

Curriculum Vitae

Yi Lu

*Department of Chemistry
University of Illinois at Urbana-Champaign
Urbana, IL 61801
(217) 333-2619 (phone)
(217) 244-3186 (fax)*

yi-lu@illinois.edu (*e-mail*)

http://www.chemistry.illinois.edu/faculty/Yi_Lu.html (web page)

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Yi Lu

*Department of Chemistry
University of Illinois at Urbana-Champaign
Urbana, Illinois 61801*

EDUCATION

University of California	Los Angeles, CA	Ph.D. in Chemistry	1987 – 1992
Peking University	Peking, P. R. China	B. S. in Chemistry	1982 – 1986

PROFESSIONAL POSITIONS

Professor of Chemistry University of Illinois at Urbana-Champaign, Urbana, IL	8/04 – present
Laboratory Fellow, Pacific Northwest National Laboratory (Joint Appt.)	1/18– present
Jay and Ann Schenck Professor	8/10 – present
Affiliate Faculty, Institute of Genomic Biology	8/14 – present
Affiliate Faculty, Department of Bioengineering	10/08 – present
Alumni Research Scholar	1/06 – 8/10
Affiliate Faculty, Department of Materials Science and Engineering	12/03 – present
Part-time Faculty, Beckman Institute for Advanced Science and Technology	11/03 – present
HHMI Professor	9/02 – present
Affiliate Faculty, Materials Research Laboratory	8/02 – present
Affiliate Faculty, Center for Biophysics and Quantitative Biology	8/00 – present
Associate Professor of Chemistry University of Illinois at Urbana-Champaign, Urbana, IL	8/00 – 8/04
Affiliate Faculty, Department of Biochemistry	6/99 - present
Assistant Professor of Chemistry University of Illinois at Urbana-Champaign, Urbana, IL	8/94 - 8/00
Postdoctoral Research Fellow Division of Chemistry and Chemical Engineering California Institute of Technology, Pasadena, CA <i>Advisor: Harry B. Gray</i>	9/92 - 8/94
Research Assistant Department of Chemistry, University of California, Los Angeles, CA <i>Advisor: Joan Selverstone Valentine</i>	1/89 - 8/92
Teaching Assistant Department of Chemistry, University of California, Los Angeles, CA	9/87 - 12/88

HONORS AND AWARDS

Larry R. Faulkner Endowment for Excellent in Chemistry Seminar Department of Chemistry, University of Texas at Austin	2018
Royal Society of Chemistry Applied Inorganic Chemistry Award	2015
Fellow of the Royal Society of Chemistry (FRSC)	2015
Hutchison Memorial Lecturer Department of Chemistry, University of Rochester	2013-2014
Sigma Xi Distinguished Lecturer	2013-2014
Associate, Center for Advanced Study, UIUC	2013
Innovation Discovery award, Champaign County, IL	2012
Gomberg lecturer, University of Michigan	2012
Illinois Sustainable Technology Center (ISTC) Research Fellow Award	2009
Special Creativity Extension Award, National Science Foundation	2009
Distinguished Visiting Professorship, National University of Singapore	2008
Fellow, American Association for the Advancement of Science	2007
Early Career Award, Society of Biological Inorganic Chemistry	2007
Chang Jiang Professorship, Nanjing University	2007
Research, Development, and Operational Support Team Award, Construction Engineering Research Laboratory, U.S. Army Engineer Research and Development Center	2007
J. Clarence Karcher Medal and Lecturer, Department of Chemistry and Biochemistry, University of Oklahoma	2007
Incomplete List of Teachers Ranked as Excellent by their Students	2006
National Academy of Sciences IUPAC Young Observer Award	2005
Honorary Mention for the UIUC Campus Award for Innovation in Undergraduate Instruction	2005
Visiting Professor, Tianjin University, Tianjin, P. R. China	2004 -
Campus Award for Excellence in Guiding Undergraduate Research (UIUC)	2003
Howard Hughes Medical Institute Professors Award	2002 - 2008
University Scholar Award (UIUC)	2002 - 2005
The Biosensors and Bioelectronics Award	2002
Overseas Outstanding Young Chinese Scholars Award	2002 - 2005
Overseas Outstanding Young Chinese Visiting Scholars Award	2001 - 2002
Camille Dreyfus Teacher-Scholar Award	1999 - 2001
University of Illinois SCS Excellence in Teaching Award	1999 - 2000
National Science Foundation Special Creativity Award	1998 - 2000
Alfred P. Sloan Research Fellowship	1998 - 2000
Research Corporation Cottrell Scholars Award	1997 - 1999
Arnold and Mabel Beckman Young Investigator Award	1996 - 1998
Beckman Fellow, Center for Advanced Study	1996 - 1997
National Institute of Health FIRST Award	1995 - 2000
National Science Foundation CAREER Award	1995 - 1998
Product Research Corporation Prize for Excellence in Research	1990 - 1991
Hortense Fishbaugh Memorial Scholarship	1990 - 1991
Phi Beta Kappa Alumni Scholarship Award	1990 - 1991

PUBLICATIONS (H-index: 76 (Web of Science) or 89 (Google Scholar); ResearcherID: B-5461-2010; ORCID: 0000-0003-1221-6709)

332. Evan N. Mirts, Igor D. Petrik, Parisa Hosseinzadeh, Mark J. Nilges, and Yi Lu, "A designed heme-[4Fe-4S] metalloenzyme catalyzes sulfite reduction like the native enzyme," *Science* 361, 1098-1101 (2018).

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330. Manjistha Mukherjee, Arnab Mukherjee, Ambika Bhagi-Damodaran, Yi Lu, Abhishek Dey, "O₂ Reduction by Biosynthetic Models of Cytochrome c Oxidase: Insights into Role of Proton Transfer Residues from Perturbed Active Sites Models of CcO" *ACS Catalysis* 8, 8915–8924 (2018).
329. Chang Cui, Julian H. Reed, Evan N. Mirts and Yi Lu, "Design and Engineering of Heme Enzymes with O₂-dependent Catalytic Activity, In "Dioxygen-dependent Heme Enzymes", *Metallobiology Series No. 13*, Masao Ikeda-Saito and Emma Raven, Eds. The Royal Society of Chemistry (in press).
328. John W. Peters, David N. Beratan, Brian Bothner, R. Brian Dyer, Caroline S. Harwood, Zachariah M. Heiden, Russ Hille, Anne K. Jones, Paul W. King, Yi Lu, Carolyn E. Lubner, Shelley D. Minter, David W. Mulder, Simone Raugei, Gerrit J. Schut, Lance C. Seefeldt, Monika Tokmina-Lukaszewska, Oleg AZadvornyy, Peng Zhang, Michael W. W. Adams, "A new era for electron bifurcation," *Curr. Opin. Chem. Biol.* 47, 32-38 (2018).
327. Jingjing Zhang and Yi Lu, "Biocomputing for portable, resettable and quantitative point-of-care diagnostics: making glucose meter a logic-gate responsive device to many targets in clinical care," *Angew Chemie Int. Ed.* 57, 9702-9706 (2018).
326. Ambika Bhagi-Damodaran, Julian Reed, Qianhong Zhu, Yelu Shid, Parisa Hosseinzadeh, Braddock A. Sandoval, Kevin A. Harnden, Shuyan Wang, Madeline R. Sponholtz, Evan N. Mirts, Sudharsan Dwaraknath, Yong Zhang, Pierre Moënne-Loccozd, and Yi Lu, "Heme redox potentials hold the key to reactivity differences between nitric oxide reductase and heme-copper oxidase," *Proc. Natl. Acad. Sci. USA* 115, 6195-6200 (2018).
325. Jingjing Zhang, Hang Xing and Yi Lu, "Translating Molecular Detections into a Simple Temperature Test Using Target-Responsive Smart Thermometer," *Chem. Sci.* 9, 3906-3910 (2018).
324. Nitya Sai Reddy Satyavolu, Nikou Pishvaresfahani, Li Huey Tan, and Yi Lu, "DNA-encoded morphological evolution of bimetallic Pd@Au core-shell nanoparticles from a high-indexed core," *Nano Research* 11, 4549–4561 (2018).
323. Marjorie Cepeda-Plaza, Claire E. McGhee, Yi Lu, "Evidence of a General Acid/Base Catalysis Mechanism in the 8-17 DNAzyme," *Biochemistry* 57, 1517–1522 (2018).
322. Claire E. McGhee, Ryan Lake and Yi Lu, "Preparation of MetalloDNAzymes," in *Artificial metalloenzymes and metalloDNAzymes in catalysis. From design to application*, Montserrat Diéguez, Jan-E. Bäckvall and Jan-E. Bäckvall, eds., Wiley-VCH pp 41-68 (2018).
321. Peiwen Wu, Yang Yu, Claire E. McGhee, Li Huey Tan, Abhijit Mishra, Gerard Wong, and Yi Lu, "Applications of Synchrotron-based Spectroscopic Techniques in Studying Nucleic Acids and Nucleic Acid-based Nanomaterials," In *Synchrotron Radiation in Materials Science: Light Sources, Techniques, and Applications* (Chunhai Fan and Zhentang Zhao, eds), pp687-756 (2018).
320. Jian Zhao, Jinhong Gao, Wenting Xue, Zhenghan Di, Hang Xing, Yi Lu, and Lele Li, "Upconversion Luminescence-Activated DNA Nanodevice for ATP Sensing in Living Cells," *J. Am. Chem. Soc.* 140 578–581 (2018).
319. Jingjing Zhang, Lukas P. Smaga, Nitya Sai Reddy Satyavolu, Jefferson Chan, and Yi Lu, "DNA Aptamer-based Activatable Probes for Photoacoustic Imaging in Living Mice," *J. Am. Chem. Soc.* 139, 17225–17228 (2017).

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317. Zhenkun Wu, Huanhuan Fan, Nitya Sai Reddy Satyavolu, WenJing Wang, Ryan Lake, Jian-Hui Jiang, and Yi Lu, "Imaging Endogenous Metal Ions in Living Cells Using a DNAzyme-Catalytic Hairpin Assembly Probe," *Angew. Chemie Int. Ed.* 56, 8721–8725 (2017).
316. Marie Ramirez Cohen, Natanel Mendelman, Marina Radoul, Tiffany D. Wilson, Masha G. Savelieff, Herbert Zimmermann, Ilia Kaminker, Akiva Feintuch, Yi Lu, and Daniella Goldfarb, "The thiolate spin population of type I copper in azurin derived from ^{33}S hyperfine coupling", *Inorg. Chem.* 56, 6163–6174 (2017).
315. Ambika Bhagi-Damodaran, Maximilian Kahle, Yelu Shi, Yong Zhang, Pia Ädelroth, and Yi Lu, "Insights into how heme reduction potentials modulate enzymatic activities of a myoglobin-based functional oxidase," *Angew. Chemie Int. Ed.* 56, 6622–6626 (2017).
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313. Huanhuan Fan, Xiaobing Zhang, and Yi Lu, "Recent advances in DNAzyme-based gene silencing," *Sci China Chem*, 60, 591–601 (2017).
312. Yi Lu, "The OK Molly Chemistry", *Acc. Chem. Res.* (special issue on "Holy Grails in Chemistry"), 50, 647–651 (2017).
311. Claire E. McGhee, Kang Yong Loh, Yi Lu, "DNAzyme sensors for detection and imaging of metal ions in the environment and in living cells," *Curr. Opin. Biotech.* 45, 191-201 (2017).
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309. Debapriya Mazumdar, Tian Lan, and Yi Lu, "Dipstick" Colorimetric Detection of Metal Ions Based on Immobilization of DNAzyme and Gold Nanoparticles onto a Lateral Flow Device," Avraham Rasooly and Ben Prickril (eds.), *Biosensors and Biodetection: Methods and Protocols Volume 1: Optical-Based Detectors*, *Methods in Molecular Biology*, vol. 1571, 389-406 (2017).
308. Ambika Bhagi-Damodaran, Matthew A. Michael, Qianhong Zhu, Julian Reed, Braddock A. Sandoval, Evan N. Mirts, Saumen Chakraborty, Pierre Moëgne-Loccoz, Yong Zhang, Yi Lu, "Role of nonheme metal in heme-copper oxidases: Why is copper preferred over iron for oxygen activation and reduction?", *Nature Chemistry* 9, 257–263 (2017).
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306. Yang Yu, Chang Cui, Jiangyun Wang and Yi Lu, "Biosynthetic Approach to Modeling and Understanding Metalloproteins using Unnatural Amino Acids," *Science China Chem* 60, 188–200 (2017).

