Prashant K. Jain

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PERSONAL INFORMATION

Naturalized US Citizen

CURRENT POSITION

University of Illinois - Urbana Champaign, IL
G.L. Clark Professor of Physical Chemistry and Professor of Chemistry
Associate Head of Undergraduate Instruction
Professor of the Materials Research Lab
Faculty Affiliate, Department of Physics
Faculty Affiliate, Illinois Quantum Information Science and Technology (IQUIST) Center
Senior Editor, The Journal of Physical Chemistry

EDUCATION

2003-07 **Georgia Institute of Technology** - Atlanta, GA
Doctor of Philosophy in Physical Chemistry; Minor in Materials Science & Engineering
GPA:4.0; Best Chemistry PhD Student Award

1999-03 **Institute of Chemical Technology (UICT)** - Mumbai, India
B. Tech with Honors in Polymer Engineering
First Class with Distinction; Top-ranked of ∼140 students over 4 years

ACADEMIC POSITIONS HELD

2022-2025 **University of Illinois** - Urbana Champaign, IL
University Scholar

2020-2022 **University of Illinois** - Urbana Champaign, IL
Alumni Research Scholar, Department of Chemistry

2020-2023 **University of Illinois** - Urbana Champaign, IL
Professor, Beckman Institute for Advanced Science and Technology

2018-2021 **University of Illinois** - Urbana Champaign, IL
Richard and Margaret Romano Scholar, Department of Chemistry

2017-2020 **University of Illinois** - Urbana Champaign, IL
Associate Professor (Tenured), Department of Chemistry

2018-2020 **University of Illinois** - Urbana Champaign, IL
Associate Professor (Tenured), Materials Research Lab

2019-2020 **University of Illinois** - Urbana Champaign, IL
Associate Professor (Tenured), Beckman Institute for Advanced Science and Technology

2017-2018 **University of Illinois** - Urbana Champaign, IL
I. C. Gunsalus Scholar, College of Liberal Arts and Sciences

2013-2017 **University of Illinois** - Urbana Champaign, IL
Assistant Professor, Materials Research Laboratory

2011-2019 **University of Illinois** - Urbana Champaign, IL
Faculty Affiliate, Beckman Institute for Advanced Science and Technology

2011-2017 **University of Illinois** - Urbana Champaign, IL
Assistant Professor, Department of Chemistry

2009-2011 **Miller Fellow, University of California** - Berkeley, CA
Host: A. Paul Alivisatos, Dept. of Chemistry
Research focus: Interfacing semiconductor quantum dots and plasmonics

2008-2008 **Postdoctoral Fellow, Harvard University** - Cambridge, MA
Adviser: Adam E. Cohen, Dept. of Chemistry & Chemical Biology and of Physics
Research focus: Nanoscale magneto-optics & chiro-optics

2004-2007 **Graduate Researcher, Georgia Institute of Technology** - Atlanta, GA
Adviser: Mostafa A. El-Sayed, Director, Laser Dynamics Laboratory
Doctoral dissertation: Plasmons in assembled metal nanostructures, Defended Jan 2008

SCIENTIFIC ADVISORY ROLES

2014-20 **Sebacia Inc, Duluth, GA**
Scientific advisor

2017-18 **Clean Science and Technology Pvt. Ltd., Pune, India**
Scientific consultant

2014-17 **Fuel Technology Solutions Group, Ft. Lauderdale, FL**
Scientific advisor for facilitation of technology transfer

EXPERT ROLES

2017 Patent Expert Witness for US Patent on nanoparticles for photothermal therapy

2017 Patent Expert for European Patent Application on nanoparticles for photothermal therapy

LEADERSHIP AND SERVICE ON BOARDS AND PANELS

- Senior Editor (2026-) - The Journal of Physical Chemistry, American Chemical Society
- Illinois Expert (2024) - United Nations Climate Change Conference (COP29), Illinois Expert available for comment on climate solutions and environmental challenges
- Editorial Advisory Board Member (2024-26) - The Journal of Chemical Physics, American Institute of Physics
- Editorial Advisory Board Member (2024-) - Journal of the American Chemistry Society, American Chemical Society
- Guest Editor (2022-24) - The Journal of Physical Chemistry, Virtual Special Issue (VSI) on Hot Electrons in Catalysis
- Editorial Advisory Board Member (2019-2021) - The Journal of Physical Chemistry, American Chemical Society
- Guest Editor (2021-2023) - The Journal of Chemical Physics, Special Issue on Plasmonically Powered Energy Conversion

- Guest Editor (2020) - Proceedings of the National Academy of Sciences
- Editorial Advisory Board (2013-19) - Nanospectroscopy, De Gruyter publishing
- United States Funding Agencies and Institutes: AFOSR, ACS-PRF, NSF MSN, NSF DMR MMN, NSF SSMC, NSF CMI, NSF Surface Chemical Catalysis, W. M. Keck Foundation, DOE BES, DOE BES CEM, DOE CPIMS, DOE Catalysis Science, Davidson Institute, Lawrence Berkeley National Lab Molecular Foundry Review Panel, UIUC OVCR, UIUC Campus Special Programs, Research Corporation for Science Advancement Cottrell Scholars program, University of Illinois System I-MMAS program, Tezpur University
- International Funding Agencies: ETH Zurich Research Commission, DFG Germany, Poland National Science Center, New Zealand Ministry of Science and Innovation, Austrian Science Fund, Heinz Foundation, Portuguese Foundation for Science and Technology, Research Grants Council (RGC) of Hong Kong, Govt. of Hong Kong Special Administrative Unit, Excellence Initiative for the site Bourgogne Franche-Comt of France, Aix-Marseille University Excellence Initiative, Domain Science of the Netherlands Organization for Scientific Research (NWO), Science Foundation Ireland, Instituto Serrapilheira Brazil, Japan Society for the Promotion of Science, Czech Science Foundation, King Abdullah University of Science and Technology, University of Sharjah

LEADERSHIP ROLES AT UNIVERSITY

2024- **University of Illinois** - Urbana Champaign, IL
Associate Head of Undergraduate Instruction, Department of Chemistry

2024-26 **University of Illinois** - Urbana Champaign, IL
Advisory Committee, Department of Chemistry

