

## Curriculum Vitae

Jin Yu 喻进 University of California, Irvine

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### EDUCATION

- PhD: Department of Physics, University of Illinois at Urbana-Champaign (UIUC) Aug, 2007  
Advisor: Professor Klaus Schulten
- MS: Department of Finance, UIUC May, 2007
- MS: Department of Physics, Tsinghua University (Beijing, China) Jan, 2001  
Advisor: Professor Guozhen Wu
- BS: Department of Physics, Tsinghua University June, 1998

### EMPLOYMENT HISTORY

- Assistant Professor, Department of Physics and Astronomy (from July 2019), the NSF-Simons Center of Multiscale Cell Fate (CMCF) Research, and the Department of Chemistry (from March 2020), University of California, Irvine
- Principal Investigator, Complex System Research Division, Beijing Computational Science Research Center (CSRC) 2012 – June 2019
- Postdoc with George Oster in Molecular & Cellular Biology and Bustamante Lab in the Physics Department, University of California, Berkeley 2007 – 2011
- Research assistant in Theoretical and Computational Biophysics Group, Beckman Institute, UIUC 2003 – 2007
- Teaching assistant in undergraduate Quantum Physics and graduate Quantum Mechanics, Department of Physics, UIUC 2001- 2002
- Research assistant in Molecular and Nano Sciences Laboratory, Department of Physics, Tsinghua University 1998- 2001

### GRANTS & FUNDING AWARDS

- UC Office of the President Cancer Research CRCC (PI): Developing computational assay for oncogenic MYC/MAX dimerization and search, Award C23CR5636 2022-2023
- National Science Foundation (NSF) (PI) RAPID: Dissecting inhibitor impacts on viral polymerase and fidelity control of RNA-synthesis in SARS-CoV-2, Award # MCB-2028935 2020-2022
- National Natural Science Foundation of China (NSFC) (co-PI) Thermal dissipation and long-time dynamics in the active matter systems, Grant #11635002 2017-2021
- NSFC (PI) Signal detection and information recognition on DNA by protein factors and machines, Grant # 11775016 2018-2020
- NSFC (PI) Dissecting non-equilibrium dynamics of single molecule gene transcription and replication, Grant # 11275022 2013-2016
- Young Talent Scholarship from Global Recruitment Program of China 2012-2015
- UC Berkeley Chancellor's Postdoctoral Fellowship, and Clare Boothe Luce Fellowship 2007-2010

### PROFESSIONAL MEMBERSHIP & AWARDS

- Excellent Graduate Advisor Award, CSRC, Chinese Academy of Engineering Physics 2019
- US Biophysical Society Early Career Committee member 2018-2021
- Chinese Biophysical Society Single-molecule Biophysics Committee member 2015-2018
- Keystone Symposia Future of Science Fund Scholarship; Biophysical Society Annual Meeting CPOW Travel Award 2010-2011
- Guanghua Scholarship of Tsinghua University 2000