305. Kevin M. Clark, Shiliang Tian, Wilfred A. van der Donk, and Yi Lu, "Probing the role of the backbone carbonyl interaction with the Cu_A center in azurin by replacing the peptide bond with an ester linkage," *Chem. Comm.* 53, 224-227 (2017).
304. Nitya Sai Reddy Satyavolu, Li Huey Tan and Yi Lu, "DNA-Mediated Morphological Control of Pd-Au Bimetallic Nanoparticles," *J. Am. Chem. Soc.* 16542–16548 (2016).
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302. JingJing Zhang, Zhe Shen, Yu Xiang, and Yi Lu, "Integration of solution-based assays onto lateral flow device for one-step quantitative point-of-care diagnostics using personal glucose meter," *ACS Sensors* 1, 1091–1096 (2016).
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300. Ambika Bhagi-Damodaran, Parisa Hosseinzadeh, Evan Mirts, Julian Reed, Igor D. Petrik and Yi Lu, "Design of Heteronuclear Metalloenzymes," *Methods in Enzymology* (Peptide, Protein and Enzyme Design) 580, 501–537 (2016).
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296. Parisa Hosseinzadeh, Shiliang Tian, Nicholas M. Marshall, James Hemp, Timothy Mullen, Mark J. Nilges, Yi-Gui Gao, Howard Robinson, David A. Stahl, Robert B. Gennis, and Yi Lu, "A Purple Cupredoxin from *Nitrosopumilus maritimus* Containing a Mononuclear Type 1 Copper Center with an Open Binding Site," *J. Am. Chem. Soc.* 138, 6324–6327 (2016).
295. Kevin Hwang, Parisa Hosseinzadeh and Yi Lu, "Biochemical and biophysical understanding of metal ion selectivity of DNazymes," (Special Issue/Collection entitled "Metal-Nucleic Acid"), *Inorg. Chim. Acta* 452, 12-24 (2016).
294. Hang Xing, Ji Li, Weidong Xu, Kevin Hwang, Peiwen Wu, Qian Yin, Zhensheng Li, Jianjun Cheng and Yi Lu, "The Effects of Spacer Length and Composition on Aptamer-Mediated Cell-Specific Targeting with Nanoscale PEGylated Liposomal Doxorubicin," *ChemBioChem* 17, 1111–1117 (2016).
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- engineered myoglobins (FeBMbs): Insights into the mechanism of denitrifying NO reductases,” *Biochemistry* 55, 2091–2099 (2016).
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289. Shiliang Tian, Jing Liu, Ryan E. Cowley, Parisa Hosseinzadeh, Nicholas M. Marshall, Yang Yu, Howard Robinson, Mark J. Nilges, Ninian J. Blackburn, Edward I. Solomon and Yi Lu, “Reversible S-Nitrosylation in an Engineered Azurin and its Application as NO regulator under Physiological Conditions,” *Nature Chemistry* 8, 670–677 (2016).
288. Parisa Hosseinzadeh, Evan N. Mirts, Thomas D. Pfister, Yi-Gui Gao, Christopher Mayne, Howard Robinson, Emad Tajkhorshid, and Yi Lu, “Enhancing Mn(II)-binding and manganese peroxidase activity in a designed cytochrome c peroxidase through fine-tuning secondary sphere interactions,” *Biochemistry* 55, 1494–1502 (2016).
287. Igor D. Petrik, Roman Davydov, Matthew Ross, Xuan Zhao, Brian Hoffman, and Yi Lu, “Spectroscopic and crystallographic evidence for the role of a water-containing hydrogen bonding network in oxidase activity of an engineered myoglobin,” *J. Am. Chem. Soc.* 136, 1134–1137 (2016).
286. Hang Xing, Caroline Zhang, George Ruan, Jingjing Zhang, Kevin Hwang, and Yi Lu, “Multimodal Detection of a Small Molecule Target Using Stimuli-Responsive Liposome Triggered by Aptamer-Enzyme Conjugate,” *Anal. Chem.* 88, 1506–1511 (2016).
285. Liuming Yan, Yi Lu and Xuejiao Li, “A Density Functional Theory Protocol for the Calculation of Redox Potentials of Copper Complexes,” *Phys. Chem. Chem. Phys.* 18, 5529–5536 (2016).
284. Jingjing Zhang, Yu Xiang, Miao Wang, Ananda Basu, and Yi Lu, “Dose-Dependent Response of Personal Glucose Meters to Nicotinamide Coenzymes: Applications to Point-of-Care Diagnostics of Many Non-Glucose Targets in a Single Step,” *Angew Chemie Int. Ed.* 55, 732–736 (2016).
283. Parisa Hosseinzadeh and Yi Lu, “Design and Fine-tuning Redox Potentials of Metalloproteins Involved in Electron Transfer in Bioenergetics,” *Biochim, Biophys. Acta (BBA) – Bioenergetics* (Invited review for the thematic issue on Biodesign for Bioenergetics - the design and engineering of electronic transfer cofactors, proteins and protein networks), 1857, 557–581 (2016).
282. Parisa Hosseinzadeh, Nicholas M. Marshall, Kelly N. Chacón, Yang Yu, Mark J. Nilges, Siu Yee New, Ninian J. Blackburn, Yi Lu, “Design of a Single Protein that Spans the Entire 2V Range of Physiological Redox Potentials”, *Proc. Natl. Acad. Sci. USA* 113, 262–267 (2016).
281. Li Huey Tan, Yuan Yue, Nitya Sai Reddy Satyavolu, Arzeena Sultana Ali, Zidong Wang, Yuqing Wu, Yi Lu, “A mechanistic insight into DNA-guided control of nanoparticle morphologies,” *J. Am. Chem. Soc.* 137, 14456–14464 (2015).
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- 25 years) 81, 225-234 (2015).
278. Yugang Bai, Hang Xing, Peiwen Wu, Xinxin Feng, Jennifer M. Lee, Xin Yi Phang, Yi Lu and Steven C. Zimmerman, "Chemical Control over Cellular Uptake of Organic Nanoparticles by Fine Tuning Surface Functional Groups," *ACS Nano* 9, 10227-20236 (2015).
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276. Sohini Mukherjee, Arnab Mukherjee, Ambika Bhagi-Damodaran, Manjistha Mukherjee, Yi Lu, and Abhishek Dey, "A Biosynthetic Model of Cytochrome c Oxidase as an Electrocatalysts for O₂ Reduction," *Nature Communication* 6, Article number: 8467; doi:10.1038/NCOMMS9467 (2015).
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274. Saumen Chakraborty, Julian Reed, J. Timothy Sage, Nicole C. Branagan, Igor D. Petrik, Kyle D. Miner, Michael Y. Hu, Jiyong Zhao, E. Ercan Alp, and Yi Lu, "Recent Advances in Biosynthetic Modeling of Nitric Oxide Reductases and Insights Gained from Nuclear Resonance Vibrational and Other Spectroscopic Studies. *Inorg. Chem.* (Special Issue: Small Molecule Activation: From Biological Principles to Energy Applications), 54, 9317-9329 (2015).
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267. Mi Hee Lim and Yi Lu, "Editorial overview: Bioinorganic chemistry: Bioinorganic catalysis for renewable energy," *Cur. Opin. Chem. Biol.* 25, vii-viii (2015).
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- intracellular sensing,” *Proc. Natl. Acad. Sci. USA* 112, 5903–5908 (2015).
265. Le-le Li and Yi Lu, “Regiospecific Hetero-Assembly of DNA-Functionalized Plasmonic Upconversion Superstructures,” *J. Am. Chem. Soc.* 137, 5272–5275 (2015).
264. Yang Yu, Xiaoxuan Lv, Jiasong Li, Qing Zhou, Chang Cui, Parisa Hosseinzadeh, Arnab Mukherjee, Mark J. Nilges, Jiangyun Wang and Yi Lu, “Defining the Role of Tyrosine and Rational Tuning of Oxidase Activity by Genetic Incorporation of Unnatural Tyrosine Analog,” *J. Am. Chem. Soc.* 137, 4594–4597 (2015).
263. Ning Li, Xiaodi Su, Yi Lu, “Nanomaterial-based Biosensors using Dual Transducing Elements for Solution Phase Detection,” *Analyst* 140, 2916–2943 (2015).
262. Li Gao, Le-Le Li, Xiaolong Wang, Peiwen Wu, Yang Cao, Bo Liang, Xin Li, Yuanwei Lin, Yi Lu, and Xuefeng Guo, “Graphene-DNAzyme Junctions: A platform for Metal Ion Detection with Ultrahigh Sensitivity,” *Chem. Sci.* 6, 2469–2473 (2015).
261. Tian Lan, Yu Xiang and Yi Lu, “Detection of protein biomarkers using a blood glucose meter (BGM),” in *Mobile Health Technologies: Methods and Protocols*, Avraham Rasooly and Keith Herold (Eds), pp99–110 (2015).
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24. Yi Lu, Yu Xiang, and JingJing Zhang, "Personal Glucose Meters for Detection and Quantification of Enzymes and Metabolites Based on Coenzyme Detection" U.S. patent Application No. 61/901,688 filed on November 8, 2013. PCT/US2014/64314, filed on November 6, 2014.
23. Yi Lu and Zidong Wang, "Nucleic Acid-Mediated Shape Control of Nanoparticles," US Patent Application 13/717,535, filed on Dec. 17, 2012.
22. Yi Lu, and Yu Xiang, "Personal Glucose Meters for Detection and Quantification of a Broad Range of Analytes," US patent (13/699,578) issued on September 17, 2014, US patent (8,945,943) issued on February 3, 2015.
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17. Yi Lu and Juewen Liu, "Nucleic Acid Based Fluorescent Sensor for Mercury Detection," U.S. Provisional Patent Application filed August 10, 2007.
16. Yi Lu, Mehmet Veysel Yigit and Debapriya Mazumdar, "MRI Contrast Agents and High-Throughput Screening by MRI," US patent number 8,568,690, issued on October 29, 2013.
15. Yi Lu and Juewen Liu, Nucleic Acid Based Fluorescent Sensor for Copper Detection, U.S. patent number (12/598,070), issued on November 29, 2012; US patent number (8,409,800), issued on April 2, 2013.
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11. Yi Lu, Jung Heon Lee, and Mehmet Veysel Yigit, Alignment of Nanomaterials and Micromaterials, U.S. provisional patent application filed on November 14, 2006.
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9. Yi Lu and Juewen Liu, "Aptamer-Based Colorimetric Sensor Systems," US patent number 7,892,734, issued on February 22, 2011; US patent number, 13/008,568 on January 25, 2013; US patent number, 8,470,532, issued on June 25, 2013.
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6. Yi Lu and Juewen Liu, "Nucleic Acid Enzyme Light-Up Sensor Utilizing Invasive DNA," US Patent filed on November 2, 2004; Chinese Patent Application 200580045815.0 issued on March 26, 2013.
5. Yi Lu and Juewen Liu, "Biosensors Based on Directed Assembly of Particles," US Patent number 7,485,419 issued on February 3, 2009.
4. Yi Lu and Juewen Liu, "Nucleic Acid Biosensors," US patent number 7,612,185, issued on Nov. 3, 2009; International patents filed on February 2, 2004,
3. Yi Lu and Juewen Liu, "Simple Catalytic DNA Biosensors for Ions Based on Color Changes," US Patent Number 7,534,560, issued on May 19, 2009, International patent filed on April 24, 2003
2. Yi Lu and Juewen Liu, "Fluorescence Based Biosensors," US Patent Number 6,890,719, issued on May 10, 2005; US Patent Number 7,332,283, issued on February 19, 2008; International patent filed on March 18, 2003; US patent Number 7,906,320, issued on March 15, 2011; US patent number 8,043,802, issued on October 25, 2011.

