal Investigator, 2001-2002, “*Mathematical Modeling of Metabolic Networks and Algorithmic Development for High-throughput Multidimensional NMR Profiling*”, NASA, \$60,022.
- Principal Investigator, 2002-2003, “*Mesosopic Thermodynamic Basis of Nano-scale Motion*”, Royalty Research Fund, Univ. of Washington, \$20,000.
- Associate Director, 1997-2002, (PI: J.B. Bassingthwaighte) “*National Simulation Resource Facility for Circulatory Transport and Exchange*” NIH P01, \$3,000,000 total.
- Co-PI, 2004-2008, (PI: D.A. Beard) “*Integrated Modeling of Cardiac Metabolism and Transport*”, NIH R01 HL072011, \$1,168,760 total.
- Co-PI, 2004-2008, (PI: D.A. Beard) “*Quantitative Approach to the Analysis of Complex Biological Systems*”, NIH R01 GM068610, \$200,000 per year.
- Co-PI, 2004-2008, (PI: K. Bomszyk) “*Energy-based Protein Interaction Networks Application to hnRNP K protein*”, NIH R01 GM04134/G232JA, \$107,845 per year.
- Investigator, 2005-2008, (PI: J.B. Bassingthwaighte) “*Multiscale Modeling of Cardiac Functions*”, NIH R01 BES0506477, \$343,000 total.
- Investigator, 2005-2007, (PI: J. Mittler) “*Modeling the Flagella Regulon in Salmonella*”, NIH R21 AI059513 \$275,000 total.
- Co-PI, 2009-2012, (PI: H. Sauro) “*Extension of Metabolic Control Analysis and Biochemical Systems Theory to Stochastic Systems*”, NSF EF0827592, \$660,000 total.
- Investigator, Current, 2014-2019, (PI: S. Huang) “*Dynamics of non-equilibrium cell state transitions in cell populations*”, NIH R01 GM109964, \$1,700,000 total.

Services:

Current Committees:

- Applied Computational Mathematical Sciences Undergraduate Program
- Computational Molecular Biology Interdisciplinary Graduate Program

Post Doctoral Fellow Advised:

D. Brian Walton (VIGRE, 2002-2004), followed by an assistant professorship at James Madison University

Ph.D. Students Advised (as the chair/co-chair of Ph.D. committee):

- Lisa Bishop, Applied Mathematics (2011), followed by a post doctor fellow at UCSF.
- Dean Gull, Applied Mathematics (2009), followed by a staff scientist at PNNL.
- William Heuett, Applied Mathematics (2005), followed by a fellow at NIDDK, NIH.
- Viktoria Krupp Hsu, Applied Mathematics (2004), followed by a post doctor fellow at Univ. of Utah.
- Kyung Kim, Physics (2006), followed by a post doctor fellow in Bioengineering, Univ. of Washington.
- Woo Kim, Applied Mathematics (2012), unknown.
- Christine Lind Cole (2011), followed by a teaching position at Seattle University.
- Gunog Justine Seo, Applied Math. (2008), followed by a post doctor fellow at Univ. of Western Ontario
- Pei-Zhe Shi, Applied Mathematics (2011), Wall street analyst.
- Yi-Yi Shi, Applied Mathematics (2009), Wall street analyst.
- Melissa Vellela, Applied Mathematics (2009), followed by a post doctor fellow at UCLA Cardiology Lab.

Member of Ph.D. Thesis Committee:

- Trachette L. Jackson, Applied Mathematics (1998); Patrick Nelson, Applied Mathematics (1998);
- Kristin Swanson, Applied Mathematics (1999); Steve P. Lee, Biomathematics, UCLA (2001);
- Blessing Mudavanhu, Applied Mathematics (2002); Katie Coughlin, Applied Mathematics (2003);

Timothy Reluga, Applied Mathematics (2004); Dave Williams, Applied Mathematics (2005); Jihyoun Jen, Applied Mathematics (2007); Rafael Meza, Applied Mathematics (2006); Elef Gkioulekas, Applied Mathematics (2006); Santosh K. Srivastava, Applied Mathematics (2008)

Master Students Advised (as the chair):

Bruce E. Shapiro, Biomathematics UCLA (1996), now a research scientist at JPL.