## PUBLICATIONS (\* corresponding authorship)

49. **Jin Yu\***. Commentary: On the common pathways of deformation: RNA vs DNA under interrogation. *Proc Natl Acad Sci USA* 2023, 120 (23) e2306453120
48. Chunhong Long, Moises Ernesto Romero, Liqiang Dai, and **Jin Yu\***. Energetic vs entropic stabilization between Remdesivir analogue and cognate ATP upon binding and insertion into active site of SARS-CoV-2 RNA dependent RNA polymerase. *Phys. Chem. Chem. Phys.*, 2023,25, 13508
47. Lingyan Wang, Kaiyuan Song, **Jin Yu**, and Lin-Tai Da\*. Computational investigations on target-site searching and recognition mechanisms by thymine DNA glycosylase during DNA repair process. *Acta Biochimica et Biophysica Sinica* 2022, 54, 796-806
46. Chuan Li et al, **Jin Yu**, Qiaolin Gou, Yanzhi Guo, Xuemei Pu\*. An Interpretable Convolutional Neural Network Framework for Analyzing Molecular Dynamics Trajectories: a Case Study on Functional States for G-Protein-Coupled Receptors. *J. Chem. Inf. Model.* 2022, 62, 6, 1399–1410
45. Chao E<sup>+</sup>, Liqiang Dai<sup>+</sup>, Jiaqi Tian, Lin-Tai Da, and **Jin Yu\***. Structure-Based Simulation and Sampling of Transcription Factor Protein Movements along DNA from Atomic-Scale Stepping to Coarse-Grained Diffusion. **Video Tutorial** *J. Vis. Exp.* (181), e63406, 2022 <sup>+equal contribution</sup>
44. Chao E, Liqiang Dai, and **Jin Yu\***. Switching Promotor Recognition of Phage RNA Polymerase in Silico Following Path along Lab Directed Evolution. *Biophysical Journal* 2022, 121:582-595
43. Biao Wan and **Jin Yu\***. Two-Phase Dynamics of DNA Supercoiling based on DNA Polymer Physics. *Biophysical Journal* 2022, 121:658-669
42. Jianbing Ma et al., **Jin Yu**, Xuguang Xi\*, Ying Lu\*, Ming Li. RQC helical hairpin in Bloom's syndrome helicase regulates DNA unwinding by dynamically intercepting nascent nucleotides. *iScience*, 25 (1), 103606, 2022
41. Moises E Romero, Chunhong Long, Daniel La Rocco, Anusha M Keerthi, Dajun Xu, and **Jin Yu\***. Probing remdesivir nucleotide analogue insertion to SARS-CoV-2 RNA dependent RNA polymerase in viral replication. *Molecular Systems Design & Engineering*, 6, 888-902, 2021
40. Chunhong Long, Liqiang Dai, Chao E, Lin-Tai Da, and **Jin Yu\***. Allosteric regulation in CRISPR/Cas1-Cas2 protospacer acquisition mediated by DNA in association with Cas2. *Biophysical Journal* 120, 3126-3137, 2021
39. Chunhong Long, Moises Ernesto Romero, Daniel La Rocco, and **Jin Yu\***. Min-review: Dissecting nucleotide selectivity in viral RNA polymerases. *Computational and Structural Biotechnology Journal* 19, 3339-3348, 2021
38. Liqiang Dai, Yongping Xu, Zhenwei Du, Xiao-dong Su\*, and **Jin Yu\***. Revealing Atomic-scale Molecular Diffusion of a Plant Transcription Factor WRKY domain protein along DNA. *Proceedings of the National Academy of Sciences USA* 118 (23) e2102621118, 2021
37. Liqiang Dai and **Jin Yu\***. Inchworm seeping of Myc-Max heterodimer protein diffusion along DNA. *Biochemical and Biophysical Research Communications* 533, 97-103 2020
36. Chenggong Ji, Shuo Du, Peng Li, Qinyu Zhu, Xiaoke Yang, Chunhong Long, **Jin Yu**, Feng Shao\*, and Junyu Xiao\*. Structural mechanism for guanylate-binding proteins (GBPs) targeting by the Shigella E3 ligase IpaH9.8. *PLOS Pathogens* 15(6): e1007876, 2019