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RESEARCH GRANTS----CURRENT

Illinois-JITRI Institute	2018-2020
Novel DNAzyme Sensors for On-site and Real-time Detection and Quantification of Environmental Contaminants	\$400,000
National Institute of Health	2018-2021
Phase II of Telemonitoring of Invasive Fungal Infections using a Blood Glucose Meter (subcontract: PI-Tian Lan)	\$150,000
National Institute of Health (R43)	2018-2019
Point-of-care assay using Blood Glucose Meter for early warning of chronic lung rejection (subcontract: PI-Tian Lan)	\$45,000
National Institute of Health (R01)	2018-2022
"Broadband X-ray Fluorescence Emission Tomography" (co-PI; PI-Ling-Jian Meng)	\$100,000
Department of Energy	2017-2022
Office of Biological and Environmental Research	\$2,000,000
Center for Advanced Bioenergy and Bioproduct Innovation (CABBI)	
National Institute of Health (R01)	2017-2021
"Selection and sensing applications of DNAzymes selective for paramagnetic metal ions"	\$1,141,304
National Science Foundation	2017-2021
"Deeper Understanding of Factors that Fine-tune Redox Potentials of Metalloproteins and Applying the Insights to Modulate their Functional Properties"	\$680,000
National Institute of Health (R43)	2017 –2018
"A rapid and portable test for home monitoring of phenylalanine levels by patients with phenylketonuria using a blood glucose meter"	\$50,000
National Institute of Health	2017 –2018
"Telemonitoring of Invasive Fungal Infections using a Blood Glucose Meter"	\$67,500
National Institute of Health (R01)	2015 - 2019
"Biosynthetic Models of Heteronuclear Metalloenzymes in Multi-electron Processes"	\$1,223,040
National Institute of Health (R21)	2016 –2019
"Novel DNAzyme sensors for lithium and sodium to understand cellular and molecular mechanisms of lithium treatment of bipolar disorder"	\$401,283

RESEARCH GRANTS----RECENT PAST

National Science Foundation "Tuning Redox Potentials of Metal Centers in a Single Protein"	2014-2017 \$500,000
National Institute of Health (R41) "Developing an Affordable and Pocketable POC Device for Monitoring Lithium and Sodium in Patients with Bipolar Disorder"	2016 –2017 \$90,000
National Science Foundation "SBIR Phase II: A Novel Device for Convenient Therapeutic Drug Monitoring of Tacrolimus"	2013 –2015 \$89,999
Mayo Clinic-University of Illinois Strategic Alliance "Using the widely available glucometer for point of care monitoring of lactic acidosis"	2013-2015 \$45,000
National Institute of Health (R01) "Biosynthetic Protein Models of Heme-copper Oxidases and Nitric Oxide Reductases"	2010 - 2014 \$1,182,654
National Institute of Health "Low cost quantitative monitoring of kidney injury biomarkers using a glucometer" SBIR Phase I grant (subaward)	2013-14 \$45,000
National Science Foundation "A Biosynthetic Approach toward Biomimetic Studies of Metalloproteins Involved in Long-range Electron Transfer"	2011-2014 \$ 476,000
National Institute of Health (R01) "Selection, Characterization & Application of Paramagnetic Metal-specific DNAszymes"	2008-2013 \$1,520,057
Department of Energy "New Catalytic DNA Biosensors for Radionuclides and Metal Ions"	2011-2014 \$717,343
National Science Foundation "Active control of nano- and microfluidic systems and its application in chemical and biosensing" (under UIUC NSF Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems (Nano-CEMMS))	2006-2013 \$300,000
National Science Foundation "New Catalytic DNA Biosensors for Trace Contaminants in Water" (under UIUC NSF Science and technology Center of Advanced Materials for the Purification of Water with Systems ---ICTII co-leader)	2003-2013 \$408,215
National Science Foundation (I-CORPS program) "Portable sensors using the widely available personal glucose monitor "	2011-2012 \$50,000
Department of Defense Construction Engineering Research Lab "Development of Sensors for Detection and Identification of Mold	2010-2012 \$300,000

National Science Foundation "A Biosynthetic Approach toward Biomimetic Studies of Metalloproteins Involved in Long-range Electron Transfer"	2006-2011 \$795,500
National Institute of Health (R01) "Biosynthetic Protein Models of Heme-copper Oxidases and Nitric Oxide Reductases"	2006 - 2010 \$1,034,497
National Institute of Health STTR Phase II grant (R42) "Catalytic DNA Biosensor for Toxic Metal Ions"	2008-2010 \$750,000
Illinois Sustainable Technology Center "In-vitro selection of DNA aptamers for the detection of endotoxins"	2009-2010 \$56,999
UIUC Provost's Initiative on Teaching Advancement (PITA) "Implementation and In-depth Evaluation of the Chemistry Enrichment Program"	2009-2010 \$9,800
Department of Defense "Metal Ion Sensor with Catalytic DNA in a Nanofluidic Intelligent Processor" (under DoD SERDP program, joint with Drs. Cropek and Bohn)	2005-2009 \$650,899
UIUC Provost's Initiative on Teaching Advancement (PITA) "Large-scale Implementation of Enrichment Program for Chemistry Courses"	2008-2009 \$12,500
Howard Hughes Medical Institute Professors Program "A New Integrated Approach to Undergraduate Course Instruction"	2002-2009 \$1,000,000
Prostate Cancer Foundation "Aptazyme-Actuated Invertible Liposomes for Targeted Prostate Cancer Therapy" (co-PI with Drs. Jianjun Cheng and Gerard Wong)	2007-2009 \$100,000
National Science Foundation "Design and Engineering Proteins and Nucleic Acids and Their Applications in Directed Assembly of Nanostructures" (under RPI-UIUC NSF Nanoscale Science and Engineering Center on Directed Assembly of Nanostructures)	2003-2011 \$600,000
Department of Defense "Self-Assembly of 3-D Multifunctional Ceramic Composites for Photonics and Sensors" (under UIUC DOD MURI Program)	2003-2008 \$500,000
Environmental Protection Agency SBIR Phase II "Development of a reliable, low-cost and user-friendly spot test kit for leaded dusts based on recent advances in bionanotechnology"	2006-2008 \$345,000
National Institute of Health STTR Phase I "Allosteric DNzyme sensors for practical detection of mycotoxins" (PI: Scott Silverman)	2007-2008 \$99,996
Department Housing and Urban Development "A New Colorimetric Spot Test Method for Lead in Household Paint"	2006-2008 \$369,114

Based on Catalytic DNA-Nanoparticles”

UIUC Provost's Initiative on Teaching Advancement (PITA) “The Chemistry 199L Modules Implementation Plan”	2007-2008 \$9,000
Department of Energy "New Catalytic DNA Biosensors for Radionuclides and Metal Ions"	2004-2007 \$499,216
Department of Defense STTR Phase I “Colorimetric Sensors for Chemical and Biological Warfare Agents”	2006-2007 \$100,000
Illinois Waste Management and Research Center “New Catalytic DNA Fluorescent and Colorimetric Sensors for On-site, Real-Time Monitoring of Industrial and Drinking Water”	2003-2006 \$197,000
National Institute of Health STTR Phase I “Catalytic DNA Biosensor for Toxic Metal Ions”	2005 - 2006 \$99,986
Environmental Protection Agency SBIR Phase I “Development of a reliable, low-cost and user-friendly spot test kit for lead paint and dust based on recent advances in bionanotechnology”	2005-2006 \$70,000
Department Housing and Urban Development “A New Colorimetric Spot Test Method for Lead in Household Paint and Dust based on DNAzyme-nanoparticles”	2003-2005 \$250,000
National Institute of Health (R01) “Designing Heteronuclear Metalloenzymes”	2001 - 2005 \$857,141
National Science Foundation "A Biosynthetic Approach Toward Biomimetic Studies of Metalloproteins Involved in Long-range Electron Transfer"	2002-2005 \$405,000
Department of Energy "New Catalytic DNA Biosensors for Radionuclides and Metal Ions"	2001-2004 \$489,999
National Science Foundation Special Creativity Extension Award “A Protein-Analog Approach to Biomimetic Studies of Metalloenzymes”	1998 - 2000 \$189,775
National Institute of Health (R01) “Metalloribozymes: a New Class of Metalloenzymes”	1995 - 2000 \$604,342
Camille Dreyfus Teacher-Scholar Award “Structural characterization and engineering of metalloproteins and metalloribozymes”	1999 - 2004 \$60,000
Alfred P. Sloan Foundation “Building a Metal Bridge between Chemistry and Biology”	1998 - 2000 \$35,000
Research Corporation “Spectroscopic Study of Metal-binding Sites in Ribozymes: A New Class of Metalloenzymes”	1997 - 1999 \$50,000
Arnold and Mabel Beckman Foundation “Metalloribozymes: a New Class of Metalloenzymes”	1996 - 1998 \$200,000
Sloan Center for Asynchronous Learning Environments, UIUC	1996 - 1998

“Use of the Asynchronous Learning Network to Improve the Instruction of the Accelerated Chemistry Laboratory I”	\$12,500
National Science Foundation Career Award	1995 - 1998
“A Protein-Analog Approach to Biomimetic Studies of Metalloenzymes”	\$250,000
American Chemical Society Petroleum Research Fund	1995 - 1997
“Metal-binding Sites in Ribozymes: Spectroscopic Studies of a New Class of Metalloenzymes”	\$20,000

INVITED SEMINARS AND CONFERENCE PRESENTATIONS SINCE POSITION AT UIUC

- 9/18 Larry R. Faulkner Endowment for Excellent in Chemistry Seminar, Department of Chemistry, University of Texas at Austin, Austin, TX
- 9/18 Chemistry of Life Processes Institute, Northwestern University, Evanston, IL
- 7/18 Plenary Lecturer, The 43rd International Conference on Coordination Chemistry (ICCC 2018), Sendai, Japan
- 6/18 Plenary Lecturer, The 6th international conference on molecular sensors and molecular logic gates, Dalian, P. R. China
- 6//18 The 7th International Conference on DNA Nanotechnology, Chongqing, P. R. China
- 5/18 The 8th International Symposium on Bioanalysis, Biomedical Engineering and Nanotechnology, Changsha, P. R. China
- 4/18 Department of Chemistry, Duke University, Durham, NC
- 3/18 Molecular Basis of Diseases Distinguished Lecturer, Georgia State University, Atlanta, GA
- 3/18 Department of Chemistry, Pursue University, La Falyett, IN
- 3/18 School of Chemistry, University of Birmingham, Birmingham, UK
- 3/18 School of Biochemistry, University of Bristol, Bristol, UK
- 3/18 Keynote Speaker, Chinese-American Chemical Society (CACS) Banquet, New Orleans, LA
- 3/18 Symposium on Nitrogen Un-Fixation: Mechanisms and Models in Nitrification and Denitrification at the at the 255th American Chemical Society National Meeting, New Orleans, LA
- 3/18 Department of Chemistry, Michigan State University, East Lansing, MI
- 2/18 Department of Chemistry, University of California at Berkeley, Berkeley, CA
- 2/18 Department of Chemistry, Rutgers, The State University of New Jersey at Camden, Camden, NJ
- 12/17 The 5th Nano Today Conference, Kona, Hawaii
- 12/17 The Environmental Science and Engineering Program, King Abdullah University of Science and Technology, Thuwal, Saudi Arabia
- 11/17 Department of Chemistry and Biochemistry, University of Maryland at Baltimore County, Baltimore, MD
- 10/17 Department of Chemistry, Johns Hopkins University, Baltimore, MD
- 10/17 Symposium on the Enduring Legacy of Sol Spiegelman, Urbana, IL
- 10/17 Department of Chemistry, Hong Kong University, Hong Kong, P. R. China