2021-23 **University of Illinois** - Urbana Champaign, IL
Advisory Committee, Department of Chemistry

2021- **University of Illinois** - Urbana Champaign, IL
Diversity Advocate for Faculty Hiring and Promotions, Department of Chemistry

2020- **University of Illinois** - Urbana Champaign, IL
Member of the Staff Committee for Faculty Hiring and Promotion, Department of Chemistry

2018-20 **University of Illinois** - Urbana Champaign, IL
Associate Head of Major Projects, Department of Chemistry

2013-19 **University of Illinois** - Urbana Champaign, IL
Chemical Physics PhD Program Chair

2017-18 **University of Illinois** - Urbana Champaign, IL
Physical Chemistry Area Head

Fall 2017 **University of Illinois** - Urbana Champaign, IL
Chair of Search Committee, School of Chemical Sciences Financial Analyst

2013-14 **University of Illinois** - Urbana Champaign, IL
Vice-Chair of Graduate Admissions

TEACHING AWARDS AND RECOGNITION

2024 Campus Award for Excellence in Undergraduate Teaching

2024 LAS Dean's Award for Excellence in Undergraduate Teaching

2011-25 UIUC List of Teachers Ranked as Excellent by Their Students
(Fa'12, 15, 16, 19, 21, 22, 24; Sp'14, 15, 18, 20, 21, 24 for 14 of 19 eligible course assignments)

2019-20 UIUC Outstanding Teachers (Fa'19, Sp'20, Fa'22, & Fa'24)

2015 School of Chemical Sciences Faculty Teaching Award

RESEARCH AWARDS AND RECOGNITION

2025 Craver Award

2025 NSF I-ADVANCE Faculty Fellow

2024 Chemistry Discovery Fund Award

2024 Honor Initiate, 57th Biennial Conclave of Alpha Chi Sigma

2023 Akron American Chemical Society (ACS) award

2023 Endowed G. L. Clark Professor

2022 Elected Fellow of the American Physical Society

2022 Guggenheim Fellowship, John Simon Guggenheim Memorial Foundation

2022 Chemist Featured by NSF for Asian American and Pacific Islander Heritage Month

2022 University Scholar

2022-23 UIUC Center for Advanced Study Associate

2022 Kavli Fellow, National Academy of Sciences

2021 Leo Hendrik Baekeland Award, American Chemical Society, North Jersey Section

2020 Elected Fellow of the American Association for the Advancement of Science (AAAS)

2020, 21,&23 Blavatnik National Award for Young Scientists Finalist Medal

2019-23 Top 2% in World Ranking of Scientists in Stanford study of citation indicators

2020 Science News Magazine Ten Scientists to Watch (SN10)

2020 Alumni Research Scholar

2020 Campus Distinguished Promotion Award, UIUC

2019 Presidential Early Career Award in Science and Engineering (PECASE)

2019 Beilby Medal and Prize, Royal Society of Chemistry, IOM3, and SCI

2021-24 Defense Science Study Group

2018 Highly Cited Researchers, Clarivate Analytics Web of Science

2018 Fellow of the Royal Society of Chemistry

2018 Chemistry Discovery Fund Award

2018 Richard and Margaret Romano Professorial Scholar

2017 Kavli Emerging Leader in Chemistry and Lectureship, ACS

2017 Campus Distinguished Promotion Award, UIUC

2017	American Vacuum Society Prairie Chapter Early Career Award
2017-18	I. C. Gunsalus Scholar
2017	UIUC Center for Advanced Study Beckman Fellow
2017	Selected as one of 2017 Emerging Investigators by Journal of Materials Chemistry
2016	Most Cited Researchers in ChemE as per Elsevier Scopus 2016
2016-17	Institute of Chemical Technology Alumni Association Young Achiever Award (declined)
2015	National Science Foundation CAREER Award
2015	Journal of Physical Chemistry C Lectureship Award
2015, 16, 17	3M Nontenured Faculty Award
2014	American Chemical Society Petroleum Research Fund Doctoral New Investigator Award
2014	Arnold and Mabel O. Beckman Foundation Young Investigator Award
2014	Alfred P. Sloan Research Fellowship
2013	Golden Jubilee Visiting Fellowship, Institute of Chemical Technology
2013	IChemE Energy Award, Highly Commended Technology
2013	DuPont Young Professor Award
2013	National Academy of Engineering, US Frontiers Engineer
2013	Unilever Award for Outstanding Young Investigator - ACS Colloid & Surface Chemistry Division
2013	National Academy of Engineering Educate-to-Innovate Program Innovator
2013	Google Solve for [X] Moonshot Thinkers/Speakers
2012	MIT Technology Review TR35: Top 35 innovators under 35
2012-13	IACAT Faculty Fellowship, National Center for Supercomputing Applications
2012	Cottrell Scholars Collaborative New Faculty Workshop
2008-11	Miller Fellowship of the University of California at Berkeley
2008	Atlanta Area Chemical Physics (AACP) Prize and Lecture
2007	Gold Award for Graduate Students, Materials Research Society
2007	Georgia Tech CoS Recognition for Outstanding Chemistry Graduate Student
2006	Best Chemistry PhD Student Award, Georgia Tech
2006	ACS Physical Chemistry Outstanding Poster Award
2006	ACS Graduate Student Symposium Planning Committee Scholarship
2005	Elected to Full Membership, Sigma Xi
2003-06	University of Mumbai Sir Mangladas Nathubai Doctoral Research Abroad Fellowship
2003	Lotus Trust Doctoral Scholarship, Mumbai
2003	American Alumni Association Study-Abroad Grant Award, Mumbai

2001&02 UICT B. Tech Merit Prize

2002 Sohrab and Coomi Mistry Foundation Prize, UICT

2001 L.V. Pitre Prize, UICT

2000&01 Polymer Technology Departmental Scholarship, UICT

1996 Homi Bhabha Young Scientist Title and Gold Medal, Mumbai

RESEARCH PROGRAM

- **Photosynthesis and Energy Conversion**: Using photons and plasmons for multielectron chemistry, synthesis of fuels and energetic chemicals, and accessing new catalytic pathways.
- **Catalysis**: Discovering active sites and reaction pathways of catalysts by super-resolution imaging.
- **Nanoscience**: Unconventional excitations, phases, and transport in nanostructures.

