25.	Does the proposed research work involve IPR issues? If yes, has the host institute agreed to share the same with CSIR? No IPR.	
26.	Could the proposed work be carried out within India at CSIR/non CSIR S&T institutions? Justification for need to conduct it in the proposed foreign institution. Justification: An integrated set up combining aptamer selection pipeline, NGS sequencing, SPR, flow cytometry combing with well standardized protocol at Wang Lab makes it an ideal avenue. 1. Access to Advanced Facilities and Resources: Dr. Xing Wang's lab is equipped with advanced tools and technologies for nucleic acids programming, DNA nanotechnology, and aptamer development, which are essential for the project's success. 2. Expertise in DNA Nanotechnology: Dr. Wang is a leading expert in DNA nanotechnology, with extensive experience in designing and synthesizing functional DNA nanostructures. His expertise will provide invaluable insights and technical support, ensuring the successful development of the proposed DNA origami nanostructures and ssDNA aptamers. 3. Innovative SELEX Pipeline: The established SELEX pipeline in Dr. Wang's lab allows for the efficient selection and development of highly specific ssDNA aptamers. 4. Comprehensive Research Support: Dr. Wang's lab is supported by substantial funding from prestigious organizations such as the NIH and NSF, ensuring that the research project will have access to necessary financial and technical resources. 5. Training and Mentorship: The research environment at UIUC, under the mentorship of Dr. Wang, will provide rigorous training in cutting-edge techniques and methodologies. 6. Real-World Impact: The outcomes of the proposed research have the potential to develop novel therapeutic strategies and diagnostic tools for neurodegenerative diseases, which could significantly impact healthcare systems globally. Conducting this research at UIUC, with its focus on translational research and real-world applications, will ensure that the findings are effectively translated into practical solutions. (Host CV Enclosed)	
27.	Minimum period required for conducting proposed research. (2 – 6 months)	6 months
28.	Relevance of proposed research with the activities /	The proposed research is highly relevant to

programmes of Lab/CSIR.	CDRI's and CSIR's vision and mission, addressing critical health challenges through innovative science and technology. 1. Technology Innovation and Translational Research: The development of ssDNA aptamers for targeting DMT1 and ACSL4 represents a significant technological innovation. This research aligns with CSIR's goal of advancing technology innovation and translating research into practical applications. 2. Development of National Strengths: The expertise gained in DNA nanotechnology and aptamer development strengthens India's position in advanced biotechnological solutions, contributing to national strengths in cutting-edge research. 3. Synergizing Diverse Expertise: This research integrates biology, chemistry, and nanotechnology, addressing grand challenges in neuroscience and demonstrating the commitment to solving complex scientific problems through interdisciplinary collaboration. 4. Globally Benchmarked Processes: The use of advanced SELEX technology and collaboration with international experts ensures that the research meets global standards, promoting India's position in the international scientific community. 5. Catalyzing Sustainable Production: The scalable and cost-effective nature of aptamer production aligns with the goal of optimizing sustainable processes for reducing healthcare costs. 6. Capacity Building: The project will build specialized knowledge

		and skills in aptamer technology and DNA nanotechnology, contributing to the objective of enabling globally competitive R&D.
29.	Nature of expected output from the proposed study and its likely uses.	Aptamer Development: The research experience is anticipated to yield the successful development of DNA origami nanostructures loaded with novel ssDNA aptamers designed to target specific molecular elements crucial in neuroinflammation, such as DMT1 and ACSL4, the two proteins promoting ferroptosis. These aptamers are expected to act as inhibitors of ferroptosis during neuroinflammation. Expertise in DNA Nanotechnology: The project will build specialized knowledge and skills in aptamer development technology, including the design, selection, and biochemical modification of aptamers. Collaborative Research Opportunities: The project will provide collaborative research opportunities with institutions and researchers globally. Accelerated Development and Broad Applicability: The use of aptamers allows for a rapid and cost-effective aptamer development process and can be used to target similar proteins in other diseases. Aptamer-Based Diagnostic Tools: The aptamers developed can also be used to create diagnostic tools for disease diagnosis, prognosis, and monitoring of treatment effectiveness. Commercial and Clinical Opportunities: The aptamers developed can be of interest to pharmaceutical companies for further pre-clinical and clinical studies. Scientific Publications: The findings and outcomes can be disseminated through scientific publications, contributing to the global

		knowledge base in aptamer technology and its applications.
30.	What benefits will accrue to CSIR by conducting this research work.	Conducting the research will significantly benefit CSIR by advancing its expertise in aptamer technology and innovative neuroinflammation therapies, which aligns with its mission to enhance R&D capabilities and improve health outcomes in India. The project will facilitate global collaborations, leading to commercial and clinical opportunities, and contribute to the development of diagnostic tools. Additionally, the research findings will enhance CSIR's reputation through scientific publications and knowledge dissemination.
31.	Commercialisation prospects of the proposed research work.	Therapeutic Applications: As innovative inhibitors of ferroptosis during neuroinflammation, these aptamers have the potential to be developed into new therapies for treating neurodegenerative diseases such as Alzheimer's and Parkinson's disease. This can attract pharmaceutical companies interested in novel treatment modalities for these conditions. Diagnostic Tools: The high specificity and stability of aptamers make them ideal candidates for developing diagnostic assays, which can be marketed to clinical laboratories and healthcare providers. Customized Aptamer Development: The expertise gained in aptamer technology can be leveraged to develop customized aptamers targeting other disease-related proteins. This service can be offered to other research institutions and biotech companies, creating a new business line for CSIR. Biotechnology Products: The DNA origami nanostructures themselves represent a novel biotechnology product. These structures can be marketed for various applications beyond neuroinflammation, including targeted drug delivery systems, biosensors, and

		nanomedicine. Global Market Potential: Neurodegenerative diseases are a growing concern globally, with significant market potential for effective therapies and diagnostic tools. By tapping into this market, CSIR can position itself as a leader in this innovative field, attracting international investments and partnerships.
32.	Previous visits abroad during last 3 years.	One in 2023 (Non-Official)
33.	Any other relevant information You may feel necessary to give.	

Signature of the Candidate

Date: 26-07-2024

Place: Lucknow

Xing Wang, Ph.D.