35. Chunhong Long, Chao E, Lin-Tai Da, and **Jin Yu\***. Mini Review: A viral T7 RNA polymerase ratcheting along DNA with fidelity control. *Computational and Structural Biotechnology* 17, 638-644, 2019
34. Chunhong Long, Chao E, Lin-Tai Da, and **Jin Yu\***. Determining selection free energetics from nucleotide pre-insertion to insertion in viral T7 RNA polymerase transcription fidelity control. *Nucleic Acids Research* 47(9), 4721-4735, 2019
33. Liqiang Dai, Bo Zhang, Shuxun Cui\*, and **Jin Yu\***. Inspecting fluctuation and coordination around chromophore inside green fluorescent protein from water to nonpolar solvent. *Proteins: Structure, Function, and Bioinformatics* 87, 531-540, 2019
32. Min-jing Deng, Jianli Tao, Chao E, Zhao-yang Ye, Zhengfan Jiang, **Jin Yu**, and Xiao-dong Su\*. Novel Mechanism for Cyclic di-Nucleotide Degradation Revealed by Structural Studies of *Vibrio* Phosphodiesterase V-cGAP3. *Journal of Molecular Biology* 430 (24), 5080-5093, 2018
31. Xiaobo Jing, Pavel Loskot, and **Jin Yu\***. How does supercoiling regulation on a battery of RNA polymerases impact on bacterial transcription bursting? *Physical Biology* 15 (6), 066007, 2018
30. Lin-Tai Da\* and **Jin Yu**. Base-Flipping Dynamics from an Intrahelical to an Extrahelical State Exerted by Thymine DNA Glycosylase During DNA Repair Process. *Nucleic Acids Research* 46 (11), 5410-5424, 2018
29. Chunhong Long and **Jin Yu\***. Balancing Non-Equilibrium Driving with Nucleotide Selectivity at Kinetic Checkpoints in Polymerase Fidelity Control. *Entropy* 20, 306, 2018
28. Ilona Christy Unarta, Lizhe Zhu, Camen Ka Man Tse, Peter Pak-Hang Cheung, **Jin Yu**, and Xuhui Huang\*. Molecular mechanism of RNA polymerase II transcription elongation elucidated by kinetic network models. *Current Opinion in Structural Biology* 49, 54-62, 2018
27. Lin-Tai Da\*, Yi Shi, Guodong Ning, and **Jin Yu\***. Dynamics of the excised base release in thymine DNA glycosylase during DNA repair process. *Nucleic Acids Research*, 46(2) 569, 2017
26. Liqiang Dai, Holger Flechsig, and **Jin Yu\***. Deciphering intrinsic inter-subunit couplings that lead to sequential hydrolysis of F1-ATPase ring. *Biophysical Journal* 113 (7) 1440-1453, 2017
25. Lin-Tai Da<sup>+</sup>\*, Chao E<sup>+</sup>, Yao Shuai, Shaogui Wu, Xiao-Dong Su, and **Jin Yu\***. T7 RNA polymerase translocation is facilitated by helix opening on the fingers domain that may also prevent backtracking. *Nucleic Acids Research* 45(13) 7909-7921, 2017 <sup>+equal contribution</sup>
24. Chuanbiao Zhang, **Jin Yu**, and Xin Zhou\*. Imaging Metastable States and Transitions in Proteins by Trajectory Map. *The Journal of Physical Chemistry B*, 121(18) 4678-4686, 2017
23. Chao E, Baogen Duan, and **Jin Yu\***. Nucleotide Selectivity at a Preinsertion Checkpoint of T7 RNA Polymerase Transcription Elongation. *The Journal of Physical Chemistry B*, 121(15) 3777-3786, 2017
22. **Jin Yu\***. Computational investigations on polymerase actions in gene transcription and replication: Combining physical modeling and atomistic simulations. *Chinese Physics B*, 25 (1) 018706, 2016
21. Lin-Tai Da, Chao E, Baogen Duan, Chuanbiao Zhang, Xin Zhou, **Jin Yu\***. A jump-from-cavity pyrophosphate ion release assisted by a key lysine residue in T7 RNA polymerase transcription elongation. *PLoS Computational Biology*, 11 (11), e1004624, 2015
20. Jianhua Xing\*, **Jin Yu**, Hang Zhang, Xiaojun Tian. Computational modeling to elucidate molecular mechanisms of epigenetic memory. *Epigenetic Technological Applications In*

