

**Kai Zhang, Ph.D.**


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**APPOINTMENT**

**Assistant Professor, University of Illinois at Urbana-Champaign** **2014-present**

Assistant Professor, Department of Biochemistry

<http://mcb.illinois.edu/faculty/profile/kaizkaiz/>

Affiliated Faculty, Neuroscience Program

<https://neuroscience.illinois.edu/directory/faculty>

Affiliated Faculty, Center for Biophysical and Computational Biology

<http://biophysics.illinois.edu/people/faculty>

Affiliated Faculty, Beckman Institute

<https://beckman.illinois.edu/>

Affiliated Faculty, Chemistry-Biology Interface Training Program

<https://www.cbitrainingprogramuiuc.com/faculty>

**PROFESSIONAL PREPARATION**

**Stanford University, Stanford, California** **2009-2014**

Postdoctoral Scholar

*Single-molecule imaging of axonal transport nerve growth factor in living neuronal cells*

*Optogenetic activation of growth factor-mediated signaling in live cells*

Research Advisor: Dr. Bianxiao Cui (Chemistry)

**University of California, Berkeley, Berkeley, California** **2002-2008**

Ph.D. Chemistry

Research Advisor: Dr. Haw Yang (Chemistry)

Dissertation title: Methodology Development for Single Molecule/Particle Optical Study of Biological Systems

**University of Science and Technology of China (USTC)** **1997-2002**

B.S. Chemical Physics

**HONORS AND AWARDS**

**Innovative Teaching and Learning Grant** *UIUC* **2016**

**American Cancer Society Postdoctoral Fellowship** *American Cancer Society* **2013**

**Biophysical Society Education Travel Award** *Biophysical Society* **2013**

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

## RESEARCH SUPPORT

### Ongoing Research Support

1R01 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

### Pending Research Support

1 R01 GM132438-01A1                      Zhang (PI)                      07/01/2019-06/30/2023  
 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  
 Note: This grant received an Impact Score of 19 and 5 percentiles. The Council meeting will be in 05/2019.

### 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

## PUBLICATIONS (\*CORRESPONDING AUTHOR)

### Complete List of Published Work in My Bibliography:

<https://www.ncbi.nlm.nih.gov/labs/bibliography/kai.zhang.3/bibliography/public/>

### *Peer-reviewed journal publications – independent career (UIUC)*

1. H. Hwang, Z. Jin, V. V. Krishnamurthy, A. Saha, P. S. Klein, B. Garcia, W. Mei, M. L. King, **K. Zhang**, and J. Yang “Novel functions of the ubiquitin-independent proteasome system in regulating *Xenopus* germline development”, *Development*, 2019 (in press). [[Link](#)]

2. 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 (in press). [[Link](#)]
3. B. Cai, L. Yu, S. R. Sharum, **K. Zhang\***, J. Diao\* “Single-vesicle measurement of protein-induced membrane tethering”, *Colloids and Surfaces B: Biointerfaces*, 2019, 177, 267-273. [[Link](#)].
4. 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. [[Link](#)]
5. 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. [[Link](#)]  
Highlighted in the school of [MCB](#) and [Neuroscience Program](#) at UIUC:
6. 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. [[Link](#)]  
Highlighted in the school of [MCB](#) at UIUC.
7. 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. [[Link](#)]
8. 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. [[Link](#)]
9. 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. [[Link](#)]
10. 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. [[Link](#)]
11. 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. [[Link](#)]
12. 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. [[Link](#)]

13. 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. [[Link](#)]
14. 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. [[Link](#)]
15. 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. [[Link](#)]

**Contributed book chapter – independent career (UIUC)**

16. 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. [[Link](#)]

**Peer-reviewed journal publications – prior to UIUC**

17. 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. [[Link](#)]
18. **K. Zhang\*** and B. Cui\* “Optogenetic control of intracellular signaling pathways”, *Trends in Biotechnology*, 2015, 33, 92-100. (\*corresponding author) [[Link](#)]
19. **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. [[Link](#)]
20. 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. [[Link](#)]
21. 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, 4(10), 1124-1135. [[Link](#)]
22. 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. [[Link](#)]
23. 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. [[Link](#)]
24. **K. Zhang** and B. Cui “Lighting up FGFR signaling”, *Chemistry & Biology*, 2014, 21, 806-808. [[Link](#)]
25. **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. [[Link](#)]