CONTACT

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https://sites.google.com/site/xingwangslab/home

POSITION AND EMPLOYMENT

- **Research Associate Professor, Department of Bioengineering (2022-)**, *University of Illinois at Urbana-Champaign*
- **Co-director, Center for Pathogen Diagnostics, DREME Initiative (2020-)**, *University of Illinois at Urbana-Champaign*
- **Co-founder and Scientific Advisor (2020-)**, *Atom Bioworks Inc., Cary, NC*
- **Member of Holonyak Micro and Nanotechnology Laboratory (2019-)**, *University of Illinois at Urbana-Champaign*
- **Research Associate Professor, Department of Chemistry (2019-)**, *University of Illinois at Urbana-Champaign*
- **Member of Carl R. Woese Institute for Genomic Biology (2019-)**, *University of Illinois at Urbana-Champaign*
- **Member of Center for Genomic Diagnostics (2019-)**, *University of Illinois at Urbana-Champaign*
- **Assistant Professor, Department of Chemistry and Chemical Biology (2014-2019)**, *Rensselaer Polytechnic Institute*
- **Member of the Center for Biotechnology and Interdisciplinary Studies (2014-2019)**, *Rensselaer Polytechnic Institute*
- **Member of the Biochemistry and Biophysics Program (2014-2019)**, *Rensselaer Polytechnic Institute*
- **Member of the Rensselaer Nanotechnology Center (2014-2015)**, *Rensselaer Polytechnic Institute*
- **Member of the Center for Materials, Devices, and Integrated Systems (2015-2019)**, *Rensselaer Polytechnic Institute*

EDUCATION AND TRAINING

- **Postdoc., Molecular and RNA Biology**, *Princeton University*, Advisor: **Laura F. Landweber**, now at *Columbia University*, 2013
- **Ph.D., Biochemistry**, *New York University*, Advisor: **Nadrian C. Seeman**, 2009

SHORT PERSONAL STATEMENT

Dr. Xing Wang is a biochemist and bioengineer at University of Illinois at Urbana-Champaign (UIUC). His research group utilizes nucleic acids and protein engineering to create and customize designer DNA nanostructure-based "plug-and-play" platforms for bioengineering and bio-nanotechnology applications centered on human health. He also has training in RNA-mediated genome programming and cellular engineering, and RNA chemistry and biology. Dr. Wang is the inventor of the *"DNA Star"* platform. He is a winner of *Mikashi Award* in 2021. His Nucleic Acids Programming Lab (NAPL) is well funded to support the research focusing on the creation and development of (1) effective therapeutic candidates and targeted drug/mRNA delivery platforms for cancer treatment and immunotherapy, as well as inhibition and prevention of viral infections, (2) ultrasensitive and inexpensive biosensors for rapid, simple, and amplification free disease diagnostics in point-of-care, self-testing, and laboratory-based high-throughput settings, (3) machine learning model and pipelines to rapidly obtain new ligands for targeted drug delivery, and (4) molecular barcodes for multiplexing and high resolution biosensing and imaging. Dr. Wang is a co-director of the Center for Pathogen Diagnostics (CPD). His research group is currently supported by the National Institutes of Health (NIBIB, NIAID, NIDCR, NIAAA, NCI) and National Science Foundation (NSF).

MEMBERSHIP AND PROFESSIONAL EXPERIENCE

- **Member, American Chemical Society**, 2003-
- **Member, International Society for Nanoscale Science, Computation and Engineering**, 2003-
- **Editorial Board, Journal of Chemistry and Applications**, 2014-2018
- **NSF-CMMI review panel**, 2014-2016
- **Faculty Mentor and Lecturer, New York Stem Cell Foundation Summer Research Program**, 2015-2019
- **Faculty Mentor, CBIS High School Scholars Program, Rensselaer Polytechnic Institute**, 2015-2019
- **Faculty Producer, online educational video with Iridescent Learning 'Nanoscience Series: Making DNA Origami with Xing Wang' to deliver the research concept to underprivileged children**, 2016
- **Guest Editorial Board Member, Singapore Journal of Chemical Biology**, 2017
- **Organizing Committee Member, 2nd International Conference on Advance Chemical Engineering**, 2018
- **Steering Committee Member, The Interface Between Biocatalysis and Materials Workshop, RPI-cMDIS**, 2018
- **Program Committee, Asian Conference on Science, Technology and Medicine**, 2019
- **Grant reviewer, Research Corporation for Science Advancement**, 2020
- **Member, Materials Research Society, 2020-**
- **NIH-NIAID Review Panel, ZAI1 JP-A (S2) 1**, 2021
- **NSF-Future Manufacturing Program Review Panel**, 2021
- **NIH-NIGMS Review Panel, BTDD Program**, 2021

- **NIH-NANO Study Section**, 2022
- **NIH-MCST-J (02) Study Section**, 2023
- **Faculty Lecturer, Osher Lifelong Learning Institute, UIUC**, 2023-
- **Associate Editor, Analytical Chemistry Section, Frontiers in Chemistry**, 2023-
- **University Faculty Senate, UIUC**, 2023-2025
- **Information Technology Committee, UIUC**, 2023-2025
- **Grainger College of Engineering Awards Committee, UIUC**, 2023-
- **Research advisor, Minority Serving Institution (MSI) Alliance**, 2023-
- **NIH MCST (10) 2023/08 Council Small Business: Biological Chemistry, Biophysics, and Assay Development study section panel**, 2023
- **ZRG1 MCST-J (10) Study Section**, 2023
- **Ad hoc Reviewers: ACS Applied Bio Materials, ACS Applied Materials & Interfaces, ACS Applied Nano Materials, ACS Biomaterials Science and Engineering, ACS Nano, ACS Omega, Acta Biomaterialia, Advanced Healthcare Materials, Advanced Materials, AIMS Molecular Science, Analytical Chemistry, Biochemistry, Biomaterials Science, Biotechnology and Bioengineering, Cell Reports Physical Science, ChemBioChem, Chemical Reviews, ChemMedChem, ChemPhotoChem, Chemical Science, Current Nanoscience, DNA Computing Conference, Drug Discovery Today, InfoMat, International Conference on Applied Biochemistry and Biotechnology, Journal of Agricultural and Food Chemistry, Journal of the American Chemical Society, Journal of Chemistry and Applications, Lab on a Chip, Microchemical Journal, Nano Letters, Nanoscale, Nature Communications, Nature Materials, Proceedings A, Proceedings of the National Academy of Sciences of the United States of America, RCS Advances, Science Advances, Sensors and Actuators: B, Nature Signal Transduction and Targeted Therapy, Small**

CURRENT GRANTS AND AWARDS

1. NIH U01AA029348-S1, 12/22-11/24 (no cost extension)
   Project Title: Rapid, simple and sensitive detection of SARS-CoV-2 virus
   Budget: $740,169 (total cost)
   PI: Wang (Contact PI), Peng (PI)

2. NSF-SBIR-II 2127436, 08/22-07/25 (no cost extension)
   Project Title: Development of designer DNA nanostructure based drug delivery strategies for cancer therapy
   Budget: $998,507 (total cost)
   PI: Yao (PI), Wang (Co-PI)

3. NIH R33CA272271, 08/23-07/26
   Project Title: Rapid, simple, and ultrasensitive quantitation of KRAS ctDNA at the point of care using CRISPR/Cas amplification and digital resolution biosensor microscopy
   Budget: $1,147,925 (total cost)
   PI: Cunningham (Contact PI), Mansfield (PI), Wang (PI)