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- 10/17 Department of Chemistry, Chinese University of Hong Kong, Hong Kong, P. R. China
- 10/17 Department of Chemistry, Hong Kong University of Science and Technology, Hong Kong, P. R. China
- 10/17 The first China Forum on Biosensors, Biochips and Nanobiotechnology, Foshan, P. R. China
- 10/17 The First Cross-Strait Conference for Biomedical Sciences, Xi'an, P. R. China
- 10/17 The Beijing Conference and Exhibition on Instrumental Analysis (BCEIA2017), Beijing, P. R. China
- 8/17 The 7th International Conference on Nanoscience and Technology (ChinaNANO), Beijing, P. R. China
- 8/17 The 6th International Conference on DNA Nanotechnology, Beijing, P. R. China
- 8/17 Symposium of Nanoscale Sensing in Foods & Other Complex Media at the 254th American Chemical Society National Meeting, Washington, DC
- 8/17 Symposium on Many Colors of Copper at the 254th American Chemical Society National Meeting, Washington, DC
- 8/17 Workshop on "Control of Proton and Electron Transfers in Redox Catalysis", Telluride, CO
- 7/17 The 8th Coordination Chemistry Conference of China, Dalian, P. R. China
- 7/17 Workshop on Applications of Nucleic Acid Aptamers, Be Dai He, P. R. China
- 6/17 The 8th Annual Biophysics Symposium at Northwestern University, Evanston, IL
- 5/17 The Fifth International Symposium on Dairy Cow Nutrition and Milk Quality, Peking, P. R. China
- 4/17 Symposium on Spectroscopic Elucidation of Metalloenzyme Mechanism: Current Successes & Future Challenges, 253rd ACS National Meeting, San Francisco, CA
- 4/17 Symposium on Celebrating 60 Years of the Division of Inorganic Chemistry, 253rd ACS National Meeting, San Francisco, CA
- 4/17 Department of Chemistry, North Carolina State University, Raleigh, NC
- 3/17 Symposium on Advances in Real-Time Detection of Metal Ions for Bioimaging and Environmental Monitoring, Pittcon, Chicago, IL
- 2/17 Department of Chemistry, University of Carolina, Chapel Hill, NC
- 2/17 Department of Chemistry, Vanderbilt University, Nashville, TN
- 12/16 Plenary lecture, 14th International Symposium for Chinese Organic Chemists (ISCOC) and the 11th International Symposium for Chinese Inorganic Chemists (ISCIC), Singapore
- 12/16 Department of Materials Science and Engineering, Nanyang Technology University, Singapore.
- 11/16 Department of Bioengineering, Chongqing University, Chongqing, China
- 11/16 Chongqing Medical University, Chongqing, China
- 10/16 Department of Chemistry, Marquette University, Milwaukee, WI
- 10/16 Department of Chemistry, Eastern Illinois University, Charleston, IL
- 9/16 Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA
- 9/16 Department of Chemistry, Arizona State University, Tempe, AZ
- 8/16 Symposium on Secondary Coordination Sphere Influences: Stability, Reactivity & Everything in Between, the 252nd ACS National Meeting, Philadelphia, PA
- 7/16 Precision Nanomedicine Symposium, Beijing, China

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- 7/16 The 5th International Conference on DNA Nanotechnology, Nanjing, China
- 7/16 Keynote lecture, International Conference on Electronic Materials (ICEM2016), Singapore
- 6/16 Gordon Research Conference on Metallocofactor, Stonehill College, North Easton, MA
- 6/16 Gordon Research Conference on Bioinspired Materials, Les Diablerets, Switzerland
- 5/16 Department of Chemistry, University of Münster, Münster, Germany
- 5/16 Department of Chemistry, University of Chicago, Chicago, IL
- 4/16 Department of Chemistry, Texas A&M University, College Station, TX
- 4/16 Department of Chemistry, University of Minnesota at Duluth, Duluth, MN
- 4/16 Department of Chemistry, University of Leicester, Leicester, England (part of RSC award lecture tour)
- 4/16 Department of Chemistry, University of Oxford, Oxford, England (part of RSC award lecture tour)
- 4/16 Department of Chemistry, University College Dublin, Dublin, Ireland (part of RSC award lecture tour)
- 4/16 Department of Chemistry, Durham University, Durham, England (part of RSC award lecture tour)
- 3/16 University of Massachusetts-Medical School
- 3/16 Symposium on Transition Metal Interactions with RNA/DNA, 251st American Chemical Society National Meeting, San Diego, CA
- 3/16 Symposium on Bioanalytical Chemistry Using the Next Generation of Nanomaterials, Pittcon 2016, Atlanta, GA
- 3/16 Symposium on Electrical and Electrochemical Sensing and Detection based on Nucleic Acid Recognition, Pittcon 2016, Atlanta, GA
- 2/16 Shanghai Institute for Advanced Immunochemical Studies, ShanghaiTech University, Shanghai, China
- 1/16 Metals in Biology Gordon Research Conference, Ventura, CA
- 12/15 Symposium on the Bio-Coordination Chemistry of Nitric Oxide and Its Derivatives, the International Chemical Congress of Pacific Basin Societies, Honolulu, HI
- 12/15 Symposium on Functional Nucleic Acids: Chemistry, Biology, and Materials Applications, the International Chemical Congress of Pacific Basin Societies, Honolulu, HI
- 12/15 Symposium on Frontiers of Iron Chemistry in Biology, the International Chemical Congress of Pacific Basin Societies, Honolulu, HI
- 12/15 Frontiers in Ultra-Sensitive Detection and Super-Resolution Imaging Symposium, Urbana, IL
- 11/15 Distinguished Lecture Series, Department of Chemistry and Biochemistry, UCLA, LA, CA
- 10/15 Department of Chemistry, University of Michigan
- 8/15 Symposium on the Role of the Outer Coordination Sphere on the Activity of Enzymes and Molecular Catalysts, The 250th ACS National Meeting, Boston, MA
- 8/15 Symposium on Metalloenzyme Mechanisms symposium, The 250th ACS National Meeting, Boston, MA
- 8/15 Symposium on Biochemical Ligands at Interfaces: from Molecular Scale Characterization to Devices, The 250th ACS National Meeting, Boston, MA
- 7/15 Keynote Lecture, the 17th International Conference on Biological Inorganic Chemistry, Beijing, P. R. China
- 7/15 Plenary Lecture, Workshop on Fluorescence Chemosensors and Bioimaging, Dalian, P. R. China

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- 7/15 Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, P. R. China
- 7/15 Shanghai Institute of Applied Physics Chinese Academy of Sciences, Shanghai, P. R. China
- 7/15 College of Chemistry and Chemical Engineering, Hunan University, Changsha, Hunan, P. R. China
- 6/15 The 98th Canadian Society for Chemistry Conference in Ottawa, Ontario, Canada
- 4/15 University of Illinois Center for Advanced Studies Associates and Fellows symposium
- 4/15 King Abdullah University of Science & Technology, Thuwal, Saudi Arabia
- 3/15 Harry Gray Award Symposium, the 249th ACS National Meeting, Denver, CO.
- 3/15 Symposium on Interactions of Metal Complexes with Proteins or Nucleic Acids and their applications in Drug Design and Delivery, the 249th ACS National Meeting, Denver, CO.
- 3/15 Symposium on Metallic Nanostructures for Optical & electrochemical Sensing and Alternative Energy Conversion, the 249th ACS National Meeting, Denver, CO.
- 3/15 American Chemical Society Graduate Student Symposium, the 249th ACS National Meeting, Denver, CO.
- 2/15 The 1st International Symposium on Recent Advances in Life Sciences and Biotechnology, Seoul, Korea
- 1/15 Suzhou Institute of Nano-Tech and Nano-Bionics (SINANO), CAS, Suzhou, P. R. China
- 12/14 The 2nd IBN International Symposium (IBN-is) on Nanomedicine and Nanoassays, Institute of Bioengineering and Nanotechnology, Singapore
- 12/14 Institute of Materials Research and Engineering, Singapore
- 11/14 National Academy of Science Workshop on Mesoscale Chemistry
- 11/14 Department of Chemistry, Rensselaer Polytechnic Institute
- 10/14 Symposium on Global Challenges and Opportunities at the Boundaries of Water and Sanitation, 2014 Illinois Water Conference, Urbana, IL
- 9/14 International Symposium on the Quality and Safety of Food and Pharmaceuticals, Jinan, China
- 8/14 Symposium on Metal Ion Interactions with Nitric Oxide and Reactive Nitrogen Species in Chemistry and Biology, the 248th ACS National Meeting, San Francisco, CA
- 7/14 The inaugural Inorganic and Nanomaterials Forum (INF2014), Singapore, Singapore
- 7/14 The 41th International Conference on Coordination Chemistry, Singapore, Singapore
- 6/14 Gordon Research Conference on Bioanalytical Sensors
- 5/14 The 6th International Symposium on Bioanalysis, Biomedical Engineering and Nanotechnology, Changsha, China
- 5/14 The 3rd International Conference on DNA Nanotechnology, Suzhou, China
- 5/14 NSF Workshop on Design, Engineering, and Evolution of Proteins
- 4/14 Department of Chemistry, University of Utah, Salt Lake City, Utah
- 4/14 Sigma Xi Distinguished Lecturer, Rockford University, Rockford, IL
- 3/14 Hutchison Memorial Lecturer, Department of Chemistry, University of Rochester, Rochester, NY
- 2/14 Symposium on Frontiers of Inorganic Chemistry, Peking University, Beijing, China

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- 2/14 Program Workshop on Frontier Materials Research, Global Elite Cultivation Center for Emergent Materials, Sungkyunkwan University, Suwon, Korea
- 2/14 Department of Chemistry, Stanford University
- 12/13 Plenary Lecture, Symposium on Applied Bioinorganic Chemistry (ISABC12), Guangzhou, China
- 12/13 Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China
- 12/13 College of Chemistry, Nanjing University, Nanjing, China
- 12/13 College of Food Science and Engineering, Shandong Agriculture University, Jinan, China
- 12/13 College of Chemistry, University of Science and Technology, Hefei, China
- 11/13 Sigma Xi Distinguished Lecture, Research Triangle Park, NC
- 11/13 Department of Materials Science and Engineering, North Carolina State University, Raleigh, NC
- 11/13 Department of Chemistry, University of Florida, Gainesville, FL
- 9/13 Department of Chemistry and Biochemistry, Swarthmore College, Swarthmore, PA
- 8/13 Pioneers from Asia, the 15th Asian Chemical Congress, Singapore
- 8/13 A2CS Symposium on Advanced Materials, Singapore
- 8/13 Institute of Chemistry, Chinese Academy of Sciences, Peking, P. R. China
- 8/13 The Fourteenth International Symposium on Electroanalytical Chemistry, Changchun, P. R. China
- 8/13 Biochemical Engineering Seminar, Institute of Chemical and Engineering Sciences Agency for Science, Technology and Research (A*STAR), Singapore
- 8/13 PhD Course on Membrane Biology and Technology, Stockholm, Sweden
- 7/13 Colloquium in the Center for Nanoscale Materials, Argonne National Laboratory, Argonne, IL
- 7/13 The 7th International Conference on Materials for Advanced Technologies (ICMAT 2013), Singapore
- 5/13 Tsinghua Xuetang Lecture, Tsinghua University, Peking, P. R. China
- 5/13 The 3rd International Symposium on Dairy Cow Nutrition and Milk Quality, Peking, P. R. China
- 4/13 Department of Chemistry, Iowa State University, Ames, IA
- 4/13 The 10th Annual Conference on Foundations of Nanoscience: Self-Assembled Architectures and Devices (FNANO13), Snowbird, Utah
- 4/13 The American Chemical Society 245th National Meeting, New Orleans, LA
- 3/13 Department of Chemistry, Brown University, Providence, RI
- 3/13 Pittcon, Philadelphia, PA
- 3/13 Gordon Research Conference on Inorganic Reaction Mechanism, Galveston, TX
- 3/13 Department of Chemistry, Brandeis University, Waltham, MA
- 2/13 Department of Chemistry and Chemical Biology, Rutgers, The State University of New Jersey, Piscataway, NJ
- 2/13 Department of Biochemistry and Molecular Biology, University of Georgia, Athens, GA
- 12/12 BioNanotechnology Seminar, Midwest Cancer Nanotechnology Training Center (M-CNTC) and Integrative Graduate Education and Research Traineeship-Cellular and Molecular Mechanics and BioNanotechnology (IGERT-CMMB), University of Illinois at Urbana-Champaign, Urbana, IL

