CURRICULUM VITAE

HONG QIAN

Olga Jung Wan Endowed Professor of Applied Mathematics

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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: The density wave theory with finite z-distribution for galactic spiral structures (with Z.-Y. Yue)

Professional Experience

2017.9-	Olga Jung Wan Endowed Professor of Applied Mathematics, Univ. of Washington.
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.
2006-2017	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, Univeresity 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-now	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-now	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-now	Member, Editorial Board, *Quantitative Biology* (Springer).
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.
2018-now	Member, Editorial Board, *Physiological Reviews* (American Physiological Society).
2021-now	Associate Editor, SIAM Journal of Applied Mathematics (Society for Industrial and Applied Mathematics).

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*, graduate course on *Advanced Methods for Ordinary Differential Equations*.

Research Interests

Stochastic analysis and statistical physics of living systems: **stochastic dynamics, systems biology of cells, nonequilibirum 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, 2018 - 2021, Winter 2011- 2014, 2016, Autum 2015, 2019, 2020.
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, 2019.
Amath 423 *Mathematical Analysis in Biology and Medicine*, Spring, 2011- 2015, Winter 2016, 2019, 2020.
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, 2016, 2018, 2020.
Amath 532 *Mathematics of Genome Analysis and Molecular Modeling*, Autumn 2013.
Amath 562 *Advanced Stochastic Processes*, Winter, 2021.
Amath 568 *Advanced Methods for Ordinary Differential Equations*, Winter 2017, 2018.
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), Autum 2000.
Bioeng 510 *Bioengineering Seminar Course* (participated, M. Regnier), Autum 1999.
Bioeng 545 *Fractals in Biology and Medicine* (in part, with J.B. Bassingthwaighte), Autumn 1997.

Invited Talks Given in the Recent Years:

8/21 Wutong Forum, The Chinese University of Hong Kong, Shenzhen.
5/21 Computational Molecular Biology Seminar, University of Washington School of Medicine.
4/21 Department of Physics & Astronomy, University of California, Irvine.
10/20 Biophysics Seminar, University of Michigan, Ann Arbor.
10/20 Physical Chemistry Seminar, University of North Carolina, Chapel Hill.
8/19 Department of Chemistry, Northwestern University, Evanston.
8/19 Department of Applied Mathematics, Illinois Institute of Technology, Chicago.
8/19 Department of Chemistry, University of Chicago, Chicago.
8/19 Department of Bioengineering, University of Illinois School of Medicine, Chicago.
7/19 International Workshop on Applications of Probability and Statistics to Biology, Fudan University, Shanghai.
7/19 Institute of Systems Biology, Shenzhen Bay Laboratory, Shenzhen.
7/19 School of Life and Health Sciences, The Chinese University of Hong Kong, Shenzhen.
7/19 Department of Mathematics, Sun Yat-Sen University, Guangzhou.
6/19 Northeast China Tianyuan Center for Mathematics, Jilin University, Changchun.
3/19 School of Life Sciences, Peking University, Beijing.
10/18 Plenary Speaker, SIAM Central States Section, University of Oklahoma, Norman.
7/18 Symposium on Data Science, Korean Institute for Basic Science, Seoul.
6/18 Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun.
6/18 The 5th Chinese National Conference on Biophysical Chemistry, Taiyuan.
6/18 Division of Applied and Comput. Math., Beijing Computational Science Research Center, Beijing.
5/18 IMA workshop on Queueing and Networks, University of Minnesota, Minneapolis.
1/18 Biophysics Seminar, Department of Physics, Simon Fraser University, Canada.
12/17 Plenary Speaker, Conference on Computational Statistical Mechanics of Complex Systems, Fuzhou, China.
8/17 Workshop on Thermodynamics of Computation in Chemical and Biological Systems, Santa Fe Institute, Santa Fe, NM.
8/17 PIMS Workshop on Stochastic Nonlinear Dynamics, University of Alberta, Edmonton.
6/17 Workshop on Dynamics, Thermodynamics, and Information Processing in Chemical Networks, University of Luxembourg, Luxembourg.
5/17 Department of Biomathematics, University of California School of Medicine, Los Angeles, CA.
5/17 Molecular and Computational Biology, University of Southern California, CA.
4/17 Department of Mathematics and Statistics, University of Massachusetts, Amherst, MA.
4/17 Computational Biology Seminar, University of Pennsylvania, Philadelphia, PA.
4/17 American Mathematical Society Springer Western Sectional Meeting, Pullman, WA.
1/17 4th Gordon Research Conference on Stochastic Physics in Biology, Ventura, CA.
10/16 Computational Molecular Biology Seminar, University of Washington School of Medicine.
8/16 Physical Chemistry Seminar, Institute of Chemistry, Chinese Academy of Science, Beijing.
8/16 Zhou Peiyuan Center for Applied Mathematics, Tsinghua University, Beijing.
8/16 International Workshop on Nonequilibrium Statistical Physics & Active Matter Systems, Institute of Theoretical Physics, Chinese Academy of Science, Beijing.
8/16 Workshop on Morphogenesis and Cell Mechanics: Bridging the Scales from Molecular Biology to Tissue Development, Kavli Institute for Theoretical Physics China, Beijing.
8/16 Institute for Mathematical Sciences, Renming University, Beijing.
8/16 Division of Mechanics, Beijing Computational Science Research Center, Beijing.
8/16 Workshop on Nonequilibrium Processes at the Nanoscale, Kavli Institute for Theoretical Physics China, Beijing.
8/16 Department of Physics, Beijing Normal University, Beijing.
6/16 Center for Quantitative Biology, Peking University, Beijing.
6/16 Center for Mathematical Sciences, Huazhong University of Science and Technology, Wuhan.

