Kai Zhang, Ph.D.

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APPOINTMENT

Associate Professor, University of Illinois at Urbana-Champaign (UIUC) 2021-present
Associate Department Head, Department of Biochemistry, UIUC 2021-present
Director of Graduate Studies, Department of Biochemistry, UIUC 2021-present
Assistant Professor, Department of Biochemistry, UIUC 2014-2021
Affiliate Faculty, Neuroscience Program, UIUC
Affiliate Faculty, Cancer Center at Illinois, UIUC
Affiliate Faculty, Center for Biophysical and Computational Biology, UIUC
Affiliate Faculty, Beckman Institute, UIUC
Affiliate Faculty, Chemistry-Biology Interface Training Program, UIUC

PROFESSIONAL PREPARATION

Postdoctoral Scholar **Stanford University,** Stanford, California **2009-2014**
Department of Chemistry
Research Advisor: Dr. Bianxiao Cui

Ph.D. **University of California, Berkeley,** Berkeley, California **2002-2008**
Department of Chemistry
Research Advisor: Dr. Haw Yang
Dissertation title: Methodology Development for Single-Molecule/Particle Optical Study of Biological Systems

B.S. University of Science and Technology of China (USTC), Hefei, Anhui, PRC **1997-2002**
Department of Chemical Physics
Research Advisor: Dr. Hongfei Wang

HONORS AND AWARDS

Scialog Fellow Research Award *Research Corporation for Science Advancement* **2021, 2023**
Inaugural "Light Lecture" Speaker *University of Cincinnati* **2021**
Scialog Fellow *Research Corporation for Science Advancement* **2020-2023**
Spotlight on Early Career Researchers Journal of Molecular Biology **2017**
Innovative Teaching and Learning Grant *UIUC* **2016**

American Cancer Society Postdoctoral Fellowship	*American Cancer Society*	**2013**
Biophysical Society Education Travel Award	*Biophysical Society*	**2013**
American Society for Cell Biology (ASCB) Travel Award	*ASCB*	**2012**
Irving Fatt/Samuel Ruben Award	*UC Berkeley*	**2004**
Guo Moruo Fellowship, Top Fellowship	*USTC*	**2001**
Award for Best Undergraduate Research	*USTC*	**2001**
Asian Spectra Physics Corporation Fellowship	*USTC*	**2000**
Legend (now Lenovo) Fellowship	*USTC*	**1999**
He Duohui Academician Fellowship	*USTC*	**1998**
Outstanding Undergraduate Award	*USTC*	**1997**

GRANT REVIEW PANEL

Israel Science Foundation (2023)
Cancer Center at Illinois (CCIL) (2023)
Paul G. Allen Frontiers Group (2021, 2022)
Arizona Alzheimer's Disease Core Center Grant (2017)
Research Board, OVCR in UIUC (2017, 2018, 2019, 2020)

EDITORSHIP

Journal of Molecular Biology – Associate Editor	2018-present
Edited work: Article collection: Chemogenetics and Optogenetics	
Frontiers in Molecular Neuroscience	
- Review Editor	2015-2019
- Associate Editor	2020-present
CRC Methods in Signal Transduction – Editor	2021
Edited work: Opsin-free optogenetics – Technology and Applications	2022
Advanced Biology – Associate Editor	2022-present

RESEARCH SUPPORT

Ongoing Research Support

R01GM132438 Zhang (PI) 09/15/2019-06/30/2024
Precise regulation of native transcription factor at the single-cell level
The goal of this study is to develop an optogenetic approach to control the transcriptional activity of native transcription factor.
Role: PI

Cancer Center at Illinois #9572 Zhang (PI) Nelson (CoI) 07/01/2022-06/30/2024
Optogenetic Modulation of the Tumor Microenvironment to Improve Cancer Immunotherapy
The goal of this study is to use optogenetic stimulation to tune the immune landscape of the tumor microenvironment.
Role: PI

R01 MH124827 Tsai (PI), Zhang (MPI) 12/01/2020-10/31/2025
Mechanism of Gp1 mGluR-dependent translation and plasticity
The goal of this study is to determine the role of mGluR dependent translation and neuronal plasticity.
Role: PI

NSF 2121003 Cao (PI) Zhang, Cheng, Schroeder (Co-PI) 10/01/2021-09/30/2026
GCR: Synthetic Neurocomputers for Cognitive Information Processing
The goal of this study is to understand cognitive information processing through the experimental buildup of neuronal cell networks and machine learning modeling
Role: Co-PI

NSF 2243257 Luthey-Schulten (PI), Gruebele (Co-PI)
Science and Technology Center for Quantitative Cell Biology 09/15/2023-09/14/2028
The goal of this center grant is to integrate computational and experimental biology to gain quantitative insights into the structure, dynamics, interaction, and motility that define molecular and organelle functions in live cells.
Role: Co-PI

R01GM141298 Pogorelov(PI) Zhang (CoI) 09/20/2021-07/31/2025
Capturing structure and dynamics of transmembrane signaling proteins
The goal of this project is to use computational prediction and in-cell signaling to quantitatively map out the structure-function relationship of single-transmembrane receptor tyrosine kinases.
Role: Co-Investigator

Completed Research Support

American Cancer Society PF-13-030-01-DDC, Zhang (PI) 2013/01/01-2013/12/31
Cell-fate determination by light-gated MAPK and AKT signaling pathways
The goal of this study is to compare the effects of light-activated MAPK and AKT pathway on cell proliferation and differentiation.
Role: PI

R56MH118908 Wang (PI) 08/02/2019-08/01/2020
Mechanism underlying cognitive and synaptic flexibility
The goal of this study is to determine the role of adenylate cyclases 8-PI3K/Akt-GSK3β signaling in the regulation of synaptic depotentiation reversal/suppression of memory
Role: Co-Investigator

R03NS120516 Tsai (PI) 08/01/2020-07/31/2021
Study of PAK3 in epilepsy-associated defects in synaptic plasticity
The goal of this project is to determine how nuclear and cytoplasmic PAK3 contributes to epilepsy-associated defects in synaptic plasticity.

Role: Co-Investigator

Scialog Award #27937 Zhang (PI) Levy (PI) Ross (PI) 07/01/2021-06/30/2023
Engineering enteric neuron activity to enhance antimicrobial immunity in the gut
The goal of this study is to determine the regulatory role of enteric neuronal system in antimicrobial response.
Role: PI

R01MH124992 Wang (PI) 12/01/2020-10/31/2023
Mechanism underlying cognitive and synaptic flexibility
The goal of this study is to determine the role of adenylate cyclases 8-PI3K/Akt-GSK3β signaling in the regulation of synaptic depotentiation reversal/suppression of memory.
Role: Co-Investigator

R01 MH119149-01 Wang (PI) 04/01/2019-01/31/2024
Nonconventional role of ADCY in Gq-mediated neuronal signaling and neuroplasticity.
The goal of this study is to determine the role of adenylate cyclases (ADCY) in the development of neuroplasticity.
Role: Co-Investigator

PATENT

Glimpse: generalizable light modulated protein stabilization system, UIUC Ref. No. UIUC2019-080-01(PRO).