REPRESENTATIVE RECENT PUBLICATIONS
(out of 124, ∼36,400 citations, h = 62, * = corresponding author)

1. Y. Kim, J. G. Smith, and **P. K. Jain***, Harvesting multiple electron-hole pairs generated via plasmonic excitation of Au nanoparticles, *Nature Chemistry*, **2018**, 10 (7), 763-769.
2. S. Yu and **P. K. Jain***, Plasmonic photosynthesis of C_1-C_3 hydrocarbons from carbon dioxide assisted by an ionic liquid, *Nature Communications*, **2019**, 10, 2022.
3. E. Contreras (co-first), R. Nixon (co-first), C. Litts, W. Zhang, F. M. Alcorn, and **P. K. Jain***, Plasmon-assisted ammonia electrosynthesis, *Journal of the American Chemical Society*, **2022**, 144 (24), 10743-10751.
4. D. Devasia, A. J. Wilson, J. Heo, V. Mohan, and **P. K. Jain***, A rich catalog of C-C bonded species formed in CO_2 reduction on a plasmonic photocatalyst, *Nature Communications*, **2021**, 12, 2612.
5. S. L. White (co-first), P. Banerjee (co-first), and **P. K. Jain***, Liquid-like cationic sub-lattice in copper selenide clusters, *Nature Communications*, **2017**, 8, 14514.
6. S. Yu, A. J. Wilson, J. Heo, and **P. K. Jain***, Plasmonic control of multi-electron transfer and C-C coupling in visible-light-driven CO_2 reduction on Au nanoparticles, *Nano Letters*, **2018**, 18 (4), 2189-2194.
7. F. M. Alcorn, S. K. Giri, M. Chattoraj#, R. Nixon, G. C. Schatz*, and **P.K.Jain***, Switching of electrochemical selectivity due to plasmonic field-induced dissociation, *Proceedings of the National Academy of Sciences*, **2024**, 121 (41), e2404433121.
8. X. Zhang, G. Kumari, J. Heo, and **P. K. Jain***, In-situ formation of catalytically active graphene in ethylene photo-epoxidation, *Nature Communications*, **2018**, 9, 3056.
9. J. Heo, D. Dumett Torres, P. Banerjee, and **P. K. Jain***, In-situ electron microscopy mapping of an order-disorder transition in a superionic conductor, *Nature Communications*, **2019**, 10, 1505.
10. G. Kumari, X. Zhang, D. Devasia, J. Heo, and **P. K. Jain***, Watching visible light-driven CO_2 reduction on a plasmonic nanoparticle catalyst, *ACS Nano*, **2018**, 12 (8), 8330-8340.
11. S. White, J. G. Smith, M. Behl, and **P. K. Jain***, Co-operativity in a nanocrystalline solid-state transformation, *Nature Communications*, **2013**, 4, 2933.
12. M. Behl, J. Yeom, Q. Lineberry, **P. K. Jain***, and M. Shannon, A regenerable oxide-based hydrogen sulfide adsorbent with nanofibrous morphology, *Nature Nanotechnology*, **2012**, 7 (12), 810-815.

FULL LIST OF PUBLICATIONS IN PEER-REVIEWED JOURNALS
(∼36,400 citations, h = 62, * = corresponding author, # = UG author)

1. T. Yuan, S. Brasel, K. Shiratori, A. Chakraborty, **P. K. Jain***, S. A. Lee,* and S. Link*, Untangling energy-dependent radiative, non-radiative, and chemical interface damping in gold nanorods, **2025**, submitted.

2. L. D. Germano, S. K. Giri, C. A. Litts, F. M. Alcorn, G. C. Schatz*, S. I. C. de Torresi*, and **P. K. Jain***, Plasmon-assisted electrochemical epoxidation using water as an oxidant, *Journal of the American Chemical Society*, **2025**, under revisions.

3. D. Gokhale, **P. K. Jain**, and X. Su*, Identifying practical low-efficiency applications for photoelectrochemical technology in separations, *Nature Communications*, **2024**, 16, 7284.

4. F. M. Alcorn* and **P. K. Jain***, Identification of the glassy state in nanoparticles by transmission electron microscopy, *Nature Materials*, **2025**, 24, 980-982.

5. A. Asserghine, A. Baby, J. NDiaye, A. I. B. Romo, S. Das, C. A. Litts, **P. K. Jain**, and J. Rodrguez-Lpez*, Dissolved oxygen redox as the source of hydrogen peroxide and hydroxyl radical in sonicated emulsive water microdroplets, *Journal of the American Chemical Society*, **2025**, 147 (14), 11851-11858.

6. Bovine-hemoglobin detection by single-particle plasmon-coupled circular dichroism, O. Verma, S. Adhikari, A. Chakraborty, **P. K. Jain***, and S. Link*, *Nano Letters*, **2025**, 25 (21), 84808487.

7. F. M. Alcorn, S. K. Giri, M. Chattoraj#, R. Nixon, G. C. Schatz*, and **P.K.Jain***, Switching of electrochemical selectivity due to plasmonic field-induced dissociation, *Proceedings of the National Academy of Sciences*, **2024**, 121 (41), e2404433121.
   Direct submission by PI Jain
   UIUC News Bureau press release: Visible light energy yields two-for-one deal when added to CO_2 recycling process
   Featured in Dutch magazine New Scientist: Licht versnelt de omzetting van CO_2 in nieuwe producten
   Featured in Science Daily, Eureka Alert, and other science news media

8. A. Stefancu, J. Aizpurua, I. Alessandri, I. Bald, J. Baumberg, L. Besteiro, P. Christopher, M. Correa-Duarte, B. de Nijs, A. Demetriadou, R. Frontiera, T. Fukushima, N. Halas, **P. K. Jain**, Z. H. Kim, D. Kurouski, H. Lange, J.-F. Li, L. Liz-Marzan, I. T. Lucas, A. Meixner, K. Murakoshi, P. Nordlander, W. Peveler, R. Quesada-Cabrera, E. Ringe, G. Schatz, S. Schlucker, Z. Schultz, E.Tan, Z.-Q. Tian, L. Wang, B. Weckhuysen, W. Xie, X. Ling Yi, J. Zhang, Z. Z. Zhao, R.Y. Zhou, and E. Cortes*, Impact of surface-enhanced Raman scattering in catalysis, *ACS Nano*, **2024**, 18 (43), 2933729379.
   Invited Perspective article