4. NIH R21AI166898, 07/23-06/25
   Project Title: Programming designer DNA nanostructures for blocking enveloped viral infection
   Budget: $431,298 (total cost)
   PI: Huang (Contact PI), Wang (PI)

5. USDA National Institute of Food and Agriculture Seed Funding, 09/23-08/25
   Project Title: Efficacy of DNA-clamp nanostructure to inhibit influenza A virus infection
   Budget: $60,000 (direct cost)
   PI: Steelman (PI), Wang (PI)

6. NIH R01AI159454, 01/21-12/25
   Project Title: Ultrasensitive HIV viral load quantitation using designer DNA nanostructure capture probes and photonic resonator interference scattering microscopy
   Budget: $3,644,131 (total cost)
   PI: Demirci (Contact PI), Cunningham (PI), Wang (PI)

7. NIH U01AA029348, 12/20-11/24 (no cost extension)
   Project Title: Detection and Automatic Privacy-Protected Contact Tracing System Designed for COVID-19
   Budget: $888,642 (total cost)
   PI: Wang (Contact PI), Peng (PI)

8. NIH R21EB031310, 09/21-09/24 (no cost extension)
   Project Title: A Rapid and Sensitive Technology for Direct Sensing of Intact SARS-CoV-2 Virions Using Designer DNA Nanostructure Probes and a Smartphone Fluorimeter
   Budget: $422,226 (total cost)
   PI: Wang (Contact PI), Cunningham (PI)

9. NIH R44DE030852, 12/20-11/23 (no cost extension)
   Project Title: Designer DNA Nanostructure Based Biosensing for Rapid COVID19 Detection and Monitoring using Saliva Sample
   Budget: $1,257,963 (total cost)
   PI: Yao (Contact PI), Wang (Co-I)

RECENTLY COMPLETED SUPPORT

1. NSF 2027778, 04/20-04/23 (no cost extension)
   Project Title: RAPID: A rapid and ultrasensitive technology for sensing intact SARS-CoV-2 using designer DNA nanostructure capture probes and photonic resonator interference scattering microscopy
   Budget: $165,317 (total cost)
   PI: Cunningham (PI), Wang (Co-PI)

2. CSL Behring: Point of collection testing of viral pathogens, antibodies, and antigens, Wang (Co-PI), 2021-2022

PUBLICATIONS

61. Lifeng Zhou, Yanyu Xiong, Laura Cooper, Skye Shepherd, Tingjie Song, Abhisek Dwivedy, Lijun Rong, Tong Wang, Brian T. Cunningham and **Xing Wang*** "Designer DNA Nanogripper", ***BioRxiv*** 2023.04. 26.538490, https://doi.org/10.1101/2023.04.26.538490 (2023).

60. Arlin Rodriguez, Dhanush Gandavadi, Johnsi Mathivanan, Tingjie Song, Bharath Raj Madhanagopal, Hannah Talbot, Jia Sheng, **Xing Wang*** and Arun Richard Chandrasekaran* "Self-assembly of DNA nanostructures in different cations", ***Small*** 202300040 (2023).

59. Hankeun Lee, Weijing Wang, Neha Chauhan, Yanyu Xiong, Nicholas Magazine, Owen Valdescruz, Dong-Yeun Kim, Tianjie Qiu, Weishan Huang, **Xing Wang** and Brian T. Cunningham "Rapid, sensitive detection of intact SARS-CoV-2 using DNA nets and a smartphone-linked fluorimeter", ***Optical Diagnostics and Sensing XXIII: Toward Point-of-Care Diagnostics*** 12387, 56–59 (2023).

58. Hankeun Lee, Weijing Wang, Neha Chauhan, Yanyu Xiong, Nicholas Magazine, Owen Valdescruz, Dong-Yeun Kim, Tianjie Qiu, Weishan Huang, **Xing Wang** and Brian T. Cunningham "Rapid detection of intact SARS-CoV-2 using designer DNA Nets and a pocket-size smartphone-linked fluorimeter", ***Biosensors and Bioelectronics*** 229, 115228 (2023).

57. Leyang Liu, Joseph Tibbs, Nantao Li, Amanda Bacon, Skye Shepherd, Hankeuu Lee, Neha Chauhan, Utkan Demirci, **Xing Wang** and Brian T. Cunningham "A photonic resonator interferometric scattering microscope for label-free detection of nanometer-scale objects with digital precision in point-of-use environments", ***Biosensors and Bioelectronics*** 228, 115197 (2023).

56. Amanda Bacon, Weijing Wang, Hankeun Le, Saurabh Umrao, Prima Dewi Sinawang, Demir Akin, Kodchakorn Khemtonglang, Anqi Tan, Sabina Hirshfield, Utkan Demirci, **Xing Wang** and Brian T. Cunningham "Review of HIV Self Testing Technologies and Promising Approaches for the Next Generation", ***Biosensors*** 13(2), 298 (2023).

55. Yanyu Xiong, Qinglan Huang, Taylor D. Canady, Priyash Barya, Shengyan Liu, Opeyemi H. Arogundade, Caitlin M. Race, Congnyu Che, Xiaojing Wang, Lifeng Zhou, **Xing Wang**, Manish Kohli, Andrew M. Smith and Brian T. Cunningham "Photonic Crystal Enhanced Emission and Blinking Suppression for Single Quantum Dot Digital Resolution Biosensing of Cancer-associated miRNA Biomarkers", ***CLEO: QELS Fundamental Science*** JTh6A. 2 (2022).

54. Yanyu Xiong, Qinglan Huang, Taylor D. Canady, Priyash Barya, Shengyan Liu, Opeyemi H. Arogundade, Caitlin M. Race, Congnyu Che, Xiaojing Wang, Lifeng Zhou, Anh Igarashi, **Xing Wang**, Manish Kohli, Andrew M. Smith and Brian T. Cunningham "Photonic crystal enhanced quantum dot biosensor for cancer-associated miRNA detection", ***IEEE Sensors*** 1–4 (2022).

53. Neha Chauhan, Apostolos Karanastasis, Chaitanya K. Ullal and **Xing Wang*** "Homologous pairing in short double-stranded DNA grafted colloidal microspheres", ***Biophysical Journal*** 121(24), 4819–4829 (2022).

52. Yanyu Xiong, Qinglan Huang, Taylor D. Canady, Priyash Barya, Shengyan Liu, Opeyemi H. Arogundade, Caitlin M. Race, Congnyu Che, Xiaojing Wang, Lifeng Zhou, **Xing Wang**, Manish Kohli, Andrew M. Smith and Brian T. Cunningham "Photonic crystal enhanced fluorescence emission and blinking suppression for single quantum dot digital resolution biosensing", ***Nature Communications*** 13, 4647 (2022).