PUBLICATIONS (*CORRESPONDING AUTHOR)

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/kai.zhang.9/bibliography/public/

Peer-reviewed journal publications – independent career (UIUC)

1. Teak-Jung Oh, Bryan Gworek, Amna Mehfooz, **Kai Zhang***, "Methods for Gene Delivery and Analysis of Optogenetic Induction of Lytic Cell Death", ***Current Protocols***, 2024. DOI:10.1002/cpz1.1023.
2. Kevin Gill, Kritika Mehta, Jeremiah Heredia, Vishnu Krishnamurthy, **Kai Zhang**, Erik Procko "Multiple mechanisms of self-association of chemokine receptor CXCR4 and CCR5 demonstrated by deep mutagenesis", ***Journal of Biological Chemistry***, 2023, 299(10) 105229.
3. Fatemeh Ostadhossein, Parikshit Moitra, Maha Alafeef, Dinabandhu Sar, Shannon D'Souza, Lily Benig, Michael Nelappana, Xuedong Huang, Julio Soares, **Kai Zhang**, Dipanjan Pan, "Ensemble and single-particle level fluorescent fine-tuning of carbon dots via positional changes of amines towards the 'supervised' oral microbiome sensing", ***Journal of Biomedical Optics***, 2023, 28, 8, 082087.

4. Bing Bu, Zhiqi Tian, Dechang Li, **Kai Zhang,** Wei Chen, Baohua Ji, Jiajie Diao, "Double-transmembrane domain of SNAREs decelerates the fusion by increasing the protein-lipid mismatch", ***Journal of Molecular Biology***, 2023, 435, 13, 168089.
5. Ye Tian, Matthew Jellinek, Kritika Mehta, Sun Mi Seok, Shanny Hsuan Kuo, Wei Lu, Rucheng Shi, Richard Lee, Gee Lau, Jongsook Kim Kemper, **Kai Zhang**, David Ford, Bo Wang, "Membrane phospholipid remodeling modulates nonalcoholic steatohepatitis progression by regulating mitochondrial homeostasis", ***Hepatology***, 2023, 2023, 10, 2300416.
6. Huaxun Fan†, Collin Barnes†, Hyojeong Hwang, **Kai Zhang***, Jing Yang*, "Precise modulation of embryonic development through optogenetics", ***Genesis, The journal of Genetics and Development***, 2022, 60 (10-12), e23505. (Invited Review).
7. Qi Wang, Xiaomin Huang, Yixun Su, Guowei Yin, Shouyu Wang, Bin Yu, Hui Li, Junhua Qi, Hui Chen, Wen Zeng, **Kai Zhang**, Alexei Verkhratsky, Jianqin Niu, Chenju Yi, "Activation of Wnt/β-catenin pathway mitigates blood-brain barrier dysfunction in Alzheimer's disease" ***Brain***, 2022, awac236. (**Front Cover**)
8. Kangqiang Qiu, Weiwei Zou, Hongbao Fang, Mingang Hao, Kritika Mehta, Zhiqi Tian, Jun-Lin Guan*, **Kai Zhang***, Taosheng Huang*, Jiajie Diao*, "Light-activated mitochondrial fission through optogenetic control of mitochondria-lysosome contacts," ***Nature Communications***, 2022, 13, 4303.
9. Savanna Sharum Skeeters; Tyler Camp; Huaxun Fan; **Kai Zhang***, "The expanding role of split protein complementation in opsin-free optogenetics", ***Current Opinion in Pharmacology***, 2022, 65:102236. (Invited Review)
10. Vishnu V. Krishnamurthy, Hyojeong Hwang, Jia Fu, Jing Yang,* **Kai Zhang***, "Optogenetic control of the canonical Wnt signaling pathway during Xenopus laevis embryonic development", ***Journal of Molecular Biology***, 2021, 433, Issue 18, 167050. **(Front Cover)**
11. Teak-Jung Oh†, Huaxun Fan†, Savanna S. Skeeters†, **Kai Zhang*** "Steering Molecular Activity with light: Recent Advances and Perspectives", ***Advanced Biology***, 2021, 2000180.
12. Parinaz Fathi, Ayman Roslend, Kritika Mehta, Parikshit Moitra, **Kai Zhang**, Dipanjan Pan "UV-Trained and Metal-Enhanced Fluorescence of Biliverdin and Biliverdin Nanoparticles", ***Nanoscale***, 2021, 13, 4785-4798. (Inside Front Cover)
13. Qixin Chen, Hongbao Fang, Xintian Shao, Zhiqi Tian, Yuming Zhang, Huaxun Fan, **Kai Zhang***, Weijiang He*, Zijian Guo*, Jiajie Diao*, "A dual-labeling probe to track functional mitochondria–lysosome interactions in live cells", ***Nature Communications,*** 2020,11, 6290.
14. Savanna S. Skeeters, Ana C. Rosu, Divyanshi, Jing Yang, **Kai Zhang*** "Comparative determination of cytotoxicity of sub-10-nm copper nanoparticles to prokaryotic and eukaryotic cells", ***ACS Applied Materials & Interfaces,*** 2020,12, 45, 50203–50211.
15. Qin Wang, Huaxun Fan, Feng Li, Savanna S. Skeeters, Vishnu Krishnamurthy, Yuanquan Song*, **Kai Zhang***, Optical control of ERK and AKT signaling promotes axon regeneration and functional recovery of PNS and CNS in Drosophila, ***eLife***, 2020, 9, e57395.
    Highlighted in the School of MCB.