9. Y. Sun,* K. Wang, X. Huang, S. Wei, E. Contreras, **P. K. Jain**, L. M. Campos, H. J. Kulik,* and J. S. Moore*, Caged AIEgens: Multi-color and white emission triggered by mechanical activation, *Journal of the American Chemical Society*, textbf2024, 146 (39), 2711727126.
   ACS Editors' Choice
   Among most read article of the journal as per Oct 2024 list

10. C. A. Litts and **P.K.Jain***, Hydrogen evolution from a spurious source, *ACS Energy Letters*, **2024**, 9 (6), 27362738.
    Invited Viewpoint article

11. R. J. Maurer and **P.K.Jain***, Hot electrons in catalysis, *Journal of Physical Chemistry C*, **2024**, 128 (5), 18631866.
    Editorial for Virtual Special Issue on Hot Electrons in Catalysis

12. **P.K.Jain***, Solving the LK-99 puzzle, *Matter*, **2023**, 6 (12), P41184120.
    Invited 'Matter of Opinion' article
    Featured in Editorial (Matter, 2023, 6 (12), P41074110, https://doi.org/10.1016/j.matt.2023.11.011)

13. **P. K. Jain***, Superionic phase transition of copper*I* sulfide and its implication for purported superconductivity of LK-99, *Journal of Physical Chemistry C*, **2023**, 127 (37), 1825318255.
Invited viewpoint article
Topmost read article of the journal in Sep and Oct 2023 and among top 20 of the year
Preprint on arXiv: arXiv:2308.05222v3
Featured in Nature news article: LK-99 isnt a superconductor how science sleuths solved the mystery
Featured in Ars Technica magazine: The room-temperature superconductor that wasnt
Featured in Scinexx das wissensmagazin: Raumtemperatur-Supraleiter ist keiner link
Featured on Techspot: Worldwide scientific collaboration finds LK-99 is not a room-temperature superconductor
Featured in Portuguese national newspaper Publico: Como a Internet ajudou a resolver o mistrio do LK-99, o falso superconductor
Featured in the Istanbul Chronicle: Understanding superconductivity: Between revolution and scam LK-99
Featured by Chemistry at UIUC: Prashant Jain helps unravel LK-99 superconductor mystery
Featured on tech blogs, magazines, and news sites in US, Korea, China, Germany, France, Slovakia, Brazil, Turkey, Portugal, & others

14. **P. K. Jain***, Z. H. Kim, D. D. Wei, The physics of plasmon-driven energy conversion, *The Journal of Chemical Physics*, **2023**, 159, 070401.
Guest editorial for special issue on plasmon-driven energy conversion

15. G. P. Wiederrecht*, R. Bachelot*, H. Xiong, K. Termentzidis, A. Nomin, J. Huang, P. V. Kamat, E. A. Rozhkova, A. Sumant, M. Ostraat, **P. K. Jain**, C. Heckle, J. Li, and K. Z. Pupek, Nanomaterials and sustainability, *ACS Energy Letters*, **2023**, 8 (8), 34433449.
Invited Energy Focus article

16. F. M. Alcorn, M. Chattoraj#, R. M. van der Veen, and **P. K. Jain***, Watching plasmon-induced nanoparticle Ostwald ripening, *Journal of Physical Chemistry C*, **2023**, 127 (33), 1653816544.
Invited article for virtual special issue on hot electrons in catalysis

17. F. M. Alcorn, R. M. van der Veen*, and **P. K. Jain***, In situ electron microscopy of transformations of Cu nanoparticles under plasmonic excitation, *Nano Letters*, **2023**, 23 (14), 65206527.
Among most accessed articles of the journal in the month of Aug 2023.

18. R. Nixon (co-first), E. Contreras (co-first), and **P. K. Jain*** Electrochemistry with plasmons, *Trends in Chemistry*, **2023**, 5 (8), 605-619.
Invited Review for Special 4th Anniversary Issue

19. F. M. Alcorn, **P. K. Jain***, and R. M. van der Veen*, Time-resolved transmission electron microscopy for nanoscale chemical dynamics, *Nature Reviews Chemistry*, **2023**, 2023, 7, 256272.

20. **P. K. Jain***, Primary role of photothermal heating in light-driven reduction of nitroarenes, *Nature Nanotechnology*, **2023**, 18 (6), 326-327.

21. R. Wan, S. Liu, Y. Wang, Y. Yang, Y. Tian, **P. K. Jain***, and X. Kang*, Hot carrier lifetimes and electrochemical water dissociation enhanced by nickel doping of a plasmonic electrocatalyst, *Nano Letters*, **2022**, 22 (19), 7819-7825.

22. K.-H. Cho and **P. K. Jain***, Superionic conduction in one-dimensional nanostructures, *ACS Nano*, **2022**, 16 (8), 12445-12451.

23. E. Contreras (co-first), R. Nixon (co-first), C. Litts, W. Zhang, F. M. Alcorn, and **P. K. Jain***, Plasmon-assisted ammonia electrosynthesis, *Journal of the American Chemical Society*, **2022**, 144 (24), 10743-10751.
Featured in Nature Energy article: Illuminating electrocatalysis, Nature Energy, 2022, 7, 568.

24. K.-H. Cho, F. M. Alcorn, J. Heo, and **P. K Jain***, Plasmon resonances and structures of chalcogenide alloy nanocrystals, *Chemistry of Materials*, **2022**, 34, 11, 4992-4999.

25. S. B. Ramakrishnan, F. Mohammadparast, A. P. Dadgar, T. Mou, T. Le, B. Wang, **P. K. Jain**, and M. Andiappan*, Photoinduced electron and energy transfer pathways and photocatalytic mechanisms in hybrid plasmonic photocatalysis, *Advanced Optical Materials*, **2021**, 9 (21), 2101128.
Featured in Hot Topics: Surfaces and Interfaces

26. D. Devasia and **P. K. Jain***, Stochastic noise in single-nanoparticle catalysis, *Journal of Physical Chemistry C*, **2021**, 125 (32), 17734-17741.