26. **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. [[Link](#)]
27. W. J. Xie, **K. Zhang**, B. Cui “Functional characterization and axonal transport of quantum dot labeled BDNF”, *Integrative Biology*, 2012, 4, 953-960. [[Link](#)]
28. **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. [[Link](#)]
29. K. A. Vossel, **K. Zhang**, X. Wang, G. Q. Yu, K. Ho, B. Cui, and L. Mucke “Tau reduction ameliorates  $A\beta$ -induced impairments in axonal transport”, *Science* 2010, 330 198. [[Link](#)]
30. **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. [[Link](#)]
31. H. V. Mudrakola\*, **K. Zhang\***, and B. Cui “Optically resolving individual microtubules in live axons using dynamic object tracking”, *Structure* 2009, 17, 1433-1441. [[Link](#)]
32. **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. [[Link](#)]
33. 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. [[Link](#)]
34. 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. [[Link](#)]
35. **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. [[Link](#)]
36. **K. Zhang** and H. Yang “Photon-by-Photon Determination of Emission Burst from Diffusion Single Chromophores”, *J. Phys. Chem. B.* 2005, 109, 21930-21937. [[Link](#)]
37. **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

38. 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. [[Link](#)]
39. 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. [[Link](#)]
40. **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. [[Link](#)]

#### INVITED TALKS AND PLATFORM IN CONFERENCE

1. P. Mondal, V. V. Krishnamurthy, S. R. Sharum, **K. Zhang** “Optogenetic activation and inactivation of the neurotrophin pathway in live cells” Experimental biology, Orlando, Florida, April 2019.
2. 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**)
3. **K. Zhang** “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.
4. **K. Zhang** “Reversible optogenetic activation of neurotrophin-mediated signal transduction”, Houston Methodist Research Institute, Houston, Texas, March 2017.
5. **K. Zhang**, “Reversible modulation of kinase activity during embryonic development”, Midwest Society of Developmental Biology Regional Meeting, Ann Arbor, Michigan, October 2016.
6. **K. Zhang** “Steering growth factor-mediated signal transduction by light”, East Lake Young Scholar Symposium, Huazhong University of Science and Technology, Wuhan, China, December 2014.
7. **K. Zhang**, B. Cui, and C. Wu “Defective Axonal Transport of Rab7 GTPase Results in Dysregulated Trophic Signaling”, Bay Area Trafficking Symposium, UC Berkeley, California, September 2013.
8. **K. Zhang**, Y. Osakada, L. Chen, H. Liang, B. Cui, and C. Wu “Impact of Charcot-Marie-Tooth type 2B disease-associated Rab7 mutations on signaling and axonal trafficking of NGF/TrkA”, 56<sup>th</sup> Biophysical Society Annual Meeting, San Diego, California, February 2012. [[Link](#)]

#### INVITED TALKS IN UNIVERSITY AND RESEARCH INSTITUTION

9. **K. Zhang** “Delineating receptor tyrosine kinase signaling pathways during cell differentiation and embryonic development” University of Southern California, Los Angeles, CA, December 2018.
10. **K. Zhang** “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.
11. **K. Zhang** “Dissection of growth factor signal transduction during cell differentiation and *Xenopus* embryonic development” Harvard Medical School, Boston, Massachusetts, June 2017.
12. **K. Zhang** “Dissection of growth factor signal transduction during cell differentiation and *Xenopus* embryonic development” Brown University, Providence, Rhode Island, June 2017.
13. **K. Zhang**, “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.



14. **K. Zhang**, “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.
15. **K. Zhang**, “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.
16. **K. Zhang** “Study signal transduction in live cells by light”, School of Molecular and Cellular Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, August 2015.
17. **K. Zhang** “Control cell fate determination by light”, Center for Biophysics and Computational Biology, University of Illinois at Urbana-Champaign, Urbana, Illinois, August 2015.
18. **K. Zhang** “Control PC12 cell differentiation by light”, Neuroscience program, University of Illinois at Urbana-Champaign, Urbana, Illinois February 2015.
19. **K. Zhang** “Steering growth factor-mediated signal transduction by light”, Fudan University, Shanghai, China, December 2014.
20. **K. Zhang** “Steering growth factor-mediated signal transduction by light”, Huazhong University of Science and Technology, Wuhan, China, December 2014.
21. **K. Zhang** “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
22. **K. Zhang** “Observation and modulation of signal transduction in live cells using light”, California Institute of Technology, California, January 2013.
23. **K. Zhang** “Dysregulated axonal transport of NGF/TrkA in Charcot-Marie-Tooth type 2B disease” Biophysics Talks, Stanford University, Stanford, California, January 2012.
24. **K. Zhang** “Observing quantum dot one at a time: optical characterization and applications in live cell imaging”, Peking University, P. R. China, November 2011.
25. **K. Zhang** and H. Yang, “Single Chromophore Experiments and Quantitative Analysis”, November 23, 2006, Zhengzhou University, Zhengzhou, Henan, P. R. China. (Invited Presentation).