16. Taida Huang, Yan Zhang, Zitian Wang, Hongda Chen, Nan Wang, Huaxun Fan, Zhangsen Huang, Yixun Su, Xiaomin Huang, Hui Chen, **Kai Zhang***, Chenju Yi*, Optogenetically-controlled TrkA activity improves the regenerative capacity of hair-follicle-derived stem cells to differentiate into neurons and glia", ***Advanced Biology***, 2020, 2000134.
17. Miaoling Li§, Teak-Jung Oh§, Huaxun Fan§, Jiajie Diao*, **Kai Zhang***, "Role of SNARE protein conformation in synaptic transmission: Challenges and Perspectives", ***Journal of Molecular Biology***, 2020, 432, 4773-4782. (§ These authors contributed to this work equally).
18. Yixun Su, Xiaomin Huang, Zhangsen Huang, Taida Huang, Tao Li, Huaxun Fan, **Kai Zhang***, Chenju Yi*, "Early but not Delayed RAF Activation Promotes Astrocytogenesis in Mouse Neural Progenitors Resolved by Optogenetics", ***Journal of Molecular Biology***, 2020, 432, 4358-4368.
19. Vishnu V. Krishnamurthy, Jia Fu, Teak-Jung Oh, John Khamo, Jing Yang*, **Kai Zhang*** "A Generalizable Optogenetic Strategy to Regulate Receptor Tyrosine Kinases during Vertebrate Embryonic Development", ***Journal of Molecular Biology***, 2020, 432, 10, 3149-3158.
20. Melody Esmaeili, Shelby Blythe, **Kai Zhang**, Jing Yang, Peter Klein "Loss of Competence in early development is mediated by loss of chromatin accessibility", ***Developmental Biology***, 2020, 452, 1, 20-35.
21. Tyler Camp, Kritika Mehta, Stephen Sligar*, **Kai Zhang***, "Molecular Orientation Determination in Nanodiscs at the Single-Molecule Level", ***Analytical Chemistry***, 2020, 92, 2, 2229-2236.
22. Zichen Wang, Huaxun Fan, Xiao Hu, John Khamo, Jiajie Diao*, **Kai Zhang***, Taras Pogorelov* "Coaction of Electrostatic and Hydrophobic Interactions: Dynamic Constraints on Disordered TrkA Juxtamembrane Domain", ***Journal of Physical Chemistry B***, 2019, 123, 50, 10709-10717.
23. Payel Mondal, Vishnu V. Krishnamurthy, Savanna R. Sharum, Neeka Haack, Huiwen Zhou, Jenifer Cheng, Jing Yang, **Kai Zhang*** "Repurposing protein degradation for optogenetic modulation of protein activities" ***ACS Synthetic Biology***, 2019, 8, 11, 2585-2592 (Cover).
    Highlighted in Science Daily, Nanowerk, Illinois News Bureau
24. I. Srivastava, J. S. Khamo, S. Pandit, P. Fathi, X. Huang, A. Cao, R. T. Haasch, S. Nie, **K.Zhang***, D. Pan* "Influence of Electron Acceptor and Electron Donor on the Photophysical Properties of Carbon Dots: A Comparative Investigation at the Bulk-State and Single-Particle Level. ***Advanced Functional Materials*** 2019, 1902466.
25. H. Hwang, Z. Jin, V. V. Krishnamurthy, A. Saha, P. S. Klein, B. Garcia, W. Mei, M. L. King, **K. Zhang**, J. Yang "Novel functions of the ubiquitin-independent proteasome system in regulating Xenopus germline development", ***Development***, 2019, 146, 8, dev172700.
26. P. Fathi, J. S. Khamo, X. Huang, I. Srivastava, M. B. Esch, **K. Zhang***, D. Pan* "Bulk-state and single-particle imaging are central to understanding carbon dot photo-physics and elucidating the effects of precursor composition and reaction temperature", ***Carbon***, 2019, 145, 572-585.

27. Q. Chen, X. Shao, Z. Tian, Y. Chen, P. Mondal, F. Liu, F. Wang, P. Ling*, W. He*, **K. Zhang***, Z. Guo, and J. Diao* "Nanoscale monitoring of mitochondria and lysosome interactions for drug screening and discovery", ***Nano Research***, 2019, 12, 5, 1009–1015.
28. B. Cai, L. Yu, S. R. Sharum, **K. Zhang***, J. Diao* "Single-vesicle measurement of protein-induce membrane tethering", ***Colloids and Surfaces B: Biointerfaces***, 2019, 177, 267-273.
29. J. S. Khamo, V. V. Krishnamurthy, Q. Chen, J. Diao, **K. Zhang***, "Optogenetic delineation of receptor tyrosine kinase subcircuits in PC12 cell differentiation", ***Cell Chemical Biology***, 2019, 26, 400-410.

    Highlighted in School of MCB and Neuroscience Program News at UIUC.
30. S. K. Misra, I. Srivastava, J.S. Khamo, V. V. Krishnamurthy, D. Sar, A. S. Schwartz-Duval, J. A. N. T. Soares, **K. Zhang*** and D. Pan* **"**Carbon Dots with Induced Surface Oxidation Permits Imaging at Single-Particle Level for Intracellular Studies", ***Nanoscale***, 2018, 10, 18510-18519.

    Highlight in the School of MCB at UIUC.
31. V. V. Krishnamurthy, **K. Zhang*** "Chemical physics in living cells – using light to visualize and control intracellular signal transduction" ***Chinese Journal of Chemical Physics***, 2018 31(4), 375-392.
32. K. Sung, L. F. Ferrari, W. Yang, C. Chung, X. Zhao, Y. Gu, S. Lin, **K. Zhang**, B. Cui, M. L. Pearn, M. T. Maloney, W. C. Mobley, J. D. Levine and C. Wu " Swedish Nerve Growth Factor Mutation (NGFR100W) Defines a role for TrkA and p75NTR in Nociception", ***Journal of Neuroscience***, 2018, 38(14), 3394-3413.
33. J.S. Khamo, V. V. Krishnamurthy, P. Mondal, S. R. Sharum, and **K. Zhang*** "Applications of optobiology in intact cells and multi-cellular organisms", ***Journal of Molecular Biology***, 2017, 429, 2999-3017.
34. V. V. Krishnamurthy, A. J. Turgeon, J. S. Khamo, W. Mei, P. Mondal, S. R. Sharum, J. Yang*, and **K. Zhang* "**Light-mediated, reversible modulation of protein localization and kinase activity during cell differentiation and *Xenopus* embryonic development" ***Journal of Visualized Experiments (JoVE)***, 2017, 124, e55823.
35. Y. Osakada, **K. Zhang** "Single particle tracking reveals a dynamic role of actin filaments in assisting long-range axonal transport in neurons" ***Bulletin of the Chemical Society of Japan (BCSJ)***, 2017, 90, 714-719.
36. P. Mondal, J. S. Khamo, V. V. Krishnamurthy, Q. Cai, and **K. Zhang*** "Drive the car(go)s—new modalities to control cargo trafficking in live cells" ***Frontiers in Molecular Neurosciences***, 2017, 10, 4. doi: 10.3389/fnmol.2017.00004.
37. V. V. Krishnamurthy, J.S. Khamo, W. Mei, A. J. Turgeon, H. M. Ashraf, P. Mondal, D. B. Patel, N. Risner, E. E. Cho, J. Yang*, and **K. Zhang*** "Reversible optogenetic control of kinase activity during differentiation and embryonic development" ***Development***, 2016, 143, 4085-4094.
38. V. V. Krishnamurthy, J. S. Khamo, E. Cho, C. Schornak, and **K. Zhang*** "Multiplex gene removal by two-step polymerase chain reactions", ***Analytical Biochemistry***, 2015, 481, 7-9.