51. Neha Chauhan, Weijing Wang, Hankeun Lee, Yanyu Xiong, Tianyi Zhang, Nicholas Magazine, Lu Peng, Lifeng Zhou, Weishan Huang, **Xing Wang** and Brian T. Cunningham "V-Pods: rapid, sensitive detection of intact SARS-CoV-2 in saliva using DNA nets and a smartphone-linked fluorimeter", ***Proceedings Volume 12123, Smart Biomedical and Physiological Sensor Technology XIX*** 12123, 63–67 (2022).

50. Nantao Li, Xiaojing Wang, Joseph Tibbs, Taylor D. Canady, Qinglan Huang, Glenn Fried, **Xing Wang**, Laura Cooper, Lijun Rong, Yi Lu and Brian T. Cunningham "Photonic resonator interferometric scattering microscopy", ***SPIE: Integrated Optics: Devices, Materials, and Technologies XXVI*** 12004, 136–140 (2022).

49. Jonathan Hu, Zhe He, Alexei V. Sokolov, **Xing Wang**, and Marlan O. Scully "Resolving the sequence of DNA and RNA strands by tip-enhanced Raman spectroscopy", ***SPIE: Smart Photonic and Optoelectronic Integrated Circuits*** PC1200503 (2022).

48. Neha Chauhan, Yanyu Xiong, Shaokang Ren, Abhisek Dwivedy, Nicholas Magazine, Lifeng Zhou, Xiaohe Jin, Tianyi Zhang, Brian T. Cunningham, Sherwood Yao, Weishan Huang and **Xing Wang*** "Net-shaped DNA nanostructures designed for rapid/sensitive detection and potential inhibition of SARS-CoV-2 virus", ***Journal of the American Chemical Society*** doi.org/10.1021/jacs.2c04835 (2022), Cover story.

47. Banani Chakraborty*, Sreyashi Das, Arushi Gupta, Yanyu Xiong, Vyshnavi T-V, Megan E. Kizer, Jinwei Duan, Arun Richard Chandrasekaran* and **Xing Wang*** "Aptamers for viral detection and inhibition", ***ACS Infectious Diseases*** 8(4), 667–692 (2022), Cover story.

46. Nantao Li, Xiaojing Wang, Joseph Tibbs, Congyu Che, Ana S. Peinetti, Bin Zhao, Leyang Li, Priyash Barya, Laura Cooper, Lijun Rong, **Xing Wang**, Yi Lu and Brian T. Cunningham "Label-Free Digital Detection of Intact Virions by Enhanced Scattering Microscopy", ***Journal of the American Chemical Society*** 144(4), 1498–1502, Cover story.

45. Nantao Li, Bin Zhao, Robert Stavins, Ana S. Peinetti, Neha Chauhan, Rashid Bashir, Brian T. Cunningham, Willian P. King, **Xing Wang** and Enrique Valera "Overcoming the limitations of COVID-19 diagnostics with nanostructures, nucleic acid engineering, and additive manufacturing", ***Current Opinion in Solid State and Materials Science*** 26(1), 100966 (2022).

44. Shaokang Ren, Keith Fraser, Lili Kuo, Neha Chauhan, Addison T. Adrian, Fuming Zhang, Robert J. Linhardt, Paul S. Kwon and **Xing Wang*** "Designer DNA nanostructures for viral inhibition", ***Nature Protocols*** 17(2), 282–326 (2022).

43. Zhe He, Weiwei Qiu, Megan E. Kizer, Jizhou Wang, Alexei V. Sokolov, **Xing Wang**, Jonathan Hu and Marlan O. Scully "Gap Mode Tip-Enhanced Raman and AFM Imaging of RNA Strands", ***CLEO: Applications and Technology*** AM1R.3 (2021).

42. Neha Chauhan and **Xing Wang*** "Nanocages for virus inhibition", ***Nature Materials*** 20(9), 1176–1177 (2021).

41. Nantao Li, Taylor D. Canady, Qinglan Huang, **Xing Wang**, Glenn Fried and Brian T. Cunningham "Photonic resonator interferometric scattering microscopy", ***Nature Communications*** 12, 1744 (2021).

40. Brian T. Cunningham, Taylor D. Canady, Bin Zhao, Shreya Ghosh, Nantao Li, Qinglan Huang, Yanyu Xiong, Glenn Fried, Manish Kohli, Utkan Demirci and **Xing Wang** "Photonic metamaterial surfaces for digital resolution biosensor microscopies using enhanced absorption, scattering, and emission", ***Proc. SPIE 11663, Integrated Sensors for Biological and Neural Sensing*** 116630K (2021).

39. Zhe He, Weiwei Qiu, Megan E. Kizer, Jizhou Wang, Wencong Chen, Alexei V. Sokolov, **Xing Wang***, Jonathan Hu* and Marlan O. Scully* "Resolving the sequence of RNA strands by tip-enhanced Raman spectroscopy", ***ACS Photonics*** 8(2), 424–430 (2021), Cover story.

38. Yanxiang Deng, Miran. Rada, Megan E. Kizer, **Xing Wang**, Dong Joo Cheon and Aram J. Chung "Inertial microfluidic cell hydroporator (IMCH) for high-throughput single-step intracellular molecule delivery", ***21st International Conference on Miniaturized Systems for Chemistry and Life Sciences*** 169–170 (2020).

37. Jinwei Duan*, **Xing Wang*** and Megan Kizer* "Biotechnological and therapeutic applications of natural nucleic acid structural motifs", ***Topics in Current Chemistry*** 378(2), 26 (2020).

36. Paul S. Kwon, Shaokang Ren, Seok-Joon Kwon, Megan E. Kizer, Lili Kuo, Mo Xie, Dan Zhu, Feng Zhou, Fuming Zhang, Domyoung Kim, Keith Fraser, Laura D. Kramer, Nadrian C. Seeman, Jonathan S. Dordick, Robert J. Linhardt, Jie Chao and **Xing Wang*** "Designer DNA architecture offers precise and multivalent spatial pattern-recognition for viral sensing and inhibition", ***Nature Chemistry*** 12(1), 26–36 (2020), Cover story.

35. Megan E. Kizer "Nucleic Acid Nanostructures and Biosensors in Biotechnological Applications", ***Rensselaer Polytechnic Institute ProQuest Dissertations Publishing*** 13811011 (2019).

34. Nate T. Anderson, Shaokang Ren, Jie Chao, Peter H. Dinolfo* and **Xing Wang*** "Understanding plasmon-mediated energy transfer enhancement: Increased end-to-end efficiency due to biodirectional energy transfer in a DNA origami nanoplatform", ***ACS Applied Nano Materials*** 2(9), pp. 5563–5572 (2019).

33. Vibhav A. Valsangkar, Arun R. Chandrasekaran, Lifeng Zhou, Song Mao, Goh Woon Lee, Megan Kizer, **Xing Wang**, Ken Halvorsen and Jia Sheng "Click and photo-release dual-functional nucleic acid nanostructures", ***Chemical Communications*** 55, 9709–9712 (2019).