Charla Lambert, Applied Mathematics (1998), now Ph.D. student in Genome Sciences.

Ayana Moore, Applied Mathematics (1999), now Ph.D. student in Biophysics and Physiology.

Mark Seligman, Chemistry (2004), now Ph.D. student in statistics.

Stephen Maley, Applied Mathematics (2004), now Ph.D. student in Cellular and Molecular Biology.

Jonathan Bleyhl, Applied Mathematics (2004), now Ph.D. student in Genome Sciences.

Undergraduate student Advised:

Gilbert Martinez, Physics, now graduate student in biophysics at Stanford University (2001)

Yik J. Low (Alex), Applied Computational Mathematical Sciences (2004)

Kyotaro Hemmi, Applied Computational Mathematical Sciences, graduating (2006)

Pre-General Exam Students Advised:

Max Giolitti, Bill Dougherty, Holly Dison, Guy Shefner, Dominique Wiest, Jonathon Watts.

Graduate Student Examination Committee:

Noah Malmstadt, Bioengineering (2000)

Joe Hindorff, Applied Mathematics (2001)

Michael Kellen, Bioengineering (2002)

Kalyan Vinnakota, Bioengineering (2003)

Bertrand C.W. Tanner, Bioengineering (2004)

LIST OF PUBLICATIONS

Books

1. Beard, D.A. and Qian, H. *Chemical Biophysics: Quantitative Analysis of Cellular Systems*, Cambridge University Press (2008).

Refereed Research Publications

1. Qian, H. and Elson, E.L. Measurement of Diffusion in Closed Region by Fluorescence Photobleaching Recovery (An Appendix). *Journal of Cell Biology*, **106**, 1921-1923 (1988)
2. Qian, H. and Elson, E.L. Characterization of the Equilibrium Distribution of Polymer Molecular Weights by Fluorescence Distribution Spectroscopy (Theoretical Results). *Applied Polymer Symposium*, **43**, 305-314 (1989).
3. Sheetz, M.P., Turney, S., Qian, H., and Elson, E.L. Nanometre-Level Analysis Demonstrates That Lipid Flow Does Not Drive Membrane Glycoprotein Movements. *Nature*, **340**, 284-288 (1989).
4. Duszyk, M., Schwab, B., Zahalak, G.I., Qian, H., and Elson, E.L. Cell Poking: Quantitative Analysis of Indentation of Thick Viscoelastic Layers. *Biophysical Journal*, **55**, 683-690 (1989).
5. Qian, H. and Elson, E.L. Characterization of Confocal Laser Based Microscope - an optical sectioning microscopy approach. In *Optical Microscopy for Biology* (B. Herman & K.A. Jacobson eds.), Alan R. Liss, 119-130 (1990).
6. Qian, H. and Elson, E.L. On the Analysis of High Order Moments of Fluorescence Fluctuations. *Biophysical Journal*, **57**, 375-380 (1990).
7. Qian, H. and Elson, E.L. Distribution of Molecular Aggregation by Analysis of Fluctuation Moments. *Proceedings of the National Academy of Sciences USA*, **87**, 5479-5483 (1990).
8. Qian, H. Inverse Poisson Transformation and Shot Noise Filtering. *Review of Scientific Instruments*, **61**, 2088-2091 (1990).
9. Qian, H. On the Statistics of Fluorescence Correlation Spectroscopy. *Biophysical Chemistry*, **38**, 49-57 (1990).
10. Qian, H. and Elson, E.L. Analysis of Confocal Laser-Microscope Optics for Three-Dimensional Fluorescence Correlation Spectroscopy. *Applied Optics*, **30**, 1185-1195 (1991).
11. Qian, H., Sheetz, M.P., and Elson, E.L. Single Particle Tracking: Analysis of Diffusion and Flow in Two Dimensional Systems. *Biophysical Journal*, **60**, 910-921 (1991).
12. Scholtz, J.M., Qian, H., York, E.J., Stewart, J.M., and Baldwin, R.L. Parameters of Helix-Coil Transition Theory for Alanine-Based Peptides of Varying Chain Lengths in Water. *Biopolymers*, **31**, 1463-1470 (1991).