39. V. V. Krishnamurthy, J. S. Khamo, E. Cho, C. Schornak, and **K. Zhang*** "Polymerase chain reaction-based gene removal from plasmids", ***Data in Brief***, 2015, 4, 75-82.

Contributed journal perspective and book chapter – independent career (UIUC)

40. **Kai Zhang***, Vishnu V. Krishnamurthy, "Enabling versatile control of molecular activity with small molecules and light", ***Journal of Molecular Biology***, 2020, 432, 19, 5209-5211.
41. Vishnu Krishnamurthy, John Khamo, Payel Mondal, Savanna Sharum, Jing Yang, and **Kai Zhang*** "Reversible Optogenetic Control of Growth Factor Signaling During Cell Differentiation and Vertebrate Embryonic Development", ***Biophotonics Congress: Optics in the Life Sciences Congress***, 2019, AW1E.1.
42. V. V. Krishnamurthy, **K. Zhang*** "Simultaneous removal of multiple DNA segments by polymerase chain reactions" ***Methods Mol Biol.***, Synthetic DNA, Ed R. Hughes. (Springer New York) 2017, 1472, 193-203.

Peer-reviewed journal publications – prior to UIUC

43. **K. Zhang*** and B. Cui* "Optogenetic control of intracellular signaling pathways", ***Trends in Biotechnology***, 2015, 33, 92-100. (*corresponding author)
44. P.D. Chowdary, D. Che, **K. Zhang**, B. Cui "Retrograde NGF axonal transport – coordination of opposite polarity motors near unidirectional motility regime" ***Biophysical Journal***, 2015, 108, 2691-2703.
45. D. L. Che, L. Duan, **K. Zhang**, B. Cui, The dual characteristics of light-induced cryptochrome 2 homo-oligomerization and hetero-dimerization for optogenetic manipulation in mammalian cells, ***ACS Synthetic Biology***, 2015, accepted.
46. L. Duan, D. Che, **K. Zhang**, Q. Ong, S. Guo, and B. Cui, Optogenetic control of molecular motors and organelle distributions in cells, ***Chemistry & Biology***, 2015, 22, 671-682.
47. Q. Ong, S. Guo, L. Duan, **K. Zhang**, E. A. Collier, and B. Cui "The Timing of Raf/ERK and AKT Activation in Protecting PC12 Cells against Oxidative Stress", ***PLOS ONE***, 2016, e0153487.
48. Q. Ong, S. Guo, **K. Zhang**, and B. Cui "U0126 Protects Cells against Oxidative Stress Independent of Its Function as a MEK Inhibitor", ***ACS Chem. Neurosci.***, 2015, 6,130–137.
49. **K. Zhang** and B. Cui "Lighting up FGFR signaling", ***Chemistry & Biology***, 2014, 21, 806-808.
50. **K. Zhang**, L. Duan, Q. Ong, Z. Lin, P. Varman, K. Sung, and B. Cui "Light-mediated kinetic control reveals the temporal effect of the Raf/Mek/ERK pathway in PC12 cell neurite outgrowth", ***PLOS ONE***, 2014, 9, e92917.
51. **K. Zhang**, R. F. B. Kenan, Y. Osakada, W. Xu, R. S. Sinit, L. Chen, X. Zhao, J-Y. Chen, B. Cui, and C. Wu "Defective Axonal Transport of Rab7 GTPase Results in Dysregulated Trophic Signaling", ***J. Neuroscience*** 2013, 33, 7451-7462.
52. W. J. Xie, **K. Zhang**, B. Cui "Functional characterization and axonal transport of quantum dot labeled BDNF", ***Integrative Biology***, 2012, 4, 953-960.

53. **K. Zhang**, Y. Osakada, W. J. Xie, and B. Cui "Automated image analysis for tracking cargo transport in axons", ***Microscopy Research and Technique*** 2011, 74, 605-613.
54. K. A. Vossel, **K. Zhang**, X. Wang, G. Q. Yu, K. Ho, B. Cui, and L. Mucke "Tau reduction ameliorates Aβ-induced impairments in axonal transport", ***Science*** 2010, 330 198.
55. **K. Zhang**, H. V. Mudrakola, L. Chen, M. Vrljic, and B. Cui "Single molecule imaging of NGF axonal transport in a microfluidic device ", ***Lab on a Chip*** 2010, 10, 2566-2573.
56. H. V. Mudrakola*, **K. Zhang***, and B. Cui "Optically resolving individual microtubules in live axons using dynamic object tracking", ***Structure*** 2009, 17, 1433-1441.
57. **K. Zhang**, W. K. Zhang, C. Y. Yang, and H. Yang "Bipolar Cellular Morphology of Malignant Melanoma in Unstained Human Melanoma Skin Tissue", ***J. Biomedical Optics*** 2009, 14, 024042.
58. S. Li, **K. Zhang**, J. M. Yang, L. W. Lin, and H. Yang "Single Quantum Dots as Local Temperature Markers", ***Nano Lett.*** 2007, 7, 3102-3105.
59. N. Ji, **K. Zhang**, H. Yang, and Y. R. Shen "Three-Dimensional Chiral Imaging by Sum Frequency Generation", ***J. Am. Chem. Soc***. 2006, 128, 3482-3483.
60. **K. Zhang**, H. Chang, A. H. Fu, A. P. Alivisatos, and H. Yang "Continuous Distribution of Emission States from Single CdSe/ZnS quantum dots", ***Nano Lett.***2006, 6, 843-847.
61. **K. Zhang** and H. Yang "Photon-by-Photon Determination of Emission Burst from Diffusion Single Chromophores", ***J. Phys. Chem. B.*** 2005, 109, 21930-21937.
62. **K. Zhang**, Z. J. Liu, and K. Y. Wang "Formation and Applications of Laser-Excited Surface Plasma Waves", ***Chinese J. Nature*** 2002, 24, 44-47.