32. Megan E. Kizer*, Robert J. Linhardt, Arun R. Chandrasekaran* and **Xing Wang*** "The molecular hero suit for in vitro and in vivo DNA nanostructures", ***Small*** 15(26), 1970141 (2019), Back cover story.

31. Megan E. Kizer, Ian D. Huntress, Benjamin D. Walcott, Keith Fraser, Christopher Bystroff and **Xing Wang*** "Complex between a multi-crossover DNA nanostructure, PX-DNA, and T7 endonuclease I", ***Biochemistry*** 58(10), 1332–1342 (2019).

30. Megan E. Kizer, Yanxiang Deng, Paiyz E. Mikael, **Xing Wang*** and Aram Chung* "A Hydrodynamic Cell Deformation Approach for the High-throughput Vector-free Intracellular Delivery of Nanomaterials and an Evaluation of DNA Nanostructure Biostability in Living Cells", ***Lab on a Chip*** 19, 1747–1754 (2019), Cover story.

29. Shuihong Cheng, Paeton L. Wantuch, Megan Kizer, Dustin R. Middleton, Ruitong Wang, Mikaela DiBello, Mingli Li, **Xing Wang**, Xuebing Li, Vasanthi Ramachandiran, Fikir Y. Avci, Fuming Zhang, Xing Zhang and Robert J. Linhardt "Glycoconjugate synthesis using chemoselective ligation", ***Organic and Biomolecular Chemistry*** 17, 2646–2650 (2019).

28. Zhe He, Zehua Han, Megan Kizer, Robert J. Linhardt, **Xing Wang***, Alexander M. Sinyukov, Jizhou Wang, Volker Deckert, Alexei V. Sokolov*, Jonathan Hu* and Marlan O. Scully* "Tip-enhanced Raman imaging of single-stranded DNA with single base resolution", ***Journal of the American Chemical Society*** 141(2), 753–757 (2019).

27. **Xing Wang***, Arun R. Chandrasekaran*, Zhiyong Shen, Yoel P. Ohayon, Tong Wang, Megan Kizer, Ruojie Sha, Chengde Mao, Hao Yan, Xiaoping Zhang, Shiping Liao, Baoquan Ding, Banani Chakraborty, Natasha Jonoska, Dong Niu, Hongzhou Gu, Jie Chao, Xiang Gao, Yuhang Li, Tanashaya Ciengshin and Nadrian C. Seeman* "Paranemic Crossover DNA: There and Back Again", ***Chemical Reviews*** 119(10), 6273–6289 (2019).

26. William F. Hooper, Benjamin D. Walcott, **Xing Wang** and Christopher Bystroff "Fast Design of Arbitrary Length Loops in Proteins Using InteractiveRosetta", ***BMC Bioinformatics*** 19(1), 337 (2018).

25. Megan Kizer, Peiqin Li*, Cress F. Brady, Lei Lin, Tom T. Jing, Xing Zhang, Ke Xia, Robert J. Linhardt* and **Xing Wang*** "RNA aptamers with specificity for heparosan and chondroitin glycosaminoglycans", ***ACS Omega*** 3(10), 13667–13675 (2018).

24. Yanxiang Deng, Megan Kizer, Miran Rada, Jessica Sage, **Xing Wang**, Dong-Joo Cheon and Aram J. Chung "Intracellular delivery of nanomaterials via an inertial microfluidic cell hydroporator", ***Nano Letters*** 18(4), pp. 2705–2710 (2018).

23. Yanxiang Deng, Megan E. Kizer, **Xing Wang** and Aram J. Chung "Hydrodynamic stretching of single cells for high-throughput vector-free intracellular delivery of macromolecules", ***22nd International Conference on Miniaturized Systems for Chemistry and Life Sciences*** 1352–1354 (2018).

22. Nathaniel T. Anderson "DNA-Nanostructured Modular Energy Transfer Arrays and Their Enhancement with Gold Nanoparticles", ***Rensselaer Polytechnic Institute ProQuest Dissertations Publishing*** 10981100 (2018).

21. Nathaniel T. Anderson, Peter H. Dinolfo* and **Xing Wang*** "Synthesis and characterization of porphyrin-DNA constructs for the self-assembly of modular energy transfer arrays", ***Journal of Materials Chemistry C*** 6(12), 2452–2459 (2018), Back-cover story.

20. Jaspreet S. Khurana, Derek M. Clay, Sandrine Moreira, **Xing Wang** and Laura F. Landweber "Small RNA-mediated regulation of DNA dosage in the ciliate Oxytricha", ***RNA*** 24(1), 18–29 (2018).

19. Ken Halvorsen, Megan Kizer, **Xing Wang**, Arun R. Chandrasekaran and Maria Basanta-Sanchez "Shear dependent LC purification of an engineered DNA nanoswitch and implications for DNA origami", ***Analytical Chemistry*** 89(11), 5673–5677 (2017).

18. John R. Bracht*, **Xing Wang***, Keerthi Shetty, Xiao Chen, Grace J. Uttarotai, Evan C. Callihan, Sierra S. McCloud, Derek M. Clay, Jingmei Wang, Mariusz Nowacki and Laura F. Landweber* "Chromosome fusions triggered by noncoding RNA", ***RNA Biology*** 14(5), 620–631 (2017).

17. Peiqin Li, Zhimin Cao, Zhou Wu, **Xing Wang** and Xiuhong Li "The effect and action mechanisms of oligochitosan on control of stem dry rot of Zanthoxylum bungeanum", ***International Journal of Molecular Sciences*** 17(7), 1044 (2016).

16. Arun R. Chandrasekaran*, Nate Anderson, Megan Kizer, Ken Halvorsen and **Xing Wang*** "Beyond the fold: Emerging biological applications of DNA origami", ***ChemBioChem*** 17(12), 1081–1089 (2016).

15. Yoel P. Ohayon, Ruojie Sha, Ortho Flint, Wenyan Liu, Banani Chakraborty, Hari KK. Subramanian, Jianping Zheng, Arun R. Chandrasekaran, Hatem O. Obdallah, **Xing Wang**, Xiaoping Zhang and Nadrian C. Seeman "Covalent linkage of one-dimensional DNA arrays bonded by paranemic cohesion", ***ACS Nano*** 9(10), 10304–10312 (2015).

14. Yoel P. Ohayon, Ruojie Sha, Ortho Flint, Arun R. Chandrasekaran, Hatem O. Obdallah, Tong Wang, **Xing Wang**, Xiaoping Zhang and Nadrian C. Seeman "Covalent linkage of one-dimensional DNA arrays bonded by paranemic cohesion", ***ACS Nano*** 9(10), 10296–10303 (2015).