13. Qian, H., Elson, E.L., and Frieden, C. Studies of the Structure of Actin Gels Using Time Correlation Spectroscopy of Fluorescence Beads. *Biophysical Journal*, **63**, 1000-1010 (1992).
14. Qian, H. and Schellman, J.A. Helix-Coil Theories: A Comparative Study for Finite Length Polypeptides. *Journal of Physical Chemistry*, **96**, 3987-3994 (1992).
15. Qian, H. Single-Residue Substitution in Homopolypeptides: Perturbative Helix-Coil Theory at a Single Site. *Biopolymers*, **33**, 1605-1616 (1993).
16. Scholtz, J.M., Qian, H., Robbins, V.H., and Baldwin, R.L. The Energetics of Ion-Pair and Hydrogen-Bonding Interactions in a Helical Peptide. *Biochemistry*, **32**, 9668-9676 (1993).
17. Qian, H. A Thermodynamic Model for Helix-Coil Transition Coupled to Dimerization of Short Coiled-Coil Peptides. *Biophysical Journal*, **67**, 349-355 (1994).
18. Qian, H., Mayo, S.L., and Morton, A. Protein Hydrogen Exchange: Quantitative Analysis by a Two-process Model. *Biochemistry*, **33**, 8167-8171 (1994).
19. Qian, H. Prediction of α -helices in Proteins Based on Thermodynamic Parameters from Solution Chemistry. *Journal of Molecular Biology*, **256**, 663-666 (1996).
20. Qian, H. and Chan, S.I. Interactions Between a Helical Residue and Tertiary Structures: Helix Propensities in Small Peptides and in Native Proteins. *Journal of Molecular Biology*, **261**, 279-288 (1996).
21. Qian, H. and Hopfield, J.J. Entropy-Enthalpy Compensation: Perturbation and Relaxation in Thermodynamic Systems. *Journal of Chemical Physics*, **105**, 9292-9298 (1996).
22. Qian, H. Thermodynamic Hierarchy and Local Energetics of Folded Proteins. *Journal of Molecular Biology*, **267**, 198-206 (1997).
23. Shapiro, B.E. and Qian, H. A Quantitative Analysis of Single Protein-Ligand Complex Separation with the Atomic Force Microscope. *Biophysical Chemistry*, **67**, 211-219 (1997).
24. Qian, H. A Simple Theory of Motor Protein Kinetics and Energetics. *Biophysical Chemistry*, **67**, 263-267 (1997).
25. Doyle, R., Simons, K., Qian, H., and Baker, D. Local Interaction and the Optimization of Protein Folding. *Proteins: Structure, Function, and Genetics*, **29**, 282-291 (1997).
26. Klapper, I. and Qian, H. Remarks on Discrete and Continuous Large-Scale Models of DNA Dynamics. *Biophysical Journal*, **74**, 2504-2514 (1998).
27. Qian, H., Raymond, G.M., and Bassingthwaight, J.B. On 2-Dimensional Fractional Brownian Motion and Fractional Brownian Random Field. *Journal of Physics A: Mathematical and General*, **31**, L527-L535 (1998).
28. Shapiro, B.E. and Qian, H. Hysteresis in Force Probe Measurements: A Dynamic Systems Perspective. *Journal of Theoretical Biology*, **194**, 551-559 (1998).

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