Contributed book chapter – prior to UIUC

63. **K. Zhang**, P.D. Chowdary, and B. Cui "Visualizing directional Rab7 and TrkA cotrafficking in axons by pTIRF microscopy" ***Methods Mol Biol.***, 2015, 1298:319-29.
64. H. V. Mudrakola, C. Wu, **K. Zhang**, and B. Cui, "Single Molecule Imaging of Axonal Transport in Live Neurons", in Laser Science XXV, OSA Technical Digest (CD) (Optical Society of America, 2009), LSThB3.
65. S. Li, **K. Zhang**, J-M Yang, L.W. Lin, and H. Yang "MEMS Temperature Characterization by CdSe Quantum Dots", *The 14th International Conference on Solid-State Sensors, Actuators and Microsystems*, 2007, 1369-1372.
66. **K. Zhang**, N. Ji, Y. R. Shen, and H. Yang "Optically Active Sum Frequency Generation Microscopy for Cellular Imaging", *Ultrafast Phenomena XV* Eds. P. Corkum, D. Jonas, D. Miller, A. M. Weiner, (Springer-Verlag, Berlin Heidelberg, 2007) 825.

INVITED TALKS AND PLATFORM IN CONFERENCE

1. Oh, T., Krishnamurthy V., Han, T., Zhang, K. "Elucidation of necroptosis pathway using Optogenetics", 4th International Conference on Cell and Experimental Biology, Houston, Texas, April 2023

2. Mehta K., Yentch H., Lee J., Gao T.T., Zhang K, 'Phosphatidylinositol 3-phosphate mediates Arc capsids secretion through the multivesicular body pathway, Biophysical meeting, San Diego, February 2023
3. "Fine tune receptor tyrosine kinase activity by light", UWM Optical Microspectroscopy Symposium, Milwaukee, Wisconsin, August 2022.
4. "Single-Molecule Measurement of Orientation Distributions in Lipid Nanodiscs", UWM Optical Microspectroscopy Symposium, Milwaukee, Wisconsin, August 2022.
5. "Light up signal transduction – control cell fate with opsin-free optogenetics in health and disease", Chinese Biophysics Congress June 2022 (Virtual)
6. "Optogenetic control of body axis patterning during embryonic development", 2nd Optogenetic Technologies and Applications Conference, December 2021 (Virtual).
7. "Optogenetic control of neural differentiation and repair", Photopharmacology III, November 2021 (Virtual).
8. "Optogenetic control of neural differentiation, repair, and embryonic development", Chinese Bioscience Association, California, October 2021 (Virtual).
9. "Optogenetic activation of ERK and AKT signaling promotes axon regeneration in Drosophila", Biophysical Society 65th annual meeting, February 2021 (Virtual).
10. "Repurposing Protein Degradation for Optogenetic Modulation of Protein Activities" Society of Photo-Optical Instrumentation Engineers, San-Francisco, California, February 2020.
11. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Optogenetic Technologies and Applications, Boston, Massachussets, December 2019. (**Session Chair**)
12. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Xenopus Resources and Emerging Technologies Meeting, Woods Hole, Massachussets, October 2019.
13. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", International Conference on Biomechanics and Medical Engineering (ICBME), San Diego, California, September 2019.
14. "Reversible optogenetic control of growth factor signaling during cell differentiation and Vertebrate Embryonic Development", OSA Biophotonics Congress, Tucson, Arizona, April 2019.
15. "Optogenetic activation and inactivation of the neurotrophin pathway in live cells" Experimental Biology, Orlando, Florida, April 2019.
16. "Temporal control of growth factor-mediated signaling pathways during cell differentiation and *Xenopus* embryonic development", American Society for Biochemistry and Molecular Biology Society Meeting, San Diego, California, April, 2018. (**Travel Award**)
17. "Using light to control the timing of kinase activity during cell differentiation and *Xenopus* embryonic development" Xenopus Resource and Emerging Technologies Meeting, Woods Hole Institute, Marine Biology Lab, Massachusetts, August 2017.

18. "Reversible optogenetic activation of neurotrophin-mediated signal transduction", Houston Methodist Research Institute, Houston, Texas, March 2017.
19. "Reversible modulation of kinase activity during embryonic development", Midwest Society of Developmental Biology Regional Meeting, Ann Arbor, Michigan, October 2016.
20. "Steering growth factor-mediated signal transduction by light", East Lake Young Scholar Symposium, Huazhong University of Science and Technology, Wuhan, China, December 2014.
21. "Defective Axonal Transport of Rab7 GTPase Results in Dysregulated Trophic Signaling", Bay Area Trafficking Symposium, UC Berkeley, California, September 2013.
22. "Impact of Charcot-Marie-Tooth type 2B disease-associated Rab7 mutations on signaling and axonal trafficking of NGF/TrkA", 56th Biophysical Society Annual Meeting, San Diego, California, February 2012. [Link]

INVITED TALKS IN UNIVERSITY AND RESEARCH INSTITUTION

23. [Student Invited Talk] "Light It Up-Control Neuronal Functions via Opsinn-free Optogenetics", Undergraduate Neuroscience Society, UIUC, October 2023.
24. "Optical modulation of molecular activity during neural differentiation, regeneration, and embryonic development", Department of biology, Penn State University, February 2021.
25. "Single-molecule detection, Super-resolution imaging, and optogenetics", Biological Physics for Engineers invited lecture, University of Florida, February 2021.
26. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Chemistry, University of Alberta, September 2020.
27. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Physiology, Michigan State University, September 2020.
28. "Optical modulation of molecular activity during neural differentiation, regeneration, and embryonic development", Department of Biochemistry, University of Illinois at Urbana-Champaign, IL, September 2020.
29. "Optical inhibition of growth factor signaling in living cells", Cancer Center at Illinois, University of Illinois at Urbana-Champaign, IL, April 2020.
30. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Chemistry, University of Chicago, IL, March 2020.
31. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Chemistry, Princeton University, NJ, December 2019.
32. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Chemistry, University of Pennsylvania, PA, November 2019.

33. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Chemistry, Stanford University, CA, November 2019.
34. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Cancer Biology, University of Cincinnati, OH, October 2019.
35. "Bidirectional optogenetic control of receptor tyrosine kinase signaling during cell differentiation and embryonic development", Department of Bioengineering, University of California, San Diego, September 2019.
36. "Bidirectional optogenetic control of growth factor signaling during cell differentiation and embryonic development" Center for Physics of Living Cells, University of Illinoi at Urbana-Champaign, IL, September 2019.
37. "Delineating receptor tyrosine kinase signaling pathways during cell differentiation and embryonic development" University of Southern California, Los Angeles, CA, December 2018.
38. "Developing an optogenetic toolbox for cell signaling control in mammalian cells and multicellular organisms" Center for Physics of Living Cells (CPLC), University of Illinois at Urbana-Champaign, Urbana, Illinois, July 2017.
39. "Dissection of growth factor signal transduction during cell differentiation and Xenopus embryonic development" Harvard Medical School, Boston, Massachusetts, June 2017.
40. "Dissection of growth factor signal transduction during cell differentiation and Xenopus embryonic development" Brown University, Providence, Rhode Island, June 2017.
41. "Delineating growth factor-regulated signaling pathways by light", Department of Pathobiology of the College of Veterinary Medicine, University of Illinois at Urbana-Champaign, March 2017.
42. "Control the timing of the mitogen-activated protein kinase pathway during cell differentiation and *Xenopus* embryonic development", School of Molecular Sciences, Arizona State University, Tempe, March 2017.
43. "Light-controlled growth factor signal transduction during cell differentiation and Xenopus embryonic development", Department of Physiological and Molecular Plant Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, January 2017.
44. "Developing an optogenetic toolbox for cell signaling control" Center for Physics of Living Cells, University of Illinois at Urbana Champaign. July 2016.
45. "Study signal transduction in live cells by light", School of Molecular and Cellular Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, August 2015.
46. "Control cell fate determination by light", Center for Biophysics and Computational Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, August 2015.
47. "Control PC12 cell differentiation by light", Neuroscience program, University of Illinois at Urbana-Champaign, Urbana, Illinois February 2015.

48. "Steering growth factor-mediated signal transduction by light", Fudan University, Shanghai, China, December 2014.
49. "Steering growth factor-mediated signal transduction by light", Huazhong University of Science and Technology, Wuhan, China, December 2014.
50. "Light-controlled activation of the mitogen-activated protein kinase pathway", Center for Biophysics and Computational Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, July 2014
51. "Observation and modulation of signal transduction in live cells using light", California Institute of Technology, California, January 2013.
52. "Dysregulated axonal transport of NGF/TrkA in Charcot-Marie-Tooth type 2B disease" Biophysics Talks, Stanford University, Stanford, California, January 2012.
53. "Observing quantum dot one at a time: optical characterization and applications in live cell imaging", Peking University, P. R. China, November 2011.
54. "Single Chromophore Experiments and Quantitative Analysis", November 23, 2006, Zhengzhou University, Zhengzhou, Henan, P. R. China.

POSTER PRESENTATIONS AT CONFERENCE

55. Kangqiang Qiu,Weiwei Zou, Hongbao Fang, Minggang Hao, Kritika Mehta, Zhiqi Tian, Jun-Lin Guan, Taosheng Huang,Jiajie Diao, **Kai Zhang**, "Optical modulation of mitochondrial morphology and functions"67th Biophysical Society Meeting, San Diego, California, February 2023.
56. S. R. Sharum, P. Mondal, V. V. Krishnamurthy, K. Mehta, H. Fan, J. Yang, **K. Zhang** "Optical modulation of receptor tyrosine kinase signaling during cell differentiation and embryonic development", 64th Biophysical Society Meeting, San Diego, California, February 2020.
57. Z. Wang, H. Fan, X. Hu, J. Khamo, J. Diao, **K. Zhang**, T. Pogorelov, "Coaction of electrostatic and hydrophobic interactions in signaling: dynamic constraints on disordered TrkA juxtamembrane domains", 64th Biophysical Society Meeting, San Diego, California, February 2020.
58. P. Mondal, V. V. Krishnamurthy, S. R. Sharum, N. Haack, J. Yang, **K. Zhang** "Repurposing protein degradation for optogenetic modulation of protein activities", SPIE Photonic West Bio, San Diego, California, February 2020.
59. N. Haack, P. Mondal, V. V. Krishnamurthy, S. R. Sharum, **K. Zhang** "Repurposing protein degradation for optogenetic modulation of protein activities", Society for Neuroscience, Chicago, Illinois, December 2019.
60. V. V. Krishnamurthy, J. Khamo, P. Mondal, S. R. Sharum, **K. Zhang** "Bidirectional control of receptor tyrosine signaling during cell differentiation with light", Society for Developmental biology annual meeting, Boston, Massachusetts, July 2019.
61. V. V. Krishnamurthy, J. Khamo, P. Mondal, S. R. Sharum, **K. Zhang** "Bidirectional optogenetic control of growth factor signaling during cell differentiation and vertebrate

embryonic development", Gordon Research Conference, Salve Regina University, Newport, Rhode Island, June 2019.

62. S. R. Sharum, P. Mondal, K. Cho, **K. Zhang** "Temporal inhibition of ERK Activity by Optogenetic Control of MAPK Phosphatase 3" Experimental biology, Orlando, Florida, April 2019.
63. J. Khamo, **K. Zhang** "Optogenetic delineation of receptor tyrosine kinase subcircuits in pc12 cell differentiation", 63th Biophysical Society Meeting, Baltimore, Maryland, March 2019.
64. P. Mondal, V. V. Krishnamurthy, J. Khamo, J. Yang, **K. Zhang** "Temporal control of growth factor-mediated signaling pathways during cell differentiation and *Xenopus* embryonic development", American Society for Biochemistry and Molecular Biology Society Meeting, San Diego, California, April 2018. (**Travel Award**)
65. **K. Zhang** "Control neurotrophin signaling using light during PC12 cell differentiation and Xenopus embryonic development", Biophysical Society Meeting, San Francisco, California, February 2018. [Link]
66. **K. Zhang** "Dissection of growth factor-regulated signaling pathways by light", Society for Developmental biology annual meeting, Minneapolis, Minnesota, July 2017.
67. **K. Zhang** "Control neurotrophin signaling using light during cell differentiation and Xenopus embryonic development", Gordon Research Conference, Salve Regina University, Newport, Rhode Island, June 2017.
68. **K. Zhang** "Developing an optogenetic toolbox for cell signaling control", Center for Physics of Living Cells, University of Illinois at Urbana-Champaign, Urbana, Illinois, July 2016
69. **K. Zhang** "Resolving intracellular mechanisms of neurotrophin-mediated signal transduction via optogenetics" 16th International symposium on neural regeneration (ISNR), Pacific Grove, California, December 2015.
70. Q. Ong, A. McGuire, S. Guo, F Santoro, **K. Zhang**, and B. Cui "Optogenetic spatial control of TrkA-mediated pathways reveals a potential role for Raf/ERK pathway in inducing polarity in PC12 cell differentiation model" American Society for Cell Biology ASCB, San Diego, California, December 2015.
71. **K. Zhang** "Light-controlled growth factor-mediated signal transduction", 59th Biophysical Society Annual Meeting, Baltimore, Maryland, February 2015.
72. Q. Ong, **K. Zhang**, S. Guo, L. Duan, and B. Cui "Optogenetic modulation of the Raf/ERK pathway in PC12 cells", ASCB local meeting, Quantitative Imaging in Cell Biology, Santa Clara University, California, May 2014 ***(Best poster award).***
73. **K. Zhang**, L. Duan, Q. Ong, Z. Lin, P. Varman, K. Sung, and B. Cui "Light-controlled MAPK signaling pathway reveals a memory effect in PC12 cell neurite outgrowth", Single Cell Analysis Symposium, Stanford University, California, September 2013.
74. **K. Zhang**, L. Duan, Z. Lin, K. Sung, Y. Osakada, and B. Cui "Control the mitogen-activated protein kinase signaling pathway by light", Synthetic Biology Gordon Research Conference, Mount Snow Resort, Vermont, June 2013.