19. Bo Cheng, Shaogui Wu, Shixin Liu, Piere Rodriguez, **Jin Yu\***, Shuxun Cui\*. Protein denaturation at single-molecule level: the effect of nonpolar environments and its implications to the unfolding mechanism by proteases. *Nanoscale*, 7, 2970, 2015
18. **Jin Yu\***, Lin-Tai Da, Xuhui Huang\*. Constructing kinetic models to elucidate structural dynamics of a complete RNA polymerase II elongation cycle. *Physical Biology*, 102, 016004, 2015
17. **Jin Yu\***. Efficient fidelity control by stepwise nucleotide selection in polymerase elongation. *Molecular Based Mathematical Biology*, 2, 141-160, 2014
16. Baogen Duan, Shaogui Wu, Lin-Tai Da, **Jin Yu\***. A critical residue selectively recruits nucleotides for T7 RNA polymerase transcription fidelity control. *Biophysical Journal*, 107, 2130-2140, 2014
15. **Jin Yu\***. Coordination and control inside simple biomolecular machines. *Advances in Experimental Medicine and Biology In Protein Conformation Dynamics* by Springer 805, 2014, 353-384, Springer, 2014
14. **Jin Yu\***, George Oster\*. A small post-translocation energy bias aids nucleotide selection in T7 RNA polymerase transcription. *Biophysical Journal*, 102, 532-541, 2012.
13. **Jin Yu\***, Wei Cheng, Carlos Bustamante, and George Oster\*. Coupling translocation with nucleic acid unwinding by NS3 helicase. *Journal of Molecular Biology*, 404:439-455, 2010.
12. Jeehae Park, Sua Myong, Anita Niedziela-Majka, Kyung Suk Lee, **Jin Yu**, Timothy M. Lohman, Taekjip Ha\*. PcrA helicase dismantles RecA filaments by reeling in DNA in uniform steps. *Cell*, 142:544-555, 2010.
11. **Jin Yu**, Jeff Moffitt, Craig Hetherington, Carlos Bustamante, and George Oster\*. Mechanochemistry of a viral DNA packaging motor. *Journal of Molecular Biology*, 400:186-203, 2010.
10. Shuxun Cui, **Jin Yu**, Ferdinand Kühner, Klaus Schulten, and Hermann E. Gaub\*. Double stranded DNA dissociates into single strands when dragged into a poor solvent. *Journal of the American Chemical Society*, 129:14710-14716, 2007.
9. Sungchul Hohng, Ruobo Zhou, Michelle K. Nahas, **Jin Yu**, Klaus Schulten, David M. J. Lilley, and Taekjip Ha\*. Mapping the two-dimensional reaction landscape of Holliday junction via dynamic fluorescence-force spectroscopy. *Science*, 318:279-283, 2007.
8. **Jin Yu**, Taekjip Ha, and Klaus Schulten\*. How directional translocation is regulated in a DNA helicase motor. *Biophysical Journal*, 93:3783-3797, 2007.
7. Markus Dittrich, **Jin Yu**, and Klaus Schulten\*. PcrA helicase, a molecular motor studied from the electronic to the function level. *Atomistic Approaches in Modern Biology. Topics in Current Chemistry*, 268: 319-347, Springer, 2006.
6. **Jin Yu**, Taekjip Ha, and Klaus Schulten\*. Structure-based model of the stepping motor of PcrA helicase. *Biophysical Journal*, 91:2097-2114, 2006.
5. **Jin Yu**, Andrea J. Yool, Klaus Schulten, and Emad Tajkhorshid\*. Mechanism of gating and ion conductivity of a possible tetrameric pore in Aquaporin-1. *Structure*, 14:1411-1423, 2006.

4. **Jin Yu**, Taekjip Ha, and Klaus Schulten\*. Conformational model of the Holliday junction transition deduced from molecular dynamics simulations. *Nucleic Acids Research*, 32:6683-6695, 2004.

3. **Jin Yu** and Guozhen Wu\*. The Lyapunov analysis of the highly excited bend motion of acetylene. *Chemical Physics Letters*, 343: 375-382, 2001.

2. **Jin Yu** and Guozhen Wu\*. Classical characters of highly bend dynamics of acetylene in two coupled SU(2) coset spaces. *Journal of Chemical Physics*, 113:647-652, 2000.

1. **Jin Yu**, Songtao Li and Guozhen Wu\*. Multifractal analysis for the eigencoefficients of the eigenstates of highly excited vibration. *Chemical Physics Letters*, 301:217-222, 1999.