13. Jaspreet S. Khurana, **Xing Wang**, Xiao Chen, David H. Perlman and Laura F. Landweber "Transcription-independent functions of an RNA polymerase II subunit, Rpb2, during genome rearrangement in the ciliate, Oxytricha trifallax", ***Genetics*** 197(3), 839–849 (2014).

12. Wenwen Fang, **Xing Wang**, John R. Bracht, Mariusz Nowacki and Laura F. Landweber "Piwi-interacting RNAs protect DNA against loss during Oxytricha genome rearrangement", ***Cell*** 151(6), 1243–1255 (2012).

11. **Xing Wang**, Xiaoping Zhang, Chengde Mao and Nadrian C. Seeman "Double-stranded DNA homology produces a physical signature", ***Proceedings of the National Academy of Sciences, USA*** 107(48), 12547–12552 (2010).

10. Wenyan Liu, **Xing Wang**, Tong Wang, Ruojie Sha and Nadrian C. Seeman "PX DNA triangle oligomerized using a novel three-domain motif", ***Journal of Biomolecular Structure and Dynamics*** 26(6), 796–796 (2009).

9. Chenxiang Lin, Sherri Rinker, **Xing Wang**, Yan Liu, Nadrian C. Seeman and Hao Yan "In vivo cloning of artificial DNA nanostructures", ***Proceedings of the National Academy of Sciences, USA*** 105(46), 17626–17631 (2008).

8. Wenyan Liu, **Xing Wang**, Tong Wang, Ruojie Sha and Nadrian C. Seeman. "PX DNA triangle oligomerized using a novel three-domain motif", ***Nano letters*** 8(1), 317–322 (2008).

7. Chenxiang Lin, **Xing Wang**, Yan Liu, Nadrian C. Seeman and Hao Yan "Rolling circle enzymatic replication of a complex multi-crossover DNA nanostructure", ***Journal of the American Chemical Society*** 129(46), 14475–14481 (2007).

6. **Xing Wang** and Nadrian C. Seeman "Assembly and characterization of 8-arm and 12-arm DNA branched junctions", ***Journal of the American Chemical Society*** 129(26), 8169–8176 (2007).

5. Pamela E. Constantinou, Tong Wang, Jens Kopatsch, Lisa B. Israel, Xiaoping Zhang, Baoquan Ding, William B. Sherman, **Xing Wang**, Jianping Zheng, Ruojie Sha and Nadrian C. Seeman "Double cohesion in structural DNA nanotechnology", ***Organic and Biomolecular Chemistry*** 4(18), 3414–3419 (2006).

4. Ruojie Sha, Xiaoping Zhang, Shiping Liao, Pamela E. Constantinou, Baoquan Ding, Tong Wang, Alejandra V. Garibotti, Hong Zhong, Lisa B. Israel, **Xing Wang**, Gang Wu, Banani Chakraborty, Junghuei Chen, Yuwen Zhang, Hao Yan, Zhiyong Shen, Wanqiu Shen, Phiset Sa-Ardyen, Jens Kopatsch, Jiwen Zheng, Philip S. Lukeman, William B. Sherman, Chengde Mao, Natasha

Jonoska and Nadrian C. Seeman "Structural DNA nanotechnology: molecular construction and computation", ***International Conference on Unconventional Computation*** 20–31 (2005).

3. Li Liu, **Xing Wang** and Chaozhong Li "Deoligomerization: A new route to lactams from unsaturated amides via radical oligomerization", ***Organic Letters*** 5(3), 361–363 (2003).

2. Chao Yang, Yanping Shi, **Xing Wang** and Zhongjian Jia "Sesquiterpene lactone glycosides from Carpesium macrocephalum", ***Chinese Chemical Letters*** 13(3), 247–248 (2002).

1. Chao Yang, **Xing Wang**, Yanping Shi and Zhongjian Jia "Chemica constituents of the aerial parts of carpesium cernuun", ***Journal of Lanzhou University*** 38(4), 61–67 (2002).

PATENTS

- Specific Detection of Nucleic Acid Sequences Using Activate Cleave and Count (ACC) Technology, PCT/US2021/065804, Pending.
- Photonic resonator interferometric scattering microscopy, PCT/US2022/15023, Pending.
- Polynucleotide nanostructures for detecting viral infections and other diseases, PCT/US2021/059919, Pending.
- DNA nanoarchitectures for pattern-recognized targeting of diseases, PCT/US2020/033398, Pending.
- DNA origami nanoparticle delivery of programmed chromosome breakage machinery, PCT/US2018/067058, Pending.

SELECTED TALKS AND LECTURES

- "Nucleic acid engineering for cancer therapy", Invited talk at Yale Medical School, May 2024.
- "Nucleic acid engineering for viral diagnosis", Invited talk at Chemistry Department, Purdue University, October 2023.
- "Nucleic acid engineering for disease diagnosis and treatment", Invited lecture at Xi'an Jiaotong University, July 2023.
- "Nucleic acid engineering for disease diagnosis and treatment", Invited talk at Singapore Agency for Science, Technology and Research (A*STAR), July 2023.
- "Nucleic acid engineering for virus detection and inhibition", Invited talk at Hanoi University of Science and Technology, July 2023.
- "Recombinant dna technology", Invited lecture at VinUni Summer School, July 2023.
- "Nucleic acid engineering for disease diagnosis and treatment", Invited talk at Zhejiang University, June 2023.
- "Nucleic acid engineering for disease diagnosis and treatment", Invited talk at ZJUI and ZJE, June 2023.
- "Nucleic acid engineering for disease diagnosis and treatment", Invited Distinguished Lecture at Nanjing University, June 2023.
- "DNA Nets for Rapid and Sensitive Detection of the SARS-CoV-2 Virus", 23rd Annual Conference on Foundation of Nanoscience (FNANO), April 2023.
- "What's in my blood? Genomics Testing and You", Lectures, Osher Lifelong Learning Institute, University of Illinois at Urbana-Champaign, Spring 2023.
- "V-Pod and DNA net sensor for COVID-19 diagnostics", RADx usability introduction meeting, January 2023.