75. **K. Zhang**, L. Duan, Z. Lin, K. Sung, Y. Osakada, and B. Cui "Light-controlled mitogen - activated protein kinase (MAPK) signaling pathway in live cells", 57th Biophysical Society Annual Meeting, Philadelphia, Philadelphia, February 2013.
76. W. Zhao, **K. Zhang,** W. Xie, L. Hanson, Z. Lin, Y. Cui, and B. Cui "Accelerating the development of hippocampal neurons using nanopillar structures", 57th Biophysical Society Annual Meeting, Philadelphia, February 2013.
77. **K. Zhang**, L. Duan, Z. Lin, K. Sung, Y. Osakada, and B. Cui "Precise control of signal transduction in living cells by light", 2012 American Society for Cell Biology Annual Meeting, San Francisco, California, December, 2012.
78. **K. Zhang**, Y. Osakada, M. Vrljic, L. Chen, H. Mudrakola, and B. Cui "Single-molecule imaging of nerve growth factor axonal transport in microfluidic devices", 55th Biophysical Society Annual Meeting, Baltimore, Maryland, March 2011.
79. **K. Zhang**, C. Wu, H. Mudrakola, Y. Osakada, and B. Cui "Real time visualization of axonal transport of GTPase Rab7 in rat embryonic dorsal root ganglia", 54th Biophysical Society Annual Meeting, San Francisco, California, February 2010.
80. Y. Osakada, H. Mudrakola, **K. Zhang** and B. Cui "Effects of actin filaments on NGF retrograde transport", 54th Biophysical Society Annual Meeting, San Francisco, California, February 2010.
81. **K. Zhang**, W. K. Zhang, C. Y. Yang, and H. Yang "Nonlinear optical imaging of melanocytes in collagen matrix", 234th American Chemical Society National Meeting & Exposition, Boston, Massachusetts, August 2007.
82. H. Yang, **K. Zhang,** A. Fu, P. Alivisatos, C. Hayden "Studying Photoluminescence Dynamics of Single Quantum Dots Photon by Photon", American Physical Society Meeting, Baltimore, Maryland, March 2006.
83. **K. Zhang** and H. Yang "Photon-by-photon determination of emission bursts from diffusing single chromophores", American Physical Society Meeting, Baltimore, Maryland, March 2006.
84. **K. Zhang** and H. Yang "Photon-by-photon determination of emission bursts from diffusing single chromophores", 231st American Chemical Society Meeting & Exposition, Atlanta, Georgia, March 2006.
85. N. Ji, **K. Zhang**, H. Yang, and Y. R. Shen "Sum frequency generation microscopy for imaging chirality", 50th Biophysical Society Annual Meeting, Salt Lake City, Utah, February 2006.
86. **K. Zhang** and H. Yang "Field and fluorescence modification by colloidal gold nanoparticles", Materials Research Society Spring Meeting, San Francisco, California, March 2005.
87. **K. Zhang**, H. Chang, A. H. Fu, L. P. Watkins, A. P. Alivisatos, and H. Yang "Photon by photon analysis of single quantum dot emission dynamics", Materials Research Society Spring Meeting, San Francisco, California, March 2005.

TEACHING EXPERIENCE

Instructor

University of Illinois at Urbana-Champaign

Physical Biochemistry (MCB/BIOC 446, CHEM 472)	2016-present
Neuroscience Program (NEUR598, Organizer: Justin Rhodes)	2016-present
Grading Faculty for Scientific Writing (MCB 540)	2023 Spring
Center for Physics of Living Cells, Summer Workshop	2016-present
Tutorial (BIOP 586)	2015-present

Students: Siqi Liao (Lu), Congjian Ni (Lu) Yongjae Lee (Selvin), Chang-Ting Lin (Ha), Kai Wen Teng (Selvin), Zhiyu Zhao (Tajkhorshid), Chaoyi Jin (Selvin), Brooke Ramsey (*Sangjin Kim)*

Part-time Lecturer

Biomedical, Chemical and Materials Engineering Department

San Jose State University

Graduate-division Chemical Engineering Thermodynamics	2012

Teaching Assistant

Department of Chemistry, UC Berkeley

Graduate-division Chemical Kinetics	2005
Undergraduate General Chemistry	2004
Undergraduate General Chemistry	2003

PROFESSIONAL ACTIVITIES

Ad Hoc journal reviewer

Biological Sciences:

Science, Nature Cell Biology, Nature Communications, Nature Protocols, Trends in Genetics, Cell Chemical Biology, Journal of American Chemical Society, ACS Synthetic Biology, Development, Journal of Molecular Biology, ACS Chemical Neuroscience, ACS Chemical biology, Expert Opinion on Drug Discovery, Journal of Integrative Neurosciences, Scientific Reports, Methods, Frontiers in Molecular Neuroscience, Frontiers in Cell and Developmental Biology, ChemBioChem, Journal of Visualized Experiments, Dyes and Pigments, Experimental Neurology

Physical Sciences:

Journal of Physical Chemistry B, Journal of Physical Chemistry Letter, Chemical Sciences, Journal of Biomedical Optics

Engineering and Materials Sciences:

Nature Biomedical Engineering, Nature Methods, Advanced Healthcare Material, Current Opinion in Biotechnology, Advanced Materials, Journal of Micro/nanolithography, MEMS, and MOEMS (J3M), SLAS Technology, Small

Mentoring

Postdoctoral Scholar

Dr. Vishnu Vardhan Krishnamurthy 2019 – 2020
Current position: Director, High-throughput Screening Facility
Dr. Tyler Camp (American Parkinson Association Postdoctoral Fellow) 2021 - present

Ph.D. students

Dr. John Khamo 2014-2019
Robert L. Switzer Outstanding TA (2019), Keith Westcott Fellow (2017)
Current position: Scientist at Situ Biosciences (2021) and Neelyx lab (2022).