## INVITED TALKS

- “Probing Transcription Machinery in Modules via Physical Modeling and Computational Interrogation”, International Workshop on Soft Matter and Biophysics Theories (ITP-CAS), Xi’an, China, Aug 2023
- “Modeling Protein Dynamics from Brownian Motions to Transcription Regulation”. APS March Meeting: Physics of Proteins Focus Session, Las Vegas, NV, Mar 2023
- “Modeling Transcription Machinery in Minimal Functional Modules”. Gordon Research Conference on Stochastic Physics in Biology, Ventura, CA, Jan 2023
- “Transcription Machinery in Modules via Physical Modeling and Computational Interrogation”, Special hybrid seminar, Pharmaceutical Sciences, UCSD Nov 2022
- Transcription Machinery in Modules via Physical Modeling and Computational Interrogation”, virtual visiting Biological Sciences at Virginia Tech, Oct 2022
- “Probing Transcription Machinery in Modules via Physical Modeling and Computational Interrogation”, visiting Biophysics at Johns Hopkins University, Sept 2022
- Transcription Machinery in Modules, Biomolecular Modeling Online Forum 6th Seminar, Institute of Physics, CAS at Wenzhou, and Bioinformatics Society of China, Aug 2022
- “Probing Transcription Machinery in Modules via Physical Modeling and Computational Interrogation”, virtual visiting TCI at University of Wisconsin-Madison, May 24<sup>th</sup> 2022
- “Protein Search Dynamics and Diffusion/Binding Profiling along DNA”, International Conference on Bioinformatics and Computational Biology (ICBCB), China, MAY 2022
- “Probing Protein/DNA Transcription Machinery via Physical Modeling and Computational Interrogation”, Dept of Physics and Astronomy Colloquium at UC Irvine, Apr 21<sup>st</sup> 2022
- “Modeling Transcription Protein Machinery”, 11<sup>th</sup> Annual Southern California System Biology Symposium, UCLA, Apr 2<sup>nd</sup> 2022
- “Probing Protein Search along DNA, Transcription Fidelity Control, & DNA Mechanical Feedback”, visiting TCBG at University of Illinois at Urbana-Champaign, IL March 21<sup>st</sup> 2022
- “Probing Protein Motions for Sequence Fidelity Control or Information Detection long DNA American Physical Society (APS) March Meeting Focused Session on Physics of Protein I Chicago, IL March 14<sup>th</sup> 2022
- “Revealing Atomic-Scale Molecular Diffusion of a Transcription Factor Domain Protein Along DNA” 66<sup>th</sup> Annual Biophysical Society (BPS) Meeting: New and Notable Symposium, San Francisco Feb 2022
- “Probing remdesivir nucleotide analogue insertion in viral RNA dependent RNA polymerase (RdRp) of SARS-CoV-2” 4<sup>th</sup> International Conference on PharmScience Research & Development, Feb 2022
- “Modeling and Simulating Protein machine Along DNA” 4<sup>th</sup> International webinar on Nucleic Acids and CRISPR, Feb 2022

- “From atomic scale molecular diffusion to hierarchical free energy landscape of transcription factor protein search” Biological Physics/Physical Biology (BPPB) seminar series, Jan 2022
- “Probing remdesivir nucleotide analogue insertion in viral RNA dependent RNA polymerase (RdRp) of SARS-CoV-2” ACS Fall Symposium Computational Chemistry of COVID-19: Lessons Learned and Future Directions, online Aug 2021
- “Probing nucleotide selectivity in viral RNA dependent RNA polymerase (RdRp) of SARS-CoV-2” ACS Spring Symposium, The Many Roles of Computational Chemistry in Addressing COVID-19, online Apr 2021
- “Dissecting Nucleotide Selectivity of a Viral RNA Polymerase” at the 3<sup>rd</sup> IAS Focused Program on Mechanism of Gene Transcription and Its Regulation @HKUST, online Dec 2020
- “Simulating Protein Stepping on DNA” at the 3<sup>rd</sup> Worldwide Chinese Computational Biology Conference @Peking University, online Aug 2020
- “Energetics and structural dynamics of a viral RNA polymerase ratcheting along DNA with fidelity control”, Symposium on Nonequilibrium Energetics of Molecular Machine, @The 57<sup>th</sup> Annual Meeting of the Biophysical Society of Japan, Miyazaki, Japan, Sept 2019
- “Transcription studied in a nutshell on T7 RNA polymerase”, Trends in Computational Molecular Biophysics workshop, WPI Nano Life Science Inst, Kanazawa, Japan Nov 2018
- “Transcription studied in a nutshell on T7 RNA polymerase”, the 16th Chinese Biophysics Congress 第十六次中国暨国际生物物理大会, 成都 Chengdu, Aug 2018
- “Modeling DNA supercoiling regulation in bacterial gene transcription”, the 2<sup>nd</sup> Technological Advancement and Single Molecule Biophysics Meeting 第二届全国现代生物物理技术与方法暨单分子生物学学术研讨会, 西安 Xi'an, July 2018
- “Transcription studied in a nutshell on T7 RNA polymerase ratcheting along DNA with fidelity control and bursting activity” the 11<sup>th</sup> Meeting on Biology Inspired Theoretical Sciences 第十一届海峡两岸生物学启发的理论问题研讨会, 惠蓀林場, 台湾中兴大学& 中央大学, Taiwan, July 2018
- Talk “Dissect fidelity control in a viral transcription machine ratcheting along DNA: combining atomistic simulations with kinetic modeling”, the 2<sup>nd</sup> Chinese International Meeting on Computational Biology and Molecular Simulation 第二届世界华人计算生物和分子模拟大会, 广州 Guangzhou, June 2018
- Talk “Revealing Underlying Physics from Life’s Key Protein Machines in Metabolic and Genetic Control” at the Federal University of Rio de Janeiro, Brazil, Oct 2017
- Talk “Deciphering intrinsic inter-subunit couplings that lead to sequential hydrolysis of F<sub>1</sub>-ATPase ring”, the 10th Soft Matter and Biological Physics Meeting of China 第十届全国软物与生命物质物理学术会议, 厦门 Xiamen, Mar 2017
- “Revealing physics from key bio-molecular machines combining chemical kinetics with molecular dynamics”, Telluride Workshop on Single Molecule: Theory Meets Experiment, Telluride, CO, USA, July 2016
- Talk “Modeling Fluctuation and Control in Transcription Elongation from T7 RNA Polymerase to Polymerase II”, IAS Focused Program on Mechanisms of Transcription and its Regulation, HKUST, Hong Kong, Jan 2016
- Talk “Mechanochemical and fidelity control of simple biomolecular machines”, Pacificchem 2015 Symposia, Hawaii, USA, Dec 2015
- “Fluctuation and control in T7 RNA polymerase transcription elongation” The 9th Asian Biophysics Association Symposium (ABA2015), Shangyu, China May 2015
- “Coordination and control of motor-driven viral DNA packaging” The 8th Australia New Zealand Mathematics Convention. Topology, Geometry and Combinatorics of Biopolymers. University of Melbourne, Australia, Dec 2014
- “Coordination and control in the ring-shaped molecular motors”. The 52nd Annual Meeting of the Biophysical Society of Japan, Sapporo, Japan, Sept 2014