- "Designer DNA nanostructure for viral sensing and inhibition", Seeman Memorial Symposium, Department of Chemistry, New York University, December 2022.
- "Net-shaped DNA Nanostructures for Viral Sensing and Inhibition", Department of Cell and Cancer Biology, College of Medicine and Life Science, the University of Toledo, October 2022.
- "Nucleic Acids Engineering for Biosensing and Therapy", Guest lecture, UIUC-ECE 598: Advanced Biosensors, October 2022.
- "Designer DNA nanostructures for viral sensing and therapy", IGB Showcase Lightning Talk, Chicago, IL, September 2022.
- "Overview of Center for Pathogen Diagnostics Activities", ZJUI-UIUC DREMES Annual Workshop, September 2022.
- "Designer DNA Nanostructures for biosensing and medicine", Vinmec Healthcare System Workshop, July 2022.
- "Virus Sensing with Designer DNA Nanostructures", VinUni-Illinois Smart Health Center Workshop, July 2022.
- "Virus Sensing with Designer DNA Nanostructures", Guest lecture, UIUC-ECE/BioE 416: Biosensors, April 2022.
- "Rapid and sensitive viral diagnostics using DNA-Nets and V-Pod technologies", UIUC-IPOC Candidate Meeting, March 2022.
- "Rapid, ultrasensitive, and inexpensive virus sensing technology with designer DNA nanostructures", Mikashi Award Meeting, December 2021.
- "PEST-enabled precision medicine platform for viral diagnostics and therapeutics", 2021 TechConnect World Innovation Conference, October 2021.
- "Designer DNA nanostructures for virus sensing and inhibition", LSU School of Veterinary Medicine, October 2021.
- "Programming designer DNA nanostructures for sensing and inhibition of virus infection", Joint seminar at Institute of Bioengineering, Materials Research Institute, School of Biological and Chemical Sciences, Queen Mary University of London, October 2021.
- "Designer DNA net for SARS-CoV-2 detection and inhibition", Guest lecture, UIUC-ECE 598: Advanced Biosensors, October 2021.
- "Nucleic acids engineering for the detection of small molecules and biomarkers", Personalized Nutrition Initiative, UIUC, September 2021.
- "Designer DNA nanostructures for virus sensing and inhibition", Bioengineering Seminar, UIUC, August 2021.
- "V-Pod, A system for virus detection and contact tracing", RADx-rad FDA meeting, August 2021.
- "Viral sensing and inhibition with DNA star strategy", European Materials Research Society Spring Meeting, VIRTUAL Conference, June 2021.
- "Viral inhibition with DNA star strategy", Materials Research Society Spring Meeting and Exhibit, VIRTUAL Conference, April 2021.
- "Virus Sensing with Designer DNA Nanostructures", Guest lecture, UIUC-ECE/BioE 416: Biosensors, April 2021.
- "Viral sensing and inhibition with DNA star strategy", 20th Annual Conference on Foundation of Nanoscience (FNANO), VIRTUAL Conference, April 2020.

- "Viral sensing and inhibition with DNA star strategy", UIUC Chemistry Research Faculty Seminar, February 2020.
- "Development of DNA-based precision therapeutics", RNA Institute and Department of Chemistry, SUNY-Albany, 2019.
- "Development of nucleic acid-based precision therapeutics", Xi'an Jiaotong University Medical School, 2019.
- "Development of nucleic acid-based precision therapeutics", UIUC Micro and Nanotechnology Laboratory, 2019.
- "Start the deep understanding of DNA homologous pairing with a complex designer DNA motif", Invited talk at CUNY-Advanced Science Research Center, New York, NY, 2018.
- "Porphyrin-DNA based energy transfer arrays", Invited talk at International Conference on Advance Chemical Engineering, International Conference on Advanced Materials, 2018.
- "Non-coding RNA mediated gene editing: from simple eukaryotic to mammalian cells", Invited talk at Xi'an Jiaotong University, 2018.
- "The complex between a multi-crossover DNA nanostructure, PX-DNA, and T7 endonuclease I", Invited talk at The 7th International Conference on DNA Nanotechnology, 2018.
- "CRISPR-dCas9 based therapeutic strategy for chronic myelogenous leukemia (CML) treatment", Invited talk at International Conference on Applied Biochemistry and Biotechnology, 2018.
- "The role of paranemic crossover DNA in homologous DNA pairing", Invited talk at SUNY-Binghamton, 2018.
- "The complex between a multi-crossover DNA nanostructure, PX-DNA, and T7 endonuclease I", Invited talk at FNANO conference, 2018.
- "In vitro selection of polysaccharides specific RNA aptamers", Poster at FNANO conference, 2018.
- "Synthesis and characterization of porphyrin-DNA constructs for the self-assembly of modular energy transfer arrays", Poster at FNANO conference, 2018.
- "ssDNA nucleotides analysis by tip-enhanced Raman scattering", Poster at Winter Colloquium on the Physics of Quantum Electronics, 2018.
- "Synthesis and characterization of porphyrin-DNA constructs for the self-assembly of modular energy transfer arrays", Talks at RPI-CMDIS Fall Symposium and East NY ACS meeting, 2017 and 2018.
- "Synthesis and characterization of porphyrin-DNA constructs for the self-assembly of modular energy transfer arrays", Posters at RPI-CBIS High School Scholar Program and 11th IEEE Nanotechnology Symposium, 2018.
- "In vitro selection of polysaccharides specific RNA aptamers", Poster at RPI-cMDIS Fall Symposium, 2017.
- "DNA templated regulation of stem cell differentiation", Poster at RPI-CBIS High School Scholar Program, 2016.
- "The complex between a multi-junction DNA motif, PX-DNA, and T7 endonuclease I", Poster at RPI Summer URP Award, 2016.
- "Energy transfer machinery assembled on DNA", Poster at CBIS URP Program, 2016.
- "PX-DNA: the molecular basis for homologous pairing", Invited talks at National Center for Nanoscience and Technology (China), 2015.
- "Chromosome fusions triggered by noncoding RNA", Talk at AACR Special Conference: Translation of the Cancer Genome, 2015.

- "Applications of novel DNA origami nanostructures in biology", Invited talk at Shaanxi Normal University (China), 2014.
- "The long and the short of it, RNA mediated genome engineering", Invited talk at RPI Biology Department, 2014.
- "From programming synthetic DNA to manipulating genomes", Invited talks at RPI Chemistry Department, CUNY Chemistry Department, USF Chemistry Department and UCF Nanotechnology Center, 2013.

PH.D. STUDENT SUPERVISION

- Linh Le (2023-): Bioengineering graduate student.
- Mehzabin Morshed (2023-): Bioengineering graduate student.
- Dhanush Gandavadi (2022-): Bioengineering graduate student.
- Lucas Akin (2021-): Chemistry graduate student, co-advised with Prof. Brian Cunningham.
- Neha Chauhan (2016-2021): IGB Postdoc Scholar in Xingw Group. Now Senior Research Scientist, Secant Group
- Megan Kizer (2016-2019): 2018 Slezak Memorial Fellowship, 2018 Founders Award of Excellence awardee, 2019 Walter H. Bauer Doctoral Prize in Chemistry, NIH Postdoc Scholar at MIT. Now Assistant Professor at Chemistry of Brown University.
- Nate Anderson (2015-2018): 2017 Slezak Memorial Fellowship awardee. Now Research Scientist at Intel.