27. V. Mohan, B. Dutta R. Ripani#, and **P. K. Jain***, Room-temperature catalyst-free methane chlorination, *Cell Reports Physical Science*, **2021**, 2 (9), 100545.
US patent awarded

28. D. Devasia, A. J. Wilson, J. Heo, V. Mohan, and **P. K. Jain***, A rich catalog of C-C bonded species formed in CO_2 reduction on a plasmonic photocatalyst, *Nature Communications*, **2021**, 12, 2612.
UIUC News Bureau press release: Light-harvesting nanoparticle catalysts show promise in quest for renewable carbon-based fuels
Editors' highlight on Catalysis
Featured on Eureka Alert and other science media

29. V. Mohan, E. Wu#, J. Heo, A. Das, and **P. K. Jain***, Synergistic photochemistry of alcohols catalyzed by plasmonic nanoparticles and a metal complex, *ACS Energy Letters*, **2021**, 6 (5), 1980-1989.

30. J. Heo, K.-H. Cho, and **P. K. Jain***, Motion of defects in ion-conducting nanowires, *Nano Letters*, **2021**, 21 (1), 556-561.

31. A. Laucht*, F. Hohls, N. Ubbelohde, M. F. Gonzalez-Zalba, D. J. Reilly, S. Stobbe, T. Schrder, P. Scarlino, J. V. Koski, A. Dzurak, H. Yang, J. Yoneda, F. Kuemmeth, H. Bluhm, J. Pla, C. Hill, J. Salfi, A. Oiwa, J. Muhonen, E. Verhagen, M. LaHaye, H. H. Kim, A. W. Tsen, D. Culcer, A.Geresdi, J. A. Mol, V. Mohan, **P. K. Jain** and J. Baugh, Roadmap on quantum nanotechnologies, *Nanotechnology*, **2021**, 32 (16), 162003.
Invited contribution
Posted on arXiv as arXiv:2101.07882v1 [cond-mat.mes-hall].
Top ten most read articles of the journal as per Mar 2021 list
Most read article of the journal as per Apr 2021 list

32. D. Devasia, A. Das, V. Mohan, and **P. K. Jain***, Control of chemical reaction pathways by light-matter coupling, *Annual Review of Physical Chemistry*, **2021**, 72, 423-443.
Invited review article

33. D. Dumett Torres and **P. K. Jain***, Ab initio investigation of cooperativity in ion exchange, *Journal of Physical Chemistry C*, **2020**, 124 (46), 25615-25620.

34. S. Yu and **P. K. Jain***, Isotope effects in plasmonic photosynthesis, *Angewandte Chemie International Edition*, **2020**, 59 (50), 22480-22483.
Featured under Hot Topic: Carbon Dioxide

35. A. J. Wilson and **P. K. Jain***, Light-induced voltages in catalysis by plasmonic nanostructures, *Accounts of Chemical Research*, **2020**, 53 (9), 1773-1781.
Invited account for Special Issue on Transformative Inorganic Nanocrystals Most read account of journal as per Sep 2020 list

36. J. Wang, J. Heo, C. Chen, A. J. Wilson, and **P. K. Jain***, Ammonia oxidation enhanced by photopotential generated by plasmonic excitation of a bimetallic electrocatalyst, *Angewandte Chemie International Edition*, **2020**, 59 (42), 18430-18434.
Hot Paper

37. A. J. Wilson, D. Devasia, and **P. K. Jain***, Nanoscale optical imaging in chemistry, *Chemical Society Reviews*, **2020**, 49 (16), 6087-6112.

38. **P. K. Jain***, Phenomenological Arrhenius analyses in plasmon-enhanced catalysis: Comment on "Thermal effects an alternative mechanism for plasmon-assisted photocatalysis by Y. Dubi, I. W. Un and Y. Sivan, Chem. Sci., 2020, 11 (33), 5017", *Chemical Science*, **2020**, 11, 9022-9023.
Posted on arXiv as arXiv:1908.05373 [physics.chem-ph].

39. D. Dumett Torres, S. Pamidighantam, and **P. K. Jain***, Crystal symmetry, strain, and facet-dependent nature of topological surface states in mercury selenide, *Journal of Physical Chemistry C*, **2020**, 124 (19), 10344-10352

40. S. Yu and **P. K. Jain***, The chemical potential of plasmonic excitations, *Angewandte Chemie International Edition*, **2020**, 59 (5), 2085-2088.

41. S. Yu, V. Mohan, and **P. K. Jain***, Using plasmonically generated carriers as redox equivalents, *MRS Bulletin*, **2020**, 45 (1), 43-48.
Invited review for themed issue on Materials for Hot-Carrier Chemistry

42. A. J. Wilson, V. Mohan, and **P. K. Jain***, Mechanistic understanding of plasmon-enhanced electrochemistry, *Journal of Physical Chemistry C*, **2019**, 123 (48), 29360-29369.

43. **P. K. Jain***, Taking the heat off of plasmonic chemistry, *Journal of Physical Chemistry C*, **2019**, 123 (40), 24347-24351.
Invited Viewpoint
Most read article of journal as per Oct 2019 and Nov 2019 lists
Posted on arXiv as arXiv: 1908.09415 [physics.chem-ph]

44. S. Yu and **P. K. Jain***, Selective branching of plasmonic photosynthesis into hydrocarbon production and hydrogen generation, *ACS Energy Letters*, **2019**, 4 (9), 2295-2300.

45. J. Gong and **P. K. Jain***, Room-temperature superionic-phase nanocrystals synthesized with a twinned lattice, *Nature Communications*, **2019**, 10, 3285.
Editors' highlight on recent research on Inorganic and Physical Chemistry

46. X. Liu, Y. Zhang, T. Chen, **P. K. Jain**, and W. Xu*, Revealing the thermodynamic properties of elementary chemical reactions at the single-molecule level, *Journal of Physical Chemistry B*, **2019**, 123 (29), 6253-6259.