- “Fluctuation and fidelity control of a non-proofreading polymerase”, Chines Physical Society Fall Meeting 中国物理学会秋季学术会议, 哈尔滨, Harbin Sept 2014
- “Fluctuation and fidelity control of a non-proofreading polymerase” SIAM Conference on the Life Sciences, Charlotte, NC, USA, Aug 2014
- “Fluctuation and fidelity control of a non-proofreading polymerase” International Conference on Modeling of Complex Biological Systems, 南开大学 Nankai U, Tianjin, May 2014
- “Fluctuation and fidelity control of a non-proofreading polymerase” American Physical Society Annual Meeting, Denver, USA, March 2014
- Talk “Fluctuation and Fidelity Control of a non-proofreading polymerase”, Mathematical Modeling and Scientific Computing in Biology and Life Science, 上海交大 SJTU, Shanghai, Dec 2013
- “Mechanochemical Control of Speed and Accuracy in Polymerase Elongation”. Computational Methods for Biological and Complex Systems, Seoul, Korea, July 2013 (Korea Institute of Advanced Study, Satellite Meeting of STAPHYS)
- “Fluctuating Biomolecules under Tension” 首届世界华人计算生物和分子模拟大会 The first Chinese International Meeting on Computational Biology and Molecular Simulation, 大连, Dalian Aug 2012 (大连化物所)
- “From helicase unwinding to polymerase transcription” Society of Mathematic Biology Annual Meeting, Knoxville, TN, USA, July 2012
- “How energy is expended in single molecule gene transcription” East Asia Joint Seminars on Statistical Physics, 苏州大学, Suzhou, March 2012.
- “Fluctuating biomolecules under tension” Fluctuation Theorems and Interdisciplinary Application, Kavli Institute for Theoretical Physics China, ITP, 中科院理论物理所, Beijing, December 2011
- “Modeling molecular machines that drive genetic processes”, UC Davis Math, Jan 2011; UC San Francisco (SF) Pharmaceutical Chemistry, Jan 2011; UC Riverside Biochemistry, Jan 2011; U Pittsburgh Computation and System Biology, Feb 2011
- “Coupling translocation and nucleic acid unwinding: a semi-quantitative model of NS3 helicase from Hepatitis C Virus”, Physical and Computational Approaches to Cancer Biology Workshop, Helen Diller Family Comprehensive Cancer Center at UCSF, March, 2011; Biophysical Society Meeting, CPOW Travel Award, Baltimore, MD, March 2011.
- “Mechanochemical model of a viral DNA packaging motor”, Keystone Symposia Scholarship on Future of Science Fund “AAA+ and Related ATP-Driven Protein Machines”, Tahoe, CA, March, 2011; Biophysical Society Annual Meeting, San Francisco, CA, February 2010; Gordon Research Conference, Soft Condensed Matter Physics (Soft meets Biology), Colby-Sawyer College, New London, NH, Aug 2009; 21<sup>st</sup> International Congress of Biochemistry and Molecular Biology (Young Scientist Program), Shanghai, China, July 2009.
- “Probing design principle: molecular motor scooting along DNA/RNA”, Simbios NIH Center for Biomedical Computation at Stanford University, Palo Alto, CA, March 2009.
- “How directional translocation is regulated in a DNA helicase motor,” Center for Theoretical Biological Physics at UC San Diego, La Jolla, CA, March 2007.