POSTDOC SCHOLAR SUPERVISION

- Dr. Lifeng Zhou (2021-2023): Now Assistant Professor, Department of Advanced Manufacturing and Robotics, Peking University
- Dr. Tingjie Song (2021-):
- Dr. Neha Chauhan (2021-2022): Now Senior Research Scientist, Secant Group
- Dr. Abhisek Dwivedy (2021-):
- Dr. Saurabh Umrao (2022-): Mistletoe Research Fellow
- Dr. Wei Hong (2022-):
- Dr. Mengxi Zheng (2022-):
- Dr. Tu Phan (2023-):

MASTER STUDENT SUPERVISION

- Myoung Keun Koh (2023-)
- Addison Adrian (2020-2022): Now scientist at Epic Systems Corp.
- Kara Jimcosky (2018-2019)

UNDERGRADUATE STUDENT RESEARCH SUPERVISION

- Tionna Tapaha (Navajo Technical University): 2023
- Essie Yazzie (Navajo Technical University): 2023
- Linh Le (vinUni): 2022-2023
- Keya Patel (UIUC-BIOE): 2022-
- Zhongqi Wu (ZJUI-ECE): 2022-
- Shixin Chen (ZJUI-ECE): 2022-
- Zheng Fang (ZJUI-ECE): 2022-
- Katy Wolhaupter (UIUC-BIOE): 2022
- Zhicong Chen (RPI-Chemistry and Chemical Biology): 2018
- Kun Qian (RPI-Chemical and Biological Engineering): 2018
- Jean-Pierre Rubet (RPI-Chemistry and Chemical Biology): 2017-2018
- Karen Zhu (RPI-Albany Medical School MD program): 2016-2019
- Wan-Na Chun (RPI-Chemistry and Chemical Biology): 2016-2018
- Kopal Jain (RPI-Biomedical Engineering): 2016-2017
- Samuel Trevenen (RPI-Chemical and Biological Engineering): 2015-2017 (PHD student at Polymer Science Program, UMass-Amherst).
- Ian Huntress (RPI-Computer Science and Bioinformatics program):2015-2016 (PHD student at NC State University).
- Ian Park (RPI-Biology): 2015-2019
- Barry Li (RPI-Chemical and Biological Engineering): 2015
- Shuhui Chen (RPI-Biochemistry and Biophysics): 2014-2016 (PHD student at New York University).
- Taylor MacEwen (RPI-Biomedical Engineering): 2015
- Nicole Busa (RPI-Biomedical Engineering): 2014-2015
- Michael Milazzo (RPI-Chemistry and Chemical Biology): 2014-2015
- Kyle McHugh (RPI-Chemistry and Chemical Biology): 2014-2015 (PHD student at SUNY-Albany).
- Konane Bay (RPI-Materials Science Engineering): 2014 (PHD student at UMass-Amherst, now an assistant professor at UC Boulder).

HIGH-SCHOOL STUDENT RESEARCH SUPERVISION

- Jeffrey Wang (Clifton park High School): 2016-2017
- Richa Patel (Shenendehowa High School): 2016-2017
- Hannah Lang (Emma Willard School): 2015-2016
- Aaron Zhang (Albany Shaker High): 2015

VISITING SCHOLAR

- Prof. Dr. Jinwei Duan (2018-2019): Chang'an University, China.
- Prof. Dr. Peiqin Li (2015-2016): Northwest Agriculture and Forestry University, China.
- Paul Kwon (2020-2021): Johns Hopkins University.

RESEARCH COMMITTEE

- Weijing Wang (UIUC-BIOE), 2023-
- Mark Tarabey (UIUC-BIOE), 2023-
- Junyu Chen (UIUC-BIOE), 2023-
- Liliana Khaertdinova (UIUC-BIOE), 2023-
- Daniel Nguyen (UIUC-BIOE), 2023-
- Yuqing Mao (UIUC-CEE), 2022-
- Xiaoxue Han (UIUC-BIOE), 2022-
- Amanda Bacon (UIUC-BIOE), 2022-
- Matthew Wester (UIUC-BIOE), 2022-
- Sneha Gopal, PhD (RPI-CHEB), 2018-2021
- Somdatta Bhattacharya, PhD (RPI-CHEB), 2018-2020
- Xue Wang, PhD (RPI-CHEM), 2018-2020
- Ignas Gaska, PhD (RPI-BIO), 2017-2020
- Anna Smallwood, PhD (RPI-CHEM), 2017-2020
- Taylor Sweet, PhD (RPI-CHEM), 2016-2018
- Xiaorui Han, PhD (RPI-CHEM), 2016-2019
- Casey Fong, PhD (RPI-CHEM), 2015-2019
- Courtney Walton, PhD (RPI-CHEM), 2016-2019
- Ni Zhang, PhD (RPI-CHEM), 2015-2018
- Ranodhi Udangawa, PhD (RPI-CHEM), 2015-2018
- Wyatt Stevens, PhD (RPI-CHEM), 2015-2019
- Fei Liu, PhD (RPI-CHEM), 2014-2018

TEACHING

- Biotechnology - Principles, Tools, and Applications (Spring 2024).
- Guest Lecture, Biomaterials (Fall 2023).
- Lecture, Osher Lifelong Learning Institute (Spring 2023).
- Guest Lecture, Advanced Biosensors (Fall 2022, Fall 2021).
- Guest Lecture, Biosensors (Spring 2022, Spring 2021).

- Nucleic Acids Engineering in Bionanotechnology (Spring 2019).
- Bionanotechnology (Spring 2018, Spring 2017).
- General Chemistry (Fall 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016, Fall 2015, Spring 2015).
- Chemistry Seminar (Spring 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016, Fall 2015, Spring 2015, Fall 2014).

ACADEMIC SERVICE

- The Grainger College of Engineering Award Committee, UIUC, 2023-
- University Information Technology Committee, UIUC, 2023-
- University Faculty Senate, UIUC, 2023-
- Departmental Seminar Committee, UIUC Bioengineering Department, 2023-
- Ad hoc reviewer for Strategic Research Initiative (SRI) Phase 2 proposals, UIUC Grainger College of Engineering, 2023
- Graduate Admission Committee, UIUC Bioengineering Department, 2022-
- Graduate Admission Committee Member, RPI Chemistry and Chemical Biology Department, 2015-2019.
- Academic Advisor for 30 Undergraduates, RPI Chemistry and Chemical Biology Department, 2014-2019.
- Undergraduate Curriculum Committee, RPI Chemistry and Chemical Biology Department, 2014-2019.
- Undergraduate Recruitment Committee, RPI Chemistry and Chemical Biology Department, 2015-2019.
- Faculty advisor, Rensselaer Chemistry Society (RCS, ACS accredited UG student organization), 2014-2019.
- Department Safety Committee, RPI Chemistry and Chemical Biology Department, 2015-2019.
- Faculty Search Committee, Alan Schultz Developmental Chair Faculty, RPI Chemistry and Chemical Biology Department, 2015-2016.
- Faculty Judge, Undergraduate Student Research Symposium, 2014-2019.
- Faculty Judge, RPI Summer Undergraduate Research Program Award, 2015-2019.