47. L. Huang, J. Zou, J.-Y. Ye, Z.-Y. Zhou, Z. Lin, X. Kang*, **P. K. Jain***, and S. Chen, Synergy between plasmonic and electrocatalytic activation of methanol oxidation on palladium-silver alloy nanotubes, *Angewandte Chemie International Edition*, **2019**, 58 (26), 8794-8798.

48. K. Cho, J. Heo, Y.-M. Sung, and **P. K. Jain***, One-dimensional cuprous selenide nanostructures with switchable plasmonic and super-ionic attributes, *Angewandte Chemie International Edition*, **2019**, 58 (25), 8410-8415.

49. S. Yu and **P. K. Jain***, Plasmonic photosynthesis of C_1-C_3 hydrocarbons from carbon dioxide assisted by an ionic liquid, *Nature Communications*, **2019**, 10, 2022.
Top 50 Nature Communications chemistry and materials science articles published in 2019
UIUC News Bureau press release: Artificial photosynthesis transforms carbon dioxide into liquefiable fuels
Editors' highlight on recent research on Energy Materials
Featured on EurekaAlert, Nanotechnology Now, Times of India, Express UK, Phys.Org, ScienceDaily, and other science news media

50. J. Heo, D. Dumett Torres, P. Banerjee, and **P. K. Jain***, In-situ electron microscopy mapping of an order-disorder transition in a superionic conductor, *Nature Communications*, **2019**, 10, 1505.

51. J. Heo, D. Dumett Torres and **P. K. Jain***, Unconventional long-range cation ordering in copper selenide nanocrystals, *Chemistry of Materials*, **2019**, 31 (1), 68-72.
Structure deposited in Cambridge Crystallographic Data Center

52. G. Kumari, X. Zhang, D. Devasia, J. Heo, and **P. K. Jain***, Watching visible light-driven CO_2 reduction on a plasmonic nanoparticle catalyst, *ACS Nano*, **2018**, 12 (8), 8330-8340.
Most read article of the journal as per Sep 2018 list

53. P. Banerjee and **P. K. Jain***, Mechanism of sulfidation of small ZnO nanoparticles, *RSC Advances*, **2018**, 8 (60), 34476-34482.

54. X. Zhang, G. Kumari, J. Heo, and **P. K. Jain***, In-situ formation of catalytically active graphene in ethylene photo-epoxidation, *Nature Communications*, **2018**, 9, 3056.
Editors' highlight on recent research on Inorganic and Physical Chemistry
Featured in Research Stories by Teledyne Princeton Instruments

55. F. Shaik, I. Peer, **P. K. Jain**, and L. Amirav, Plasmon-enhanced multi-carrier photocatalysis, *Nano Letters*, **2018**, 18 (7), 4370-4376.
Most read article of the journal as per Jul 2018 and Aug 2018 lists

56. **P. K. Jain***, Physical models for energy-converting nanofluids, *Physics Today*, **2018**, 71(8), 10-11.

57. P. Banerjee and **P. K. Jain***, Lithiation of copper selenide nanocrystals, *Angewandte Chemie International Edition*, **2018**, 57 (30), 9315-9319.
Featured under Hot Topic: Batteries and Supercapacitors

58. Y. Kim, J. G. Smith, and **P. K. Jain***, Harvesting multiple electron-hole pairs generated via plasmonic excitation of Au nanoparticles, *Nature Chemistry*, **2018**, 10 (7), 763-769.
UIUC News Bureau press release: Team achieves two-electron chemical reactions using light energy, gold
Highlighted on NSF Science360 Now: 2 electrons are better than 1
Featured in PhysOrg, Science Daily, Eureka Alert, and several other science media outlets

59. A. J. Wilson and **P. K. Jain***, Structural dynamics of the oxygen evolving complex of photosystem II in water-splitting action, *Journal of the American Chemical Society*, **2018**, 140 (17), 5853-5859.

60. H. A. Nguyen (co-first), P. Banerjee (co-first), D. Nguyen, J. W. Lyding, M. Gruebele*, and **P. K. Jain***, STM imaging of localized surface plasmons on individual gold nanoislands, *Journal of Physical Chemistry Letters*, **2018**, 9 (8), 1970-1976.

61. S. Yu, A. J. Wilson, J. Heo, and **P. K. Jain***, Plasmonic control of multi-electron transfer and C-C coupling in visible-light-driven CO_2 reduction on Au nanoparticles, *Nano Letters*, **2018**, 18 (4), 2189-2194.
Featured on Front Cover
Most read article of journal as per Mar 2018 and May 2018 lists
Most read article of journal in 2018-19
Thomson Reuters Highly Cited (top 1%)
Featured in Chemistry World article 'Forcing reactions with plasmons'

62. D. Dumett Torres and **P. K. Jain***, Strain stabilization of superionicity in copper and lithium selenides, *Journal of Physical Chemistry Letters*, **2018**, 9 (6), 1200-1205.

63. S. Yu, A. J. Wilson, G. Kumari, X. Zhang and **P. K. Jain***, Opportunities and challenges of solar-energy-driven carbon dioxide to fuel conversion with plasmonic catalysts, *ACS Energy Letters*, **2017**, 2 (9), 2058-2070.
Invited Review
Most read article of journal as per Sep 2017 list
Featured in Virtual Issue on Plasmons for Energy Conversion, *ACS Energy Letters*, 3, **2018**, 14671469.

64. V. Mohan and **P. K. Jain***, Spectral heterogeneity of hybrid lead halide perovskites demystified by spatially-resolved emission, *Journal of Physical Chemistry C*, **2017**, 121 (35), 19392-19400.

65. D. Dumett Torres, P. Banerjee, S. Pamidighantam, and **P. K. Jain***, A non-natural wurtzite polymorph of HgSe: A potential 3D topological insulator, *Chemistry of Materials*, **2017**, 29 (15), 6356-6366.

66. Y. Kim, A. J. Wilson, and **P. K. Jain***, The nature of plasmonically assisted hot electron transfer in a donor-bridge-acceptor complex, *ACS Catalysis*, **2017**, 7 (7), 4360-4365.