Dr. Vishnu Vardhan Krishnamurthy 2014 - 2019
L. Switzer Outstanding TA (2018) Leading author of a Featured Communication and Front Cover in the Journal of Molecular Biology (2021).
Current position: Director at UIUC HTSF

Dr. Payel Mondal 2015 - 2020
ASBMB Travel Award (2018), Dissertation Completion Fellowship (2019), Switzer Outstanding TA (2020). Anne A. Johnson Work Award (2021, delayed from 2020).
Current position: Postdoc at Prof. CHRISTINA TOWERS' laboratory, Salk Institute

Dr. Savanna Sharum Skeeters 2016 - 2022
Keith Westcott Fellow (2018), second prize in the 1st School of MCB retreat (2019), Robert L. Switzer Outstanding TA (2019).
Current position: Scientist at Cyrus Biotech

Graduate Students

Huaxun Fan (Kade Fellow, 2021)
Kritika Mehta (Kade Fellow, 2022, Robert L. Switzer Outstanding TA 2021,2022)
Teak-Jung Oh (Korean American Scholar Fellow, LAS Travel Award 2023)
Andrew Huang (NSF GRFP Honorable Mention, Biophysics Graduate Fellow, 2022)
Bryan Gworek (Biophysics, 2023)
Amna Mehfooz (Biochemistry, 2023)
Zixiao Li (Biochemistry, 2023)

Supervisor of undergraduate students in the laboratory and current position

Cara Schornak Graduate student in Vanderbilt University. 2014-2015
Ellen Cho Biochemistry high distinction, work at Loyola University Chicago 2014-2016
Humza Ashraf Biochemistry high distinction, Summer Research Award, Graduate student at the University of Colorado, Boulder. 2015-2017
Dil Patel 2015-2017
Noah Risner 2015-2017
Adam Barm 2015-2015
Neeka Haack 2015-2019
Jennifer Cheng, Biochemistry highest distinction, Outstanding Student, Outstanding Thesis Award, Graduate student in Northwestern University 2017-2018
Kelly Cho MCB Summer Undergraduate Research Fellowship, Medical School student at University of Illinois Chicago 2017-2019
Rachel Benedeck 2018-2018
Huiwen Zhou Graduate student at Northwestern University 2018-2019
Max Spiro 2019-2020
Dhananjay Shahdadpuri 2019-2020
Tina Han (SURF fellowship) 2020-2022
Irina Cheng (Northwestern University Summer Undergraduate Research Fellow) 2020-2021
Collin Barnes (BEST Fellow of MCB) 2021-present
Uma Agarwal, Highest Distinction, Thesis Award 2021-2023
Nicholas Worley 2021-2022
Aruniti Manawa 2021-2022
Ami Patel 2021-2023
Tristan Worley 2021-2023
Nathan Gron, Highest Distinction, Thesis Award 2021-2023
Nafay Abdul, SURF 2022,2023 2021-2023
Ahnaf Monyem 2021-2022
Kurt Leano, SURF 2023 2022-2023
Danyi Wang, SURF 2023 2022-2023
Yushan Li 2022-2023
Jillian Leturno 2023-2023
Jungbin Lee, (James Scholar, SURF 2022) 2022-present
Zayn Beg, SURF 2023 2022-present
Henry Yentsch 2022-present
Meghan McCann, SURF 2023, Sweden exchange program 2023-present
Asher Bhurgri 2023-present

Advisor for first-year rotation graduate student in MCB

2014 John Khamo, Erik Andersen
2015 Payel Mondal, Eric Shinn, Yeoan Youn
2016 Madhura Duttagupta, Nandan Haloi, Savanna Sharum
2018 Huaxun Fan, Micca Hecht, Kritika Mehta, Laura Suttenfield
2020 Jessica Palalay, Anna Mankovich, Kaylee Kuzelka, Jorge Calderin
2021 Ran Yang, Anuradha Sharma, Andrew Huang (Biophysics), AnuTanner, Terry Gao, Xiangning Song, Dean (Biophysics) Tanner, Rebecca Tang, Shweta Shree

2022 Sepehr Alaeen (Biophysics), Suhail Chhakara, Katrine Dailey
2023 Zixiao Li, Bryan Gworek (Biophysics), Gabe McKenna, Harrison Wu (Biophysics), Adriana Andrus, Julius Benson (Biophysics), Amna Mehfooz, Rujuta Pendharkar (Biophysics)

Faculty advisor of other Biochemistry undergraduate students
Junyao Zhu, Zhouyang Zhu, Haoyuan Yan, Luis Tadeo, Tyanporn Tangpradabdul 2017-2018

Supervisor of high school students in the laboratory and current position

Ana Rosu	Johns Hopkins University	2018-2020
Sana Nabi	Herricks High School (New York) Virtual	2021

Outside Ph.D. dissertation committee

Arizona State University (Faculty: Prof. Jia Guo) 2017
University of Alberta (Student: Ms. Xiaocen Lu, Faculty: Prof. Robert E. Campbell) 2020
Nanyang Technological University, Singapore
(Student: Huanwen Mu, Xinwen Miao; Faculty: Prof. Wenting Zhao) 2022-2023

Memberships

Society of Developmental Biology	2016-present
Biophysical Society	2005-present
American Society for Cell Biology	2012
Optical Society of America	2009
American Chemical Society	2003 - 2006
Material Research Society	2003 - 2006
American Physical Society	2003 - 2006

Service

Strategic Advisory Committee, MCB, UIUC	2022-present
Biophysics Executive Committee, UIUC	2022-present
Biophysics Entrance Advisory Committee, UIUC	2023-present
Neuroscience Program Award Committee, Chair & Executive Committee, UIUC	2023-present
LAS General Education Committee, UIUC	2022-2023
Admission Committee, Biophysics, UIUC	2018-present
MCB Retreat Committee, UIUC	2023
MCB Admission committee, UIUC	2023
General Education Committee, LAS, UIUC	2023
Faculty Search Committee, MCB, UIUC	2020, 2023
Course and Curriculum Committee, MCB, UIUC	2020 - 2021
Seminar Committee, Biochemistry, UIUC	2016 - 2021
BEST Scholarship Committee, MCB, UIUC	2020

Outreach

Instructor

Center for Physics of Living Cells (NSF funded) Summer workshop, *UIUC* 2016 - 2020

Next generation Science Technology Engineering Art Math (STEAM) studio science demonstration (Nano Class 3-5 grade) 2017

Ecole Bilingue de Berkeley primary school Second grade, Berkeley, California 2017

Judge MCB Undergraduate Research Symposium, *UIUC* 2021

Undergraduate research conference

East Central Illinois American Chemical Society, *UIUC* 2016

Synopsys Championship

Santa Clara Valley Science and Engineering Fair Association 2009

Co-founder Undergraduate Student Travel Award

University of Science and Technology of China 2008 - 2011