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- 11/12 The International Symposium of Biofunctional Chemistry (ISBC 2012), Tokyo, Japan
- 11/12 The Institute of Materials Research and Engineering (IMRE), Singapore
- 11/12 Diabetes Technology meeting, Bethesda, MD
- 10/12 Chongqing University Distinguished Lecture, Chongqing University, Chongqing, P. R. China
- 10/12 Department of Chemistry, Chemical Biology, and Biomedical Engineering, Stephenson Institute of Technology, Hoboken, NJ
- 9/12 Mose Gomberg Lecture, Department of Chemistry, University of Michigan, Ann Arbor, MI
- 9/12 Department of Chemistry, Yonsei University, Seoul, Korea
- 9/12 Keynote lecture, 15th International Biotechnology Symposium and Exhibition, Daegu, Korea
- 8/12 Department of Chemistry, University of California, Berkeley, CA
- 7/12 Chemistry and Biology of Tetrapyrroles Gordon Research Conference, Newport, RI
- 7/12 7th International Conference on Porphyrins and Phthalocyanines, Jeju Island, Korea
- 6/12 2nd International Bioinorganic Chemistry Conference on Small Molecule Activation by Heme and Nonheme Enzymes, Seoul, Korea
- 6/12 “Imaging at Illinois: The Next Generation”, Beckman Institute, Urbana, IL
- 5/12 Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA
- 5/12 Pacific Northwest National Lab, Richland, WA
- 5/12 Naff Symposium, University of Kentucky, Lexington, KY
- 5/12 The 4th annual Biophotonics Summer School, Urbana, IL
- 3/12 Department of Chemistry, Soochow University, Suzhou, China
- 3/12 Workshop on DNA Nanotechnology: From structures to functions, Shanghai, China
- 2/12 Symposium on Point-of-Care Diagnostics, San Francisco, CA
- 2/12 The 3rd Annual Burrill Digital Health Meeting, San Francisco, CA
- 1/12 Department of Chemistry, Florida International University, Miami, FL
- 1/12 Keynote lecture, the 2nd Molecular Materials Meeting (M3), Singapore
- 12/11 Department of Chemistry, Georgia State University, Atlanta, GA
- 11/11 Department of Chemistry, University of Texas at Dallas, Dallas, TX
- 11/11 HHMI Professors Meeting, Chevy Chase, DC
- 11/11 Department of Chemistry, Sun Yat-sen University, Guangzhou, China
- 11/11 Tecan Symposium 2011, Shanghai, China
- 10/11 Plenary lecture, The 14th Beijing Conference and Exhibition on Instrumental Analysis, Beijing, China
- 10/11 Department of Chemistry, University of Houston, Houston, TX
- 10/11 The Methodist Hospital Research Institute, Houston, TX
- 9/11 Institute of Biology and Technology Saclay (iBiTec-S), CEA Saclay, France
- 9/11 Université Paris Descartes, Paris, France
- 9/11 Plenary lecture, ArtZymes 1, Marseilles, France
- 8/11 GE Global Research, Shanghai, China

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- 8/11 Plenary lecture, the 7th National Conference on Chemical Biology, Nanjing, China
- 8/11 College of Chemistry and Molecular Engineering, Peking University, Peking, China
- 8/11 Keynote lecture, the Thirteenth International Symposium on Electroanalytical Chemistry, Changchun, China
- 8/11 Department of Molecular Biology and Biochemistry, Simon Fraser University, Vancouver, Canada
- 8/11 Keynote lecture, the International Conference on Biological Inorganic Chemistry, Vancouver, Canada
- 7/11 Department of Bioengineering, Nanyang Technological University, Singapore
- 6/11 College of Chemistry and Chemical Engineering, Hunan University, Changsha, Hunan
- 6/11 Keynote lecture, International Conference on Materials for Advanced Technologies, Singapore
- 4/11 Department of Chemistry, Ohio State University, Columbus, OH
- 3/11 Department of Chemistry and Biochemistry, University of California, San Diego, CA
- 3/11 The Scripps Research Institute, La Jolla, CA
- 3/11 National Heart, Lung, and Blood Institute (NHLBI), National Institutes of Health, Bethesda, MD
- 3/11 Symposium on Paper Based Point-of-care Analytical Kits, Pittcon, Atlanta, GA
- 3/11 Department of Biochemistry and Cell Biology, Rice University, Houston, TX
- 2/11 Center for Biochemical and Biophysical Studies, Northern Illinois University, DeKalb, IL
- 1/11 Eminent Scholar Lecturer, Department of Chemistry and Biochemistry, University of Arizona, Tucson AZ
- 12/10 Co-organizer, Symposium on New Frontiers of Functional Nucleic Acids: Chemistry, Biology and Applications, The 2010 International Chemical Congress of Pacific Basin Societies, Honolulu, HI
- 12/10 Symposium on Molecular Design in Bioinorganic Chemistry, The 2010 International Chemical Congress of Pacific Basin Societies, Honolulu, HI
- 12/10 Minisymposium on Metals in Biology, Duquesne University
- 11/10 RIKEN SPring-8 Center, Harima Institute, Hyogo, Japan
- 11/10 RIKEN symposium on Molecular Assemblies, Wako, Japan
- 11/10 Chemical Biophysics Mini-Symposium on Protein Design, University of Pennsylvania, Philadelphia, PA
- 11/10 Department of Chemistry, University of Memphis
- 10/10 Plenary lecture, The 8th International Symposium of Chinese Inorganic Chemists, Taipei, Taiwan
- 10/10 Imaging without Boundaries Conference, Beckman Institute for Advanced Science and Technology, Urbana, IL
- 9/10 Faraday Discussion 149: Analysis for Healthcare Diagnostics and Theranostics, U. of Edinburgh, UK
- 8/10 Symposium on Metals in Biology, The American Chemical Society 240th National Meeting, Boston, MA
- 8/10 Symposium on Design, Discovery, and Directed Evolution of Enzyme Activities, The American Chemical Society 240th National Meeting, Boston, MA
- 8/10 Department of Laboratory Medicine & Pathology, University of Alberta, Edmonton, Alberta, Canada
- 8/10 Nucleic acid workshop, Telluride, CO
- 7/10 Institute of Biophysics, Chinese Academy of Sciences, Beijing, P. R. China
- 7/10 Beijing Academy of Science and Technology, Beijing, P. R. China
- 7/10 Department of Chemistry, Nanyang Technology University, Singapore

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- 7/10 Institute of Bioengineering and Nanotechnology, Singapore
- 7/10 Keynote lecture, the Inaugural (1st) International Conference on Molecular and Functional Catalysis, Singapore
- 6/10 Metals in Medicine Gordon Research Conference, Andover, NH
- 6/10 Chair of a session, Bioanalytical Sensors Gordon Research Conference, New London, NH
- 6/10 Frontiers in Metallobiochemistry Symposium, Penn State University, University Park, PA
- 5/10 Biosensors 2010 Congress, Glasgow, UK
- 5/10 The 2010 BIO International Convention, Chicago, IL
- 4/10 Suzhou Institute of Nano-tech and Nano-bionics, Suzhou, P. R. China
- 3/10 Department of Energy, Subsurface Biogeochemical Research (SBR) PI Workshop Washington, DC
- 3/10 Co-organizer and speaker, Symposium honoring Joan S. Valentine for 2010 Alfred Bader Award in Bioinorganic or Bioorganic Chemistry, American Chemical Society National meeting, San Francisco, CA
- 2/10 California NanoSystems Institute, University of California at Santa Barbara, Santa Barbara, CA.
- 1/10 Chair of a Session, Metals in Biology Gordon Research Conference, Ventura, CA
- 12/09 Department of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA
- 12/09 Forum for Imaging and Visualization, Beckman Institute for Advanced Science and Technology, Urbana, IL
- 11/09 Department of Chemistry, Nanjing University, Nanjing, P. R. China
- 11/09 Keynote lecture, Symposium on Advanced Biological Inorganic Chemistry (SABIC-2009), Mumbai, India
- 11/09 The Second Asian Coordination Chemistry Conference, Nanjing, P. R. China
- 10/09 Plenary lecture, the 40th annual meeting of the Environmental Mutagen Society, St. Louis, Mo
- 10/09 The International Society for the Scholarship of Teaching and Learning 2009, Bloomington, IN
- 9/09 The 13th Asian Chemical Congress, Shanghai, P. R. China
- 9/09 Illinois Sustainable Technology Center Research Symposium and Research Fellow Award, Champaign, IL
- 9/09 The 3rd European Conference on Chemistry for Life Sciences, Frankfurt, Germany
- 7/09 The 5th iCeMS International Symposium on Biomaterials at the Interface of Chemistry, Physics and Biology, Kyoto, Japan
- 7/09 Co-organizer, co-Chair and invited talk at Symposium on Molecular Design of Metalloproteins, at the Fourteenth International Conference on Biological Inorganic Chemistry (ICBIC14), Nagoya, Japan
- 7/09 Department of Chemistry, Peking University, Peking, P. R. China
- 7/09 DNA Nanotechnology: Construction, Machine and Application, Peking, P. R. China
- 6/09 Invitrogen (Life Technologies), Eugene, OR
- 5/09 Department of Chemistry and Biochemistry, University of Maryland at Baltimore County, Baltimore, MD
- 4/09 Department of Chemistry, University of California at Riverside, Riverside, CA
- 4/09 Institute of Genomic Biology, University of Illinois at Urbana-Champaign, Urbana, IL
- 3/09 US-Argentina Workshop on Nanomaterials, Bariloche, Argentina
- 2/09 Molecular Medicine Tri-Conference: Molecular Diagnostics, San Francisco, CA

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- 2/09 Department of Bioengineering, University of Illinois at Urbana-Champaign, Urbana, IL
- 2/09 Department of Chemistry, University of Chicago, Chicago, IL
- 2/09 Department of Chemistry, University of Louisville, Louisville, KY
- 2/09 Department of Chemistry, Georgia Institute of Technology, Atlanta, GA
- 1/09 Department of Chemistry, University of Singapore, Singapore.
- 1/09 Gordon Research Conference on Metals in Biology, Ventura, CA
- 12/08 Department of Chemistry, University of Puerto Rico, San Juan, Puerto Rico
- 11/08 The Fourth Asian Conference on Biological Inorganic Chemistry, Jeju, South Korea
- 11/08 Department of Bioengineering, Chongqing University, Chongqing, Sichuan, China
- 11/08 Invited speaker and session organizer of symposium on Strengthening a Weak Link in Current Science Curricula, at the Reinvention Center's Fall 2008 Conference on "Education, Innovation and Discovery: The Distinctive Promise of the American Research University
- 11/08 Seaborg Medal Symposium on Frontiers of Bioinorganic Chemistry, Los Angeles, CA
- 9/08 2008 National Healthy Homes Conference, Baltimore, MD
- 8/08 Department of Chemistry, National University of Singapore, Singapore
- 8/08 Telluride Workshop on Nucleic Acid Chemistry, Telluride, CO
- 6/08 Department of Chemistry, Tsinghua University, Peking, China
- 6/08 Institute of Biophysics, Chinese Academy of Sciences, Peking China
- 6/08 School of Chemical Engineering, Tianjin University, China
- 6/08 Department of Chemistry, Nanjing University, Nanjing, China
- 6/08 Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Changchun, Jilin, China
- 4/08 Department of Chemistry, University of Cincinnati, Cincinnati, OH
- 4/08 Symposium on "Sensors for Detection and Quantification of Contaminants in Drinking Water and the Environment," 235th American Chemical Society National Meeting, New Orleans, LA
- 4/08 Department of Chemistry, Dartmouth College, Hanover, NH
- 4/08 Department of Chemical Engineering, Yale University, New Haven, CT
- 3/08 Symposium on "Signal Transduction Across the Biology-Technology Interface," Materials Research Society Spring Meeting, San Francisco, CA
- 3/08 Department of Chemistry and Biochemistry, University of California, Los Angeles, CA
- 2/08 Department of Biochemistry and Molecular Biology, Michigan State University, East Lansing, MI
- 2/08 Department of Chemistry, Chemistry and Biology Interface (CBI/NIH) Training Program Students selected Speaker, Texas A&M University, College Station, TX
- 2/08 Department of Chemistry, University of Nebraska-Lincoln, Lincoln, NE
- 1/08 Symposium on System Chemistry, Berlin, Germany
- 12/07 Max Planck Institute for Bioinorganic Chemistry, Mülheim an der Ruhr, Germany
- 11/07 Department of Chemistry, Indiana University, Bloomington, IN