## COURSE TEACHING

- **Biological Physics** & Molecular Machine PHYS 230B/146B (Grad & Undergrad), Spring 2023-2024, University of California, Irvine
- **Basic Physics III** or PHYS 3C (Undergrad), Spring 2022, University of California, Irvine
- **Statistical Mechanics** PHYS214A (Graduate), Winter 2020-2023, University of California, Irvine
- **Computational Methods** PHYS/CHEM 229A & PHYS100 (Graduate + Undergraduate), Fall 2019-2023, University of California, Irvine

## CONFERENCE ORGANIZED

- Co-organizing and Chairing APS-DBIO Focus Session on Molecular Machines, APS March Meeting, Las Vegas, NV 2023
- BPS Virtual Networking Event: Stochastic dynamics and physics of protein-DNA interaction, June 10<sup>th</sup> 9-12 pm PT, 2022 <https://sites.uci.edu/bsne/>
- Southern California Mechanobiology Day, University of California, Irvine, October, 2019
- Workshop on DNA Chromosome Structure and Dynamics, CSRC, Beijing, July 2017
- Training workshop: From cellular signal transduction to single molecule studies and atomistic simulations @第十届全国软物与生命物质物理学术会议 Xiamen, Mar 2017
- CSRC- KIAS- RIKEN Workshop on Kinetics of Enzymes and Molecular Machines, Beijing, Aug 2015
- Workshop on the Physics of Living Matter: from Molecules to Systems, CSRC, Beijing, Dec 2014
- Hands-on Workshop on Biomolecular Computation and Data Analysis, CSRC, Beijing, March and Apr 2104
- Workshop on Energy Landscape of Complex Systems, CSRC, Beijing, June 2013

## POSTDOC SPONSOR

- Dr Wan Biao 万彪 (PhD from Chinese Academy of Sciences CAS Physics) 2017 ~ 2021
- Dr Pavel Loskot (PhD from Alberta U, Canada ECE) 2014-2015
- Dr Duan Baogen 段宝根 (PhD from CAS chemistry) 2012-2014
- Dr Wu Shaogui 伍绍贵 (PhD from CAS chemistry) 2012-2014
- Dr Chai Yan 柴彦 (PhD from Max-Planck Physics) 2012-2014

## GRADUATE STUDENT SUPERVISION

- David Clymer (Physics, PhD Graduate Student from Sept 2023, UC Irvine)
- Shannon McElhenney (Chemistry, PhD Graduate Student from Sept 2022, UC Irvine)
- Carmen Al Masri (Physics, PhD Graduate Student from Sept 2021, UC Irvine)
- Moises Ernesto Romero (Chemistry, PhD Thesis Defense Passed Aug 2023, UC Irvine)
- E Chao 鄂超 (Condensed matter & Biophysics, PhD 2022 Aug, CSRC)
- Dai Liqiang 戴立强 (Condensed matter & Biophysics, PhD 2020, Dec CSRC)
- Long Chunhong 龙春红 (Condensed matter & Biophysics, PhD 2019 Aug, CSRC)
- Jing Xiaobo 景晓波 (Applied Math, MS 2016, CSRC)

## UNDERGRADUATE STUDENT RESEARCH HOST

- Tasneem Khokhar (UC Irvine, Physics, from Spring 2023)
- Yuhui Yang (UC Irvine, Physics, Fall 2021 to 2022)
- Daniel La Rocco (UC Berkeley, Physics, Summer 2020 to Spring 2021)
- Anusha Mysore Keerthi (RVCE, Biotechnology, Summer & Fall 2020)
- Dajun Xu (UC Irvine, Math & Biology, Summer 2020)
- Shen Kangqi (Sichuan U, Physics, Spring 2017)
- Xiao Heting and Wang Shiyi (Jilin U, Medical School, Winter 2016)
- Li Xiao (Beijing Normal U, Fall 2015)
- Liu Cindy (Rice U, Computer Science, Summer 2015)
- Zhang Fangfei (HK Baptist U, Chemistry, Summer 2014)
- Ren Boyu (Peking U, Physics, Summer 2013)