67. J. G. Smith, X. Zhang, and **P. K. Jain***, Galvanic reactions at the single-nanoparticle level: Tuning between mechanistic extremes, *Journal of Materials Chemistry A*, **2017**, 5 (23), 11940-11948.
Article Invited for 2017 Emerging Investigators Themed Issue

68. S. L. White (co-first), P. Banerjee (co-first), and **P. K. Jain***, Liquid-like cationic sub-lattice in copper selenide clusters, *Nature Communications*, **2017**, 8, 14514.
UIUC News Bureau press release: Tiny nanoclusters could solve big problems for lithium-ion batteries
Smithsonian Magazine story: Charging ahead: the future of batteries
R&D Magazine highlight: Nanoclusters help improve lithium-ion batteries
AzoNano story: Nanoclusters and the future of lithium batteries
CEMag highlight: Layered graphene, imaging nematodes, preventing battery explosions
Also featured on PhysOrg, EurekAlert, and other science media outlets

69. S. L. White, P. Banerjee, I. Chakraborty, and **P. K. Jain***, Ion exchange transformation of magic-sized nanoclusters, *Chemistry of Materials*, **2016**, 28 (22), 8391-8398.

70. G. K. Joshi, S. L. White, M. Johnson, R. Sardar*, and P. K. Jain*, Ultrashort, angstrom-scale decay of surface enhanced Raman scattering at hot spots, *Journal of Physical Chemistry C*, **2016**, 120 (43), 24973-24981.

71. J. G. Smith and **P. K. Jain***, Kinetics of self-assembled monolayer formation on individual nanoparticles, *Physical Chemistry Chemical Physics*, **2016**, 18 (34), 23990-23997.

72. J. G. Smith (co-first), I. Chakraborty (co-first), and **P. K. Jain***, In situ single nanoparticle spectroscopy study of bimetallic nanostructure formation, *Angewandte Chemie International Edition*, **2016**, 55 (34), 9979-9983.
Evaluated to be a Top 10 % manuscript by reviewers

73. K.-K. Liu, S. Tadepalli, G. Kumari, P. Banerjee, L. Tian, **P. K. Jain*** and S. Singamaneni*, Polarization-dependent surface enhanced Raman scattering activity of anisotropic plasmonic nanorattles, *Journal of Physical Chemistry C*, **2016**, 120 (30), 16899-16906.

74. J. G. Smith and **P. K. Jain***, The ligand shell as an energy barrier in surface reactions on transition metal nanoparticles, *Journal of the American Chemical Society*, 138 (21), **2016**, 6765-6773.

75. Y. Kim, D. Dumett Torres, and **P. K. Jain***, Activation energies of plasmonic catalysts, *Nano Letters*, **2016**, 16 (5), 3399-3407.

76. X. Li, C. Xiao, T. W. Goh, A. L. D. Stanton, Y. Pei, P. K. Jain, and W. Huang*, Synthesis of monodisperse palladium nanoclusters using metal-organic frameworks as sacrificial templates, *ChemNanoMat*, **2016**, 2 (8), 810-815.
VIP Article Highlighted by ChemViews: Palladium clusters from etching

77. A. Fang (co-first), S. L. White (co-first), R. A. Masitas, F. P. Zamborini*, and **P. K. Jain***, One-to-one correlation between structure and optical response in a heterogeneous distribution of plasmonic constructs, *Journal of Physical Chemistry C*, **2015**, 119 (42), 24086-24094.

78. J. G. Smith, J. A. Faucheaux, and **P. K. Jain***, Plasmon resonances for solar energy harvesting: A mechanistic outlook, *Nano Today*, **2015**, 10 (1), 67-80.
Editor's Choice Article, 2015
Editor's Choice Article and Editor's Highlights, 2016

79. A. L. Routzahn and **P. K. Jain***, Luminescence blinking of a reacting quantum dot, *Nano Letters*, **2015**, 15 (4), 2504-2509.

80. A. Fang (co-first), S. L. White (co-first), **P. K. Jain*** and F. P. Zamborini*, Regio-selective plasmonic coupling in metamolecular analogs of benzene derivatives, *Nano Letters*, **2015**, 15 (1), 542-548.

81. M. Behl and **P. K. Jain***, Catalytic activation of a solid oxide in electronic contact with Au nanoparticles, *Angewandte Chemie International Edition*, **2015**, 54 (3), 992-997.

82. **P. K. Jain***, Plasmon-in-a-box: On the nature of few-carrier collective resonances, *Journal of Physical Chemistry Letters*, **2014**, 5 (18), 3112-3119.

83. J. A. Faucheaux, A. L. D. Stanton, and **P. K. Jain***, Plasmon resonances of semiconductor nanocrystals: Physical principles and new opportunities, *Journal of Physical Chemistry Letters*, **2014**, 5 (6), 976-985.
Featured on Journal Cover
Featured in JPC Letters Editorial
ACS Editor's Choice Article
Top 5 Most-read articles of journal as per Apr 2014 list
Featured by ACS in YouTube video
Thomson Reuters Highly Cited (top 1%)

84. J. G. Smith, Q. Yang#, and **P. K. Jain***, Identification of a critical intermediate in galvanic exchange reactions by single-nanoparticle resolved kinetics, *Angewandte Chemie International Edition*, **2014**, 53 (11), 2867-2872.

85. J. A. Faucheaux, J. Fu#, and **P. K. Jain***, Unified theoretical framework for realizing diverse regimes of strong coupling between plasmons and electronic transitions, *Journal of Physical Chemistry C*, **2014**, 118 (15), 2710-2717.

86. A. L. Routzahn and **P. K. Jain***, Single-nanocrystal reaction trajectories reveal sharp co-operative transitions, *Nano Letters*, **2014**, 14 (2), 987-992.

87. **P. K. Jain*** Gold Nanoparticles in Physics, Chemistry, and Biology: Book Review, *Angewandte Chemie International Edition*, **2014**, 53 (5), 1197.