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- 11/07 Department of Chemistry, Chinese University of Hong Kong, Hong Kong
- 11/07 Department of Chemistry, China Central Normal University, Wuhan, P. R. China
- 11/07 Department of Chemistry, Wuhan University, Wuhan, P. R. China
- 10/07 Department of Chemistry, University of California at Berkeley, Berkeley, CA
- 10/07 Department of Chemistry, Arizona State University, Tempe, Az
- 9/07 Department of Chemistry, University of Massachusetts, Amherst, MA
- 9/07 The 5th International Forum for Post-Genome Technology, Suchou, P. R. China
- 9/07 International Lectures in Nano-Bio Now Series Part 7, FIBER, Kobe, Japan.
- 9/07 The 2nd International Workshop on Approaches to Single-Cell Analysis, Tokyo, Japan
- 7/07 SBIC Early Career Award lecture, The 13th International Conference on Biological Inorganic Chemistry, Vienna, Austria
- 7/07 Invited feature presentation, 2007 Cottrel Scholar Conference, Tucson, Az
- 5/07 Chemical Biology: A Catalyst for Discovery, University of Minnesota NIH Training Grant Symposium, Twin Cities, MN
- 5/07 Keynote Lecture, SENTINEL Bioactive Paper Network Scientific Meeting, Ottawa, Ontario, Canada
- 3/07 Department of Chemistry, Cornell University, Ithaca, NY
- 3/07 Symposium organizer, Sustainability in Water Supply - How Pure is Our Drinking Water: Advances in Detection and Quantitation of Water Contaminants, 233rd American Chemical Society (ACS) National Meeting, Chicago, IL
- 2/07 Symposium on High-Throughput Screening of Biological and Chemical Sensor Materials, Pittcon 2007, Chicago, IL
- 2/07 Harvard-MIT Inorganic Chemistry Seminar Series, Boston, MA
- 2/07 The 2007 UIUC Annual Faculty Retreat on Instructional Development, Urbana, IL
- 1/07 Chair of a session on Metalloprotein Design and Engineering, Metals in Biology Gordon Conference, Ventura, CA
- 1/07 Session on Nanotechnology in Molecular Diagnostics, Lab Automation 2007 conference, Palm Springs, CA
- 1/07 J. Clarence Karcher Medal and Lecturer, Department of Chemistry and Biochemistry, University of Oklahoma, Norman, OK
- 1/07 Department of Chemistry and Biochemistry, University of California, Los Angeles, CA
- 12/06 The 6th International Symposium for Chinese Inorganic Chemists (ISCOC-6), Singapore, Singapore
- 12/06 Illinois Waste Management and Research Center, Illinois Department of Natural Resources, Champaign, IL
- 12/06 Department of Chemistry, Northwestern University, Evanston, IL
- 11/06 European Science Foundation Inorganic Research Conference, Athens, Greece
- 11/06 Department of Chemistry, Hong Kong University of Science and Technology, Hong Kong, P. R. China
- 11/06 Department of Chemistry, University of Hong Kong, Hong Kong, P. R. China
- 11/06 Department of Chemistry, Sichuan University, Chengdu, Sichuan, P. R. China
- 11/06 The 3rd Asian Biological Inorganic Chemistry Conference (AsBIC-III), Nanjing, P. R. China

- 9/06 Symposium on HHMI Society of Professors: New Directions in Science Education, American Chemical Society 232nd National Meeting, San Francisco, CA
- 8/06 Keynote Lecture, The 37th International Conference on Coordination Chemistry, Cape Town, South Africa
- 7/06 The First Symposium on the Frontiers of Chemistry, Nanjing, P. R. China
- 7/06 The Second Sino-US Chemistry Professors Conference, Shanghai, P. R. China
- 7/06 Gordon conference on Inorganic Chemistry, Newport, RI
- 7/06 Department of Chemistry, Zhejiang University, Hangzhou, P. R. China
- 7/06 Department of Chemistry, Suzhou University, Suzhou, P. R. China
- 6/06 Department of Chemistry, University of Science and Technology, Hefei, P. R. China
- 6/06 Department of Chemistry, University of Bern, Bern, Switzerland
- 6/06 Plenary Lecture, Chemical Society of Zurich Symposium on Metals in Life Sciences, Zurich, Switzerland
- 6/06 Department of Chemistry, University of Konstanz, Konstanz, Germany
- 5/06 Department of Chemistry, University of Waterloo, Waterloo, Ontario, Canada
- 5/06 Brockhouse Institute of Material Research, McMaster University, Hamilton, Ontario, Canada
- 3/06 US-Israel Nanotechnology for Water Purification Workshop, Arlington, VA
- 3/06 Department of Chemistry, Texas Tech University, Lubbock TX
- 12/05 The 2005 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, HI
- 11/05 The Materials Research Society Annual Fall Meeting, Boston, MA
- 11/05 Department of Chemistry, Princeton University, Princeton, NJ
- 10/05 International Conference on Safe water, Oct 20-21, San Diego, CA
- 10/05 Department of Chemistry, University of Michigan, Ann Arbor, MI
- 10/05 Department of Natural Resources and Environmental Sciences, University of Illinois at Urbana-Champaign
- 9/05 Department of Chemistry, Emory University, Atlanta, GA
- 9/05 Department of Chemistry, Georgia State University, Atlanta, GA
- 8/05 The 40th International Union of Pure and Applied Chemistry (IUPAC) Congress, Beijing, China
- 7/05 Conference on Metalloprotein and Protein Design, Chicago, IL
- 6/05 Symposium on Frontiers of Organic and Bioorganic Chemistry, Tianjin, P. R. China
- 5/05 Department of Biochemistry, California Institute of Technology, Pasadena, CA
- 4/05 Symposium on Advanced Materials for Purification of Water with Systems, Atlanta, Georgia
- 3/05 Enhancing Chemistry, Workshop for Illinois High School Teachers, University of Illinois at Urbana-Champaign, Urbana, IL
- 3/05 Department of Physiology and Biophysics, Albert Einstein College of Medicine, Bronx, NY
- 2/05 American Association for the Advancement of Science 2005 Annual Meeting, Washington, DC.
- 2/05 Department of Chemistry, Purdue University, West Lafayette, IN
- 1/05 Department of Chemistry and Chemical Biology, Rensselaer Polytechnic Institute, Troy, NY
- 11/04 2004 Materials Research Society Fall Meeting, Boston, MA
- 11/04 Department of Chemistry, University of Notre Dame, South Bend, IN

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- 10/04 NSF Workshop on Molecular Basis of Life Processes, Oak Ridge, TN
- 9/04 Department of Chemistry, University of California at Irvine, Irvine, CA
- 8/04 The Seventh European Biological Inorganic Chemistry Conference (EUROBIC 7), Garmisch – Partenkirchen, Germany
- 7/04 The Third International Conference on Porphyrin and Phthalocyanines, New Orleans, LA
- 6/04 National Science Foundation Workshop on Inorganic Chemistry, Sedona, AZ
- 5/04 Nanotechnology in Homeland Security Workshop, the University of Illinois Center for Nanoscale Science and Technology (CNST), Urbana, IL
- 4/04 Foundations of Nanoscience: Self-assembled Architectures and Devices, Snowbird, Utah
- 4/04 School of Chemical Engineering, Tianjin University, Tianjin, China
- 4/04 Plenary lecture, The 8th International Symposium on Applied Bioinorganic Chemistry (ISABC8), Hong Kong, P. R. China
- 2/04 Department of Chemistry, University of Chicago, Chicago, IL
- 2/04 Department of Chemistry, Clark Atlanta University, Atlanta, GA
- 1/04 Gordon Research Conference: Metals in Biology, Ventura, CA
- 1/04 International Symposium on Active Oxygen-Metal Complexes (ISAOC 2003), Awaji Island, Japan
- 12/03 Department of Chemistry, Nankai University, Tianjin, P. R. China
- 12/03 Department of Chemistry, Tianjin University, Tianjin, P. R. China
- 12/03 Department of Chemistry, Peking University, Beijing, P. R. China
- 12/03 Department of Chemistry, Nanjing University, Nanjing, P. R. China
- 12/03 Department of Chemistry, Fudan University, Shanghai, P. R. China
- 11/03 Plenary lecture, Kentucky Academy of Science 2003 Annual Meeting, Bowling Green, Kentucky
- 11/03 Bariloche Protein Symposium at the Biophysical Society of Argentina Annual Meeting, Bariloche, Argentina
- 9/03 Department of Chemistry, University of North Carolina, Chapel Hill, NC
- 9/03 Department of Chemistry, Columbia University, New York, NY
- 8/03 IEEE-Nano 2003, San Francisco, CA, August 2003
- 7/03 The Eleventh International Conference on Biological Inorganic Chemistry, Cairns, Australia
- 11/02 COE International Conference on Dynamical Structures and Molecular Design of Metalloproteins, Okazaki, Japan
- 11/02 Department of Chemistry, University of Tsukuba, Tsukuba, Japan
- 8/02 The Second Symposium on DNA/RNA/Protein for Nanotechnology, Kobe, Japan
- 8/02 The First International Symposium of High Technology Research Center, Konan University, Kobe, Japan
- 5/02 Keynote Presentation, the Seventh World Congress on Biosensors (Biosensor 2002), Kyoto, Japan
- 5/02 The First K-JIST Environmental Biotechnology Symposium on Biosensors and DNA Microarrays for Environmental Biomonitoring, Gwangju, Korea
- 11/01 RNA-based Life Conference, Bloomington, IN
- 11/01 Department of Chemistry, Loyola University of Chicago, Chicago, IL

11/01 Department of Chemistry, St. Olaf College, Northfield, MN
10/01 Department of Chemistry, Iowa State University, Ames, IA
10/01 Department of Chemistry, Nanjing University, Nanjing, China
10/01 Plenary lecture, the Fourth National Conference on Coordination Chemistry, Guilin, China
8/01 The Tenth International Conference on Biological Inorganic Chemistry, Florence, Italy
10/00 Department of Chemistry, Boston College, Chestnut Hill, MA
10/00 Department of Chemistry, State University of New York, Albany, NY
9/00 Center for Biochemical and Biophysical Studies, Northern Illinois University, DeKalb, IL
8/00 Department of Chemistry, National Chung Cheng University, Chia-Yi, Taiwan
8/00 The 3rd World-wide Symposium on Inorganic Chemistry for Chinese Scientist, Taipei, Taiwan
3/00 Department of Chemistry, Ohio State University, Columbus, OH
3/00 Department of Chemistry, Carnegie Mellon University, Pittsburgh, PA
10/99 Department of Chemistry, University of North Carolina, Chapel Hill, NC
10/99 Department of Chemistry, University of Wisconsin, Madison, WI
10/99 Department of Chemistry, Boston College, Chestnut Hill, MA
10/99 Department of Chemistry, Southern Illinois University, Carbondale, IL
9/99 Department of Chemistry, Colorado State University, Fort Collins, CO
9/99 Department of Chemistry, University of Colorado, Boulder, CO
9/99 Department of Chemistry, Johns Hopkins University, Baltimore, MD
9/99 Department of Chemistry, University of Pennsylvania, Philadelphia, PA
9/99 Department of Chemistry, Massachusetts Institute of Technology, Cambridge, MA
9/99 Department of Chemistry, Brandeis University, Waltham, MA
9/99 Department of Chemistry, Yale University, New Haven, CT
7/99 The Ninth International Conference on Biological Inorganic Chemistry, Minneapolis, MN
7/99 The Third Annual Green Chemistry and Engineering Conference, Washington, DC
3/99 Department of Chemistry, University of California, Berkeley, CA
3/99 Department of Chemistry, Stanford University, Stanford, CA
3/99 Department of Chemistry, University of Minnesota, Minneapolis, MN
2/99 Department of Chemistry, University of Arizona, Tucson, AZ
2/99 Department of Chemistry, Georgia State University, Atlanta, GA
2/99 Department of Chemistry, Emory University, Atlanta, GA
2/99 Department of Chemistry, University of Georgia, Athens, GA
2/99 Department of Chemistry, University of South Carolina, Columbia, SC
2/99 Department of Chemistry, Duke University, Durham, NC
1/99 Gordon Research Conference: Metals in Biology, Ventura, CA
1/99 Department of Chemistry, University of California, Irvine, CA
11/98 Department of Chemistry, Princeton University, Princeton, NJ