## THESIS COMMITTEE/REVIEW

- UC Irvine Chemistry Nov 2023 (PhD Advancement: Praveen Prabhakar)
- UC Irvine MCSB program Oct 2022 (PhD Thesis Defense: Shiji Zhao)
- UC Irvine Physics Dec 2021 (PhD Thesis Defense: Robert Taylor)
- UC Irvine Mechanical & Aerospace Engineering Aug 2021 (PhD Qualify: Olga Movilla Miangolarra)
- UC Irvine MCSB Program Feb 2021 (PhD Advancement: Shiji Zhao)
- UC Irvine MCSB Program Oct 2020 (PhD Prelim: Cassandra Van)
- UC Irvine Chemistry June 2020 (PhD Prelim: Ray Dhiman)
- PKU (Peking U) Chemistry (北大化学院) June 2018 (PhD: Zhang Lin, He Zhili)
- CSRC Complex System June 2018 (PhD and MS: Wang Yang and Huang Lanqin)
- U CAS (Chinese Academy of Sciences 国科大) May 2017 (MS: Wang Xi, Dong Zhen, Ying Ling kang)
- PKU Q-Bio (北大定量生物中心) May 2017 (PhD: Cao Huaqin, Chen Shuobing)
- PKU Physics (北大物理学院) Apr 2016 (PhD: Cao Yuanshen)
- Tsinghua U Physics (清华物理系) Apr 2016 (MS: Wang Peng, Lin Anqi, Xu Jianfeng);
- Tsinghua U Life Science (清华生命科学学院) March 2016 (PhD: Liu Huihui)
- PKU Chemistry June 2016 (PhD: Gu Chan, Chen Xing); May 2015 (PhD: Zhou Chenyang); May 2014 (PhD: Yu Daqi)
- Tsinghua U Life Science July 2014 (PhD: Tan Xianwei)
- Chinese Academy of Sciences Physics (中科院物理所) Nov 2014 (PhD: Zhou Zhi)
- PKU Chemistry and Physics May 2013 (PhD: Wu Yiran; Jin Fan; He Shan)
- National Institute of Biological Sciences (NIBS 北京生命科学研究所) May 2013 (PhD: Wan Xiaobo; Wu Yao)
- Tsinghua U Physics Oct 2013 (PhD: Dong Chengwei)

## JOURNAL REVIEW

Accounts of Chemical Research  
ACS Chemical Neural Science  
Acta Physico-Chimica Sinica  
Archives of Biochemistry and Biophysics  
Asian Journal of Biochemistry  
Biochemistry  
Biophysical Journal  
Biophysical Chemistry  
CCS Chemistry  
Chinese Physics B  
Chinese Physics Letters  
Communications Biology  
Computational and Structural Biotechnology Journal  
eLife  
Frontiers in Pharmacology  
Frontiers in Cell and Development Biology  
International Journal of Biological Macromolecules  
International Journal of Modern Physics C  
Journal of the American Chemical Society (and JACS Au)  
Journal of Biomolecular Structure and Dynamics  
Journal of Chemical Information and Modeling  
Journal of Chemical Theory and Computation

Journal of Modern Physics  
Journal of Physical Chemistry  
Journal of Physical Chemistry Letters  
Journal of the Royal Society Interface  
Journal of Theoretical and Computational Chemistry  
Materials Advances  
Mathematical Biosciences and Engineering  
Molecular Based Mathematical Biology (now as Computational and Mathematical Biophysics)  
Molecular BioSystem  
Nucleic Acids Research (and NAR Genomics and Bioinformatics)  
Physical Biology  
Physical Chemistry Chemical Physics  
Physical Review Letters  
PLoS Computational Biology, PLoS One  
Proceedings of the National Academy of Sciences USA  
Proteins: Structure, Function, and Bioinformatics  
Scientific Reports

**BOOK REVIEW**

Princeton University Press  
Springer Nature  
Frontiers in Computational Chemistry (book chapter)