#### POSTER PRESENTATIONS IN CONFERENCE

26. 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.
27. J. Khamo, **K. Zhang** “Optogenetic delineation of receptor tyrosine kinase subcircuits in pc12 cell differentiation”, 63th Biophysical Society Meeting, Baltimore, Maryland, March 2019.
28. 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**)

29. **K. Zhang** “Control neurotrophin signaling using light during PC12 cell differentiation and *Xenopus* embryonic development”, Biophysical Society Meeting, San Francisco, California, February 2018. [[Link](#)]
30. **K. Zhang** “Dissection of growth factor-regulated signaling pathways by light”, Society for Developmental biology annual meeting, Minneapolis, Minnesota, July 2017.
31. **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.
32. **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
33. **K. Zhang** “Resolving intracellular mechanisms of neurotrophin-mediated signal transduction via optogenetics” 16<sup>th</sup> International symposium on neural regeneration (ISNR), Pacific Grove, California, December, 2015.
34. 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.
35. **K. Zhang** “Light-controlled growth factor-mediated signal transduction”, 59<sup>th</sup> Biophysical Society Annual Meeting, Baltimore, Maryland, February 2015.
36. 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*).
37. **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.
38. **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.
39. **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”, 57<sup>th</sup> Biophysical Society Annual Meeting, Philadelphia, Philadelphia, February 2013.
40. **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.
41. **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”, 55<sup>th</sup> Biophysical Society Annual Meeting, Baltimore, Maryland, March 2011. [[Link](#)]
42. **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”, 54<sup>th</sup> Biophysical Society Annual Meeting, San Francisco, California, February 2010. [[Link](#)]



43. Y. Osakada, H. Mudrakola, **K. Zhang** and B. Cui “Effects of actin filaments on NGF retrograde transport”, 54<sup>th</sup> Biophysical Society Annual Meeting, San Francisco, California, February 2010. [[Link](#)]
44. **K. Zhang**, W. K. Zhang, C. Y. Yang, and H. Yang “Nonlinear optical imaging of melanocytes in collagen matrix”, 234<sup>th</sup> American Chemical Society National Meeting & Exposition, Boston, Massachusetts, August 2007.
45. **K. Zhang** and H. Yang “Photon-by-photon determination of emission bursts from diffusing single chromophores”, American Physical Society Meeting, Baltimore, Maryland, March, 2006.
46. **K. Zhang** and H. Yang “Photon-by-photon determination of emission bursts from diffusing single chromophores”, 231<sup>st</sup> American Chemical Society Meeting & Exposition, Atlanta, Georgia, March 2006.
47. N. Ji, **K. Zhang**, H. Yang, and Y. R. Shen “Sum frequency generation microscopy for imaging chirality”, 50<sup>th</sup> Biophysical Society Annual Meeting, Salt Lake City, Utah, February 2006.
48. **K. Zhang** and H. Yang “Field and fluorescence modification by colloidal gold nanoparticles”, Materials Research Society Spring Meeting, San Francisco, California, March 2005.
49. **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

### Lecturer

<b>University of Illinois at Urbana-Champaign</b>	
Physical Biochemistry (MCB/BIOC 446, CHEM 472)	2016-present
Neuroscience Program (NEUR598, Organizer: Justin Rhodes)	2016-present
Center for Physics of Living Cells, Summer Workshop	2016-present
Tutorial (BIOP 586)	2015-present

### Part-time Lecturer

<b>Biomedical, Chemical and Materials Engineering Department</b>	
<b>San Jose State University</b>	
Graduate-division Chemical Engineering Thermodynamics	2012

### Teaching Assistant

<b>Department of Chemistry, UC Berkeley</b>	
Graduate-division Chemical Kinetics	2005
Undergraduate General Chemistry	2004
Undergraduate General Chemistry	2003

**PROFESSIONAL ACTIVITIES****Grant Reviewer**

Arizona Alzheimer's Disease Core Center Grant (2017)

Research Board, OVCR in UIUC (2017, 2018)

**Editorial****Review Editor** - *Frontiers in Molecular Neuroscience* 2015-present**Guest Editor** - *Journal of Molecular Biology* 2018-present**Ad Hoc reviewer** – *Science, Nature Cell Biology, Nature Communications, Nature Protocols, Journal of American Chemical Society, ACS Synthetic Biology, ACS Chemical Neuroscience, Journal of Physical Chemistry B, Chemical Sciences, Scientific Reports, Methods, Journal of Biomedical Optics, Frontiers in Molecular Neuroscience, Expert Opinion on Drug Discovery, Journal of Visualized Experiments, and Journal of Micro/nanolithography, MEMS, and MOEMS (J3M), SLAS Technology (Society for Laboratory Automation and Screening)* 2009-present**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

**Outreach****Instructor** Center for Physics of Living Cells (NSF funded)  
Summer workshop, UIUC 2016- presentNext generation Science Technology Engineering  
Art Math (STEAM) studio science demonstration  
(Nano Class 3-5 grade) 2017Ecole Bilingue de Berkeley primary school  
Second grade, Berkeley California 2017**Judge** Undergraduate research conference  
East Central Illinois American Chemical Society  
University of Illinois at Urbana-Champaign 2016  
Synopsis Championship 2009  
*Santa Clara Valley Science and Engineering Fair Association***Co-founder** Undergraduate Student Travel Award 2008 - 2011  
*University of Science and Technology of China*