11/98 Department of Biochemistry and Biophysics, University of Pennsylvania, Philadelphia, PA
 10/98 Department of Chemistry, Texas A & M University, College Station, TX
 10/98 Department of Chemistry, Indiana University, Bloomington, IN
 8/98 The 215th ACS National Meeting, Boston, MA
 8/98 Arnold and Mabel Beckman Young Investigator Symposium, Irvine, CA
 4/98 Department of Chemistry, University of Kansas, Lawrence, KS
 1/98 Department of Chemistry, Occidental College, Los Angeles, CA
 11/97 The Fifth Chemical Congress of North America, Cancun, Mexico
 6/97 The National Science Foundation Inorganometallic Workshop, Santa Fe, NM
 10/96 Department of Chemistry, Northern Illinois University, Dekalb, IL
 6/95 The Midwest Bioinorganic Chemistry Summer Workshop, Minneapolis, MN

RESEARCH TRAINING

Name	Date	Title	Current Position
Ph. D. Conferred			
Chang Cui	2018	Engineering heme-copper and multi-copper oxidases for efficient oxygen reduction catalysis	Postdoc MIT/Harvard
Nitya sai Reddy Satyavolu	2018	DNA as A Functional Molecule for Control of Nanomaterial Morphology and for Biosensing	Research Scientist Intel
Claire E. McGhee	2018	In vitro selection of monovalent metal ion-dependent DNAzymes	Research Scientist Intel
Julian Reed	2017	Characterizing a Structural and Functional Model of Nitric Oxide Reductase Performing NO and O ₂ Reduction in Engineered Myoglobin	Postdoc, DoD Construction and Engineering Research Laboratory
Ambika Bhagi	2016	Understanding Structure-Function Relations in Heme-Copper Oxidase Using Myoglobin-Based Enzyme Models	Postdoc, UCSF
Igor Petrik	2016	Characterization and Design of Hydrogen Bonding Interactions in Oxygen Reduction by Engineered Myoglobins	Staff Scientist, UIUC
Kevin Hwang	2015	Cellular Metal Ion Sensing Using DNAzymes	Postdoc, MIT
Shiliang Tian	2015	Protein Engineering Using Azurin as the Scaffold: Capturing and Studying Novel Metal-Sulfenate and Metal-NO Species	Postdoc, Stanford University
Peiwen Wu	2015	DNAzymes as Intracellular Sensors for Metal Ion Imaging and their Structural Characterization	Research Scientist, Gilead
Parisa Hosseinzadeh	2015	Isolating, Characterizing, and Engineering Novel Cu-Proteins and Peroxidases	Postdoc, U. of Washington
Li Huey Tan	2015	Studying the Interface Between DNA and Inorganic Nanoparticles to Control Shape and Anisotropy	Research Scientist Intel

Hang Xing	2014	Bioinspired DNA-Nanomaterial Conjugates for Diagnostic and Therapeutic Applications	Postdoc, Northwestern University
Seyed-Fakhreddin Torabi	2014	In vitro Selection and Characterization of Mono-, Di-, and Trivalent Metal-Dependent DNazymes and their Biosensor Applications	Postdoc, Yale University
Yang Yu	2013	Metalloprotein Engineering with Unnatural Amino Acids: Application in Functional Heme-Copper Oxidase And Azurin	Associate Professor Tianjin Institute of Industrial Biotechnology, Chinese Academy of Science
Ngo Yin Wong	2013	Advances in Structural and Functional DNA Nanotechnology: Towards Complex and Dynamic Assemblies for In Vitro Applications	Research Scientist Intel
Tian Lan	2012	I. Isolation of aptamers for perchlorate and melamine II. Attempts towards crystallization of DNazymes III. A new DNzyme based sensor for lead detection	CTO, GlucoSentient, Inc.
Tiffany D. Wilson	2012	A Biosynthetic Approach to Understanding the Assembly of Cu _A Centers	Postdoc, U. of California at Berkeley
Kyle D. Miner	2011	Rational Design of Functional Heme Copper Oxidases in Myoglobin: The Role of Tyrosine in Efficient Reduction of Oxygen to Water	Postdoc, U. of Texas at San Antonio
Ying He	2011	Fluorescence Resonance Energy Transfer Study of the Global Folding of Functional DNAs And Electrohydrodynamic Printing of Protein Arrays	Research Scientist, GE
Nicholas Marshall	2011	Fine-Tuning the Reduction Potential of Cupredoxin Proteins by Altering Secondary Coordination Sphere Interactions	Postdoctoral researcher U. of Texas at Austin
Eric L. Null	2011	Functional DNA: Biochemical/Biophysical Characterization & Sensing Applications	Research Scientist ANDalyze, Inc.
Zidong Wang	2011	Bioinspired Fabrication and Assembly of Hybrid Materials for Sensing and Biomedical Applications	Research Scientist Dow Chemical
Weichen Xu	2010	Smart MRI Contrast Agents and Label-Free Fluorescent Sensors Based on Functional Nucleic Acids and Studies of Metal-DNzyme Interactions	Research Scientist ANDalyze, Inc.
Nathan A. Sieracki	2010	Toward Engineering Oxygenase Activity into the Electron Transfer Protein, Azurin	Postdoctoral researcher University of Illinois at Chicago
Kevin M. Clark	2010	Probing the roles of Metal binding ligands in cupredoxins: Incorporating nonproteinogenic amino acids into azurin and Cu _A azurin	Law School Student
Nandini Nagraj	2010	Development Of Functional Dna-Based Sensors And Investigations Into Their Mechanism	Research Scientist, GE Research Center
Debapriya Mazumdar	2009	Investigation of Metal-Dependence in DNazymes and Applications of DNazymes and Aptamers for Diagnostics	Vice President of Product Development, DzymeTech, Inc.

Jung Heon Lee	2009	Bioinspired Assembly of Nanomaterials for Applications in Nanoelectronics and Biosensors	Assistant Professor Sungkyunkwan U. (Korea)
Natasha Yeung	2008	Modeling the Fe _B site of bacterial nitric oxide reductase	Postdoctoral researcher Lawrence Berkeley Lab
Mehmet Veysel Yigit	2008	Novel MRI contrast agents based on Functional DNA and nanomaterial conjugates for biomedical applications	Assistant Professor SUNY Albany/RNA Institute
Masha Savelieff	2008	Biosynthetic approach to protein models in long-range electron transfer	Assistant Prof, Michigan State Univ.
Dewain Garner	2008	Metalloprotein Design and Engineering Using Unnatural Amino Acids and Nonnative Cofactors	Research Scientist, Clorox Company
Hee-Kyung Kim	2007	Probing metal binding sites and metal ion-dependent conformational changes of a DNAzyme	Postdoctoral researcher U. of California, Berkeley
Ningyan Wang	2007	Exploring the Roles of Heme Type and Histidine-Tyrosine Cross-Link in Heme-Copper Oxidases Using a Myoglobin Model	Postdoctoral researcher Dept. of Biochem., UIUC
Daryl P. Wernette	2007	Immobilization of Catalytic DNA for Advanced Materials and Sensors	Research Scientist Owens Corning
Thomas P. Pfister	2006	Metalloprotein Engineering using Heme Protein Scaffolds to Investigate the Oxidation of Endogenous Aromatic Amino Acids and Exogenous Substrates	Postdoc National Cancer Institute
James R. Carey	2006	Design and Synthesis of Redox or Catalytically Active Artificial Metalloproteins Containing Non-native Inorganic and Organometallic Complexes	Research Scientist ChemSensing, Inc.
Andrea K. Brown	2006	In vitro Selection and Characterization of Highly Selective Metal-Dependent DNAzymes with Potential Biosensor Applications	M.D. program UIUC
Hee Jung Hwang	2005	Modulation of Metal Coordination and Redox Properties of the Engineered Purple Cu _A and Ferrocene Centers in Azurin	Postdoc Johns Hopkins University School of Medicine
Kevin E. Nelson	2005	In vitro selection and metal selectivity of transition metal dependent DNAzymes	M.D. program UIUC
Juewen Liu	2005	Fluorescent and Colorimetric Biosensors Based On DNAzymes and DNA Aptamers	Assistant Professor U. of Waterloo
Peter J. Bruesehoff	2003	In Vitro Selection and Characterization of Transition Metal-Dependent DNAzymes and RNAzymes	Research Scientist Abbot Labs
Steven M. Berry	2003	Designing Novel Blue Copper and Purple Cu _A Centers in Azurin with Natural and Unnatural Amino Acids	Associate Professor U. of Minnesota at Duluth
Steven K. Ma	2001	Encapsulation of Achiral Mn(Salen) Complexes into Cytochrome <i>c</i> Peroxidase: Spectroscopic Characterizations and Epoxidation Studies	Product Manager Lonza, Inc.

Jing Li	2000	<i>In Vitro</i> Selection of Highly Efficient DNA Enzymes as RNA Nucleases and Metal Biosensors	Staff Scientist Genomic Institute of the Novartis Research Fdn.
Alan Gengenbach	2000	The Protein Redesign Approach to Modeling Manganese Peroxidase	Associate Professor U. of Wisconsin-Eau Claire
Jeffrey A. Sigman	2000	Metalloprotein Design	Professor Saint Mary's College
Lynette A. Cunningham	1999	Studies of the Catalytic-Metal-Binding site in the Hammerhead Ribozyme using the Phosphorothioate Approach	Research Scientist Colgate-Palmolive
Michael T. Hay	1998	Engineering a Purple Cu _A Site into the Blue Copper Protein Azurin: Construction Spectroscopy, and Metal Substitution Studies	Associate Professor Penn. State U.-Beaver Fall

M. S. Conferred

Darius Z. Brown		Ultrasensitive DNA Aptasensors Based on Exponential Amplification Reaction	Research Specialist Cornel University
Bryant E. Kearl	2012	Characterization and Catalytic Application of an Engineered Cupredoxin Possessing a Potential in Excess of 1 Volt	Ph.D. program Arizona State U.
Hannah Ihms	2012	The In Vitro Selection and Biochemical Characterization of MetalloDNAzymes	
Lanyu Lei	2009	Introduction and Modification of Hydrogen Bonding Network into the Active Site of an Engineered Myoglobin Model of Cytochrome c Oxidase	
Qian Chen	2007	Design and Engineering of Artificial Metalloenzymes for Asymmetric Catalysis: Investigation of Mn(Salen) Containing Myoglobin Catalyzing Sulfoxidation	Ph.D. program École Polytechnique Fédérale De Lausanne
Hyeon Keol Kim	2003	Engineering and Characterization of Heme-Copper Binuclear Center in Sperm Whale Myoglobin	MBA program UIUC
Caroline Marie-Brigitte Pavot	2001	Metal Ion Interactions with Phosphorothioate and Phosphoroselenoate DNA/RNA and Biochemical Characterization of a Lead-Dependent Deoxyribozyme	
Marjorie C. Ang	1998	An Engineered Purple Cu _A Site in Azurin: Understanding a Novel Copper Site in Biology	Research Scientist Genencor Inc., CA

B. S. Conferred (with thesis)*

Madeline R. Sponholtz	2018	Increasing the Efficiency of a Myoglobin-Based Enzyme Model of Heme-Copper Oxidase by Introducing Tyrosine and Tryptophan Residues Near the Active Site	Graduate student U of Texas at Austin
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Yueh-Te Chu	2018	Functionalization of DNazymes onto the Surface of Upconversion Nanoparticles	
Kang Yong Loh	2017	Near Infrared Metal Ion Sensing using DNzyme Upconversion Nanoparticles	Graduate student Stanford U
Matthew Ross	2014	Recombinant expression, purification, and characterization of a potentially novel naturally-occurring cupredoxin in <i>N. maritimus</i>	Graduate student Northwestern U
Niloufar Hafezi-Mashhadi	2012	Characterization of a Human Sco-Like Copper Chaperone Protein Mimic	Lu Lab Manager, UIUC
Junhong Gao	2009	Structural Analysis of An Engineered Heme-Copper Cneterin Myoglobin that Mimics the Heme-Copper Site in Cytochrome C Oxidase	UIUC
David A. Barrios	2008	Using Nonnative Inorganic Cofactors in Engineered Metalloprotein Scaffolds to Induce Enantioselective Catalysis	Graduate student North Carolina State U
Carolyn Mead	2008	Immobilization of DNayzmes and Aptamers into Nanocapillary Array Membranes	Graduate Student Cornell U
Allison E. Mazan	2008	Binary Metal Combinations in a lead-sensitive DNzyme Sensor System	UIUC
Brook A. DeMoisy	2006	Characterization of Myoglobin Mutants Containing Non-Native Mn(Salen) Cofactors	Research Scientist Sigma-Aldrich
Nicole Conatser	2006	Characterization and Optimization of Designed Cytochrome c Peroxidases that Mimic Manganese Peroxidase	Law School St. Louis U.
Jenine M. Golueke	2005	RP-HPLC Purification of 17ET3 DNazymes	Research Scientist Abbott Labs.
Joseph A. Abramite	2003	Manganese Incorporated Cytochrome c Peroxidase as an Asymmetric Catalyst for Oxidation of Simple Substrates	Graduate student U. of Colorado
Anthony J. Augustine	2003	In Vitro Selection of Metal Dependent RNA Cleaving DNA Enzymes	Graduate student Stanford U.
Evan T. Brower	2003	Creation and Optimization of Novel Semisynthetic Metalloproteins	Graduate student Johns Hopkins U.
John Z. Zhu	2003	Elucidating Inter-Molecular Tyrosine Cross-Linking and the Design of a Distal Calcium Binding Site in Cytochrome c Peroxidase	Graduate student Indiana U.
Sherene M. Panicker	2002	Purification and Crystallization of the H120N Cu _A Azurin Mutant	Graduate Student Rush University
Vikas R. Pathak	2002	Preparation and Spectroscopic Study of	Graduate Student