6/16 Biophysics Seminar, Department of Physics, Central China Normal University, Wuhan.
6/16 International Workshop on Analysis and Quantification of Noise in Biological Systems, Huazhong University of Science and Technology, Wuhan.
5/16 Séminaire de Mathématiques Supérieures, University of Alberta, Edmonton.
5/16 Frontier of Science Forum on Physical Biology, Chinese Academy of Science, Beijing.
4/16 Institute of Bioinformatics, University of Georgia, Athens, GA.
4/16 Department of Physics, Purdue University, West Lafayette, IN.
4/16 Physical Chemistry Seminar, Department of Chemistry, University of Washington.
12/15 ICMS/KNAW Complexity Science Winter School, Technical University of Eindhoven, Netherland.
8/15 8th 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, Glascow.
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 Huchinson 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 Pennsylviana, 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 Sciecnes, 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 Confernece 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 Compter 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 Pharmolocogy 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 Wisconsine, 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 Blersch 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 Univeresity.
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 Mathmetical 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.

Refereee:

Applied Mathematics:
Bulletin of Mathematical Biology, Discrete and Continuous Dynamical Systems, Journal of Computational and Graphical Statistics, Journal of Atmospheric Sciences, Jounral 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, Proceddings 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, "*Mesoscopic 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. Bomsztyk) "*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, 2014-2019, (PI: S. Huang) "*Dynamics of non-equilibrium cell state transitions in cell populations*", NIH R01 GM109964, $1,700,000 total.

Investigator, Current, 2019-2023, (PI: S. Huang) "*Theory and measurement of cell population dynamics with cell-cell interaction (TMCC)*", NIH R01GM135396, $ 2,000,00 total.

Services:

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 doctoral fellow at UCSF.

Yu-Chen Cheng, Applied Mathematics (2021), followed by a post doctoral fellow at Harvard.

Dean Gull, Applied Mathematics (2009), followed by a staff scientist at PNNL.
Mauricio del Razo (2016), followed by a post doctoral fellow at the Freie Universität Berlin.
William Heuett, Applied Mathematics (2005), followed by a fellow at NIDDK, NIH.
Viktoria Krupp Hsu, Applied Mathematics (2004), followed by a post doctoral fellow at Univ. of Utah.
Kyung Kim, Physics (2006), followed by a post doctoral fellow in Bioengineering, Univ. of Washington.
Woo Kim, Applied Mathematics (2012), unknown.
Christine Lind Cole (2011), followed by a teaching position at Seattle University.
Yi-An Ma (2017), followed by a post doctoral fellow at Univetsity of California Berkeley.
Gunog Justine Seo, Applied Math. (2008), followed by a post doctoral 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 doctoral fellow at UCLA Cardiology Lab.
Yue Wang, Applied Mathematics (2018), followed by a post doctoral fellow at IHÉS, Université Paris.
Felix X.-F. Ye, Applied Mathematics (2018), followed by a post doctoral fellow at Johns Hopkins Univ.

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 Jeno, 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.

Undergradaute student Advised:

Gilbert Martinez, Physics, now gradaute 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).
2. Ge, H. and Qian, H. ***Mathematical Kinetics Models: Applications in Biophysics and Biochemistry*** (in Chinese). Peking University Series in Contemporary Mathematics, Peking University Press (2017).
3. Qian, H. and Ge, H. ***Stochastic Chemical Reaction Systems in Biology: Principles, Models, and Analyses***, Springer Lecture Notes on Mathematical Modelling in the Life Sciences (forthcoming).

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).

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