		Betaine-Homocysteine Methyltransferase	University of Illinois
Rebecca L. Perino	2001	Engineering Mn(II)-binding Sites in Cytochrome <i>c</i> Peroxidase	Associate McKinley Consulting, Inc.
Nitin Patel	2001	The role of the Methionine Ligand in the Cu _A Site of an Engineered Azurin	Graduate student U. of Illinois
Eric J. Vallender	2000	Characterization of the Catalytic Metal Binding Site in the Hammerhead Ribozyme	Graduate Student University of Chicago
Brian C. Kwok	2000	Designing a Cu(II)-binding Site in Cytochrome <i>c</i> Peroxidase and Sperm Whale Myoglobin that Mimics the Cu _B -Heme Center in Cytochrome <i>c</i> Oxidase	Attorney, Kirkland & Ellis LLP, CA.
Tu Nguyen	1999	Optimization of large-scale Ribozyme Purification and Purification and Isolation of T7 Polymerase	Technical Manager Whitewater Technologies
Kendra Hammond	1999	Preparation of Catalytic Hammerhead RNA and Multiple Approaches to the Characterization of the Ribozyme's 6-mer Cleavage Product	Medical Student, Northwestern U.
Kyunga Seo	1998	Toward Construction of CcP Biocatalyst for Enantioselective Epoxidation	Research Scientist, U. of CA, San Francisco
Timothy Koester	1998	Preparation of Mn(Salen)-cytochrome <i>c</i> Peroxidase and asymmetric catalysis	Research Scientist Merck, Co.
Gretchen Peterson	1997	Preparation and Spectroscopic Characterization of Catalytic Nucleic Acids	Graduate Student, Harvard Univ.
Sung Syn	1996	Engineering Cytochrome <i>c</i> Peroxidase into Lignin Peroxidase	Research Scientist, Univ. of Chicago
Kirk Kittamaron	1996	Purification of the Hammerhead Ribozyme by Continuous Elution Electrophoresis: an Alternative Solution to Conventional Preparative Techniques	Research Scientist, Univ. of Chicago

* Over the past 24 years, another ~150 undergraduate students have worked in the PI's group for at least one year. They chose not to submit a B.S. thesis when they graduated.

CURRENT GROUP MEMBERS

Postdoctoral Researchers:

JingJing Zhang
Reda Elshafey
Yuting Wu

Ana Sol Peinetti
Matthew Waugh

Graduate Students:

Chang Cui
Kevin Harnden
Mingkuan Lyu
Yiming Wang
Zhenglin Yang

Sudharsan Dwaraknath
Ryan Lake
Evan Mirts
Quan Lam
Greg Pawel

<i>Visiting Scholars:</i>	Qinglin Sheng	Liuming Yan
<i>Undergraduate Students:</i>	Arzeena Ali	Kang Yong Loh

PERSONAL INFORMATION

Permanent Resident of the United States of America

SERVICE OUTSIDE THE UNIVERSITY OF ILLINOIS

a. Professional Affiliations

American Chemical Society
American Association for the Advancement of Science
The Royal Society of Chemistry
Materials Research Society
The Protein Society
The RNA Society
Society of Biological Inorganic Chemistry
The Institute of Electrical and Electronics Engineers

b. Referee of Journal Articles

Account of Chemical Research	Applied Spectroscopy
Angewandte Chemie	Archives of biochemistry and biophysics
Biochemistry	Chemical Communication
Catalysis Today	Chemistry and Biology
European Journal of Biochemistry	Journal of the American Chemical Society
Inorganic Chemistry	Journal of Biological Inorganic Chemistry
Journal of Inorganic Biochemistry	Journal of Nanoscience and Nanotechnology
Journal of Molecular Biology	Journal of Physical Chemistry
Langmuir	Nucleic Acids Research
Nature	Organic & Biomolecular Chemistry
Protein Engineering	Protein Engineering, Design and Selection
Proceedings of the National Academy of Sciences, USA	
Science	Organic letters
Small	ChemBioChem

c. Referee of Grant Proposals

National Science Foundation
National Institute of Health
Department of Defense (AFOSR)
Department of Energy
American Chemical Society Petroleum Research Fund
Arnold and Mabel Beckman Foundation
Research Corporation
Howard Hughes Medical Institute
Israeli National Science Foundation
National Science Foundation of China
Research Grants Council, Hong Kong, China
Engineering and Physical Science Council of the United Kingdom
Agency for Science, Technology and Research (A*STAR) of Singapore

d. Other Services

Member of Academic Committee, The 18th Beijing Conference and Exhibition on Instrumental Analysis (BECIA) (2019)

Elected Vice Chair (2017) and Chair (2018) of Gordon Research Conference on Metals in Biology

Member of Editorial Advisory Board, *Sensors* (2018-)

Member of Editorial Board, *Science China Chemistry* (2017-)

Member of Editorial Board, *Journal of Inorganic Biochemistry* (2017-)

Member of Editorial Board, *Structure and Bonding* (2016- now).

Advisory Board Member in the Chinese American Society of Nanomedicine and Nanobiotechnology

Co-Editor of Bioinorganic Chemistry issue in *Current Opinion in Chemical Biology* (2015)

Member of Editorial Advisory Board, *Analytical Chemistry* (2015-now)

Member of Editorial Advisory Board, *ACS Sensors* (2015-now)

Member of Editorial Advisory Board, *Accounts of Chemical Research* (2014-now)

Panelist for the Chemical Sciences Roundtable of the National Research Council: Workshop on Mesoscale Chemistry (November 2014)

Member of NSF Workshop Design, Engineering and Selection of Novel Proteins (2014)

Member of ACS Ronald Breslow Award for Achievement in Biomimetic Chemistry Selection Committee (2013-now)

Member of Editorial Board, *Inorganic Chemistry Frontiers* (2013-now)

Member of Editorial Board, *Nano Research* (2012-now)

Member of Editorial Board, *Journal of the Chinese Chemical Society* (2013-now)

Member of International Advisory Committee, International Conference on Materials for Advanced Technologies, Singapore (2013)

Member of International Scientific Committee, 15th International Biotechnology Symposium, Daegu, Korea

Member of International Advisory Board, *Chemistry – An Asian Journal* (2009- now)

Member of Advisory Board, *ACS Catalysis* (2011-2013)

Member of DOE Environmental Remediation Science Program (ERSP) Review Panel (2008)

Ad hoc Member of NIH MSFA Study Section (2007, 2008)

Member of NSF review panel on Nanoscale Interdisciplinary Research Teams (NIRT) (2007)

Member of DOE review panel on Quantitative Microbial Biochemistry and Metabolic Engineering for Biological Hydrogen Production (2007)

Co-organizer, Symposium on Sustainability in Water Supply - How Pure is Our Drinking Water: Advances in Detection and Quantitation of Water Contaminants, 233rd American Chemical Society (ACS) National Meeting, Chicago, IL (2007)

Co-organizer, Symposium on Modification of Hemoproteins in the 3th International Conference on Porphyrin and Phthalocyanines, New Orleans, (2004)

Member of the NSF Workshop Molecular Basis of Life Processes (2004)

Member of Review Panel for the Sensor and Sensor Network Program (NSF) (2003)

Member of Editorial Advisory Board, *J. Biol. Inorg. Chem.*, 2001- now.

Treasurer, Chinese Heritage Foundation (UIUC) (2002-2003)

Member of Review Panel for the Collaborative Research in Chemistry Program (NSF) (2002)

Member of Expert Review Panel for the Arnold and Mabel Beckman Foundation (1999, 2000)

Member, NSF Frontier of Inorganic Chemistry Workshop (2001)

Session Chair, Gordon Graduate Research Seminar on Bioinorganic Chemistry, Ventura, CA (2002)

Session Chair, "Symposium on Multinuclear Enzymes in Oxygen Metabolism" in the 215th ACS National Meeting, Boston, MA (1998).

UNIVERSITY SERVICE

School of Chemical Sciences Executive Committee	2018 - present
Office of Technology Management Advisory Committee	2014- present
Fellowship Committee, Graduate College	2014
Conflict of Interests Management Oversight Committee, College of Engineering	2013- present

Chair, Courses and Curricula Committee, Department of Chemistry	2013-present
Executive Advisory Committee, Micro and Nanotechnology Laboratory (MNTL)	2008- present
SCS Safety Committee	2006- present
Department of Chemistry Graduate Fellowship Committee	2006- present
Carle-CRI Translational Research Review Committee	2006
Advisory Committee, Department of Chemistry	2004 – present
Chair, Center for Nanoscale Science and Engineering Seminar Committee	2004 – 2005
Budget and Operations Committee, Department of Chemistry	2004 – 2005
Graduate Student Admission Committee, Department of Chemistry	2003 – 2004
Human Resources Development Committee, NSF Water CAMPWS STC	2003 – 2005
LAS Award Committee	2003 – 2004
Center for Nanoscale Science and Engineering Seminar Committee	2003 – 2004
Graduate Student Admission Committee in the Department of Chemistry	2003 – 2004
Executive Committee, Molecular Biophysics Training Grant	2002 – 2004
General Chemistry Division Head Search Committee	2002 – 2003
University Senate	2001 – present
SCS Service Facilities Committee (Biocrystallization facility faculty supervisor)	2001 – 2004
Graduate Student Cumulative Exam Committee in Biochemistry Department	2001 – 2004
Graduate Students Fellowship/Progress Committee in Chemistry	2000 – 2004t
Academic Advisor for Graduate Students in Inorganic Chemistry	1995 – 2005
Academic Advisor for Undergraduate Students in Chemistry	1994 – present
Chair of Ad Hoc Committee on Crystallization/Crystallography in Structural Chemical Biology	2000 – 2001
Faculty Advisor to the Chemistry Honorary Fraternity Phi Lambda Upsilon	2000 – 2001
Biomolecular Chemistry Committee in the School of Chemical Sciences	1995 – 1998
Head of the Chem 109 Course Developmental Team	1994 – 1998
General Chemistry Lecturer Search Committee	1997
Graduate Student Admission Committee, Department of Chemistry	1995 – 1996

Faculty Member of:

Department of Chemistry (primary appointment)	1994 – present
Department of Biochemistry	1999 – present
Department of Materials Science and Engineering	2003 – present
Materials Research Laboratory	2002 – present
Center for Biophysics and Quantitative Biology	2000 – present
Center for Nanoscale Science and Technology	2002 – present
Center for Zoonosis Research and Infectious Diseases (CZRID)	1999 – present
Biotechnology Center	1994 – present
Beckman Institute for Advanced Science and Technology	2003 – present
Molecular Biophysics Program	1996 – present
Molecular and Cell Biology Program	1996 – present
Interdisciplinary Environmental Toxicology Program	1996 – present
Environmental Council	1996 – present
Department of Bioengineering	2008 – present
Institute of Genomic Biology	2014 – present
Institute for Sustainability, Energy, and Environment (iSEE)	2015 – present