88. S. White, J. G. Smith, M. Behl, and **P. K. Jain***, Co-operativity in a nanocrystalline solid-state transformation, *Nature Communications*, **2013**, 4, 2933.
UIUC News Bureau press release: Atoms in a nanocrystal cooperate, much like in biomolecules
Featured on PhysOrg, Laser Focus World, and other science media outlets

89. **P. K. Jain***, K. Manthiram, J. Engel, S. L. White, J. A. Faucheaux, and A. Paul Alivisatos*, Doped semiconductor nanocrystals as plasmonic probes of redox chemistry, *Angewandte Chemie International Edition*, **2013**, 52 (51), 13671-13675.

90. J. A. Faucheaux and **P. K. Jain***, Plasmons in photocharged ZnO nanocrystals revealing dynamics of charge carriers, *Journal of Physical Chemistry Letters*, **2013**, 4 (18), 3024-3030.

91. C. Deeb, X. Zhou, J. Plain, G. Wiederrecht, R. Bachelot*, M. J. Russell, and **P. K. Jain***, Size-dependence of the plasmonic near-field measured via single-nanoparticle photochemical imaging, *Journal of Physical Chemistry C*, **2013**, 117 (20), 10669-10676.

92. J.B. Rivest and **P. K. Jain***, Cation exchange on the nanoscale: An emerging technique for new material synthesis, device fabrication, and chemical sensing, *Chemical Society Reviews*, **2013**, 42 (1), 89-96.
Top 10 Most Read Article as per Sep 2012 list
Thomson Reuters Highly Cited (top 1%)

93. M. Behl, J. Yeom, Q. Lineberry, **P. K. Jain***, and M. Shannon, A regenerable oxide-based hydrogen sulfide adsorbent with nanofibrous morphology, *Nature Nanotechnology*, **2012**, 7 (12), 810-815.
UIUC News Bureau press release: Nanofibers clean sulfur from fuel
Featured in various other science news including Science Daily, PhysOrg, The Engineer,

R&D Magazine, New Energy and Fuel, and others
Two US patents awarded

94. A. Routzahn (co-first), S. L. White(co-first), L.K. Fong, and **P. K. Jain***, Plasmonics with doped quantum dots, invited review in special issue on Nanochemistry, *Israel Journal of Chemistry*, **2012**, 52 (11-12), 983-991.
#1 Most-accessed paper of journal in Feb 2013

PRIOR TO INDEPENDENT CAREER

95. M. Polking, **P. K. Jain**, Y. Bekenstein, U. Banin, O. Millo*, R. Ramesh*, and A. Paul Alivisatos*, Controlling localized surface plasmon resonances in GeTe nanoparticles using an amorphous-to-crystalline phase transition, *Physical Review Letters*, **2013**, 111 (3), 037401.

96. **P. K. Jain**, D. Ghosh, R. Baer, E. Rabani*, and A. Paul Alivisatos*, Near-field manipulation of spectroscopic selection rules on the nanoscale, *Proceedings of the National Academy of Sciences*, **2012**, 109 (21), 8016-8019.
Nature Nanotechnology commentary: Rewriting selection rules, doi:10.1038/nnano.2012.104

97. **P. K. Jain**, B. J. Beberwyck, L.-K. Fong, M. J. Polking, and A. Paul Alivisatos*, Highly luminescent nanocrystals from removal of impurity atoms residual from ion exchange synthesis, *Angewandte Chemie International Edition*, **2012**, 51 (10), 2387-2390 and corrigendum: **2012**, 51 (29), 7069.
Lbnl press release: Bright Lights of Purity: Berkeley Lab Researcher Discover Why Pure Quantum Dots and Nanorods Shine Brighter
IEEE Spectrum feature: Take Nanocrystals, Add Boiling Water, and Get a 400-Fold Increase in Luminescence
Also featured on Science Daily, PhysOrg, and several other science media news

98. W. Xu, **P. K. Jain**, B. J. Beberwyck, and A. Paul Alivisatos*, Probing redox photocatalyis of trapped electrons and holes on single Sb-doped titania nanorod surfaces, *Journal of the American Chemical Society*, **2012**, 134 (9), 3946-3949.

99. J. B. Rivest, L.-K. Fong, **P. K. Jain**, M. F. Toney, and A. Paul Alivisatos*, Size dependence of a temperature-induced solid-solid phase transition in copper(I) sulfide,*Journal of Physical Chemistry Letters*, **2011**, 2 (19), 2402-2406.

100. C. L. Choi, H. Li, A.C.K. Olson, **P. K. Jain**, S. Sivasankar*, and A. P. Alivisatos*, Spatially indirect emission in a luminescent nanocrystal molecule, *Nano Letters*, **2011**, 11 (6), 2358-2362.
Lbnl press release: Breaking Kasha's Rule: Berkeley Lab Scientists Find Unique Luminescence in Tetrapod Nanocrystals
Featured on Science Daily, EurekaAlert, PhysOrg, and other science media news

101. J. M. Luther (co-first), **P. K. Jain**(co-first), T. Ewers, and A. P. Alivisatos*, Localized surface plasmon resonances arising from free carriers in doped semiconductor nanocrystals, *Nature Materials*, **2011**, 10 (5), 361-366.
Lbnl press release: Berkeley Lab Researchers Find Plasmonic Resonances in Semiconductor Nanocrystals
Daily California article: Scientists make advancements in the field of quantum dots
Featured in EE Times: Quantum dots enable plasmonic semis
Featured on Science Daily, PhysOrg and 20+ science news websites
Featured in SPIE Newsroom article: Catching invisible light
Thomson Reuters Highly Cited (top 1%)

102. **P. K. Jain**(co-first), L. Amirav (co-first), S. Aloni, and A. P. Alivisatos*, Nanoheterostructure cation exchange: Anionic framework preservation, *Journal of the American Chemical Society*, **2010**, 132 (29), 9997-9999.

103. S Sheikholeslami (co-first), Y.-W. Jun (co-first), **P. K. Jain** (co-first), and A. P. Alivisatos*, Coupling of optical resonances in a compositionally asymmetric plasmonic nanoparticle dimer, *Nano Letters*, **2010**, 10 (7), 2655-2660.
#5 Most downloaded Nano Letter as per Jul 2010 list
Thomson Reuters Highly Cited (top 1%)

104. N. Hooshmand, **P. K. Jain*** and M. A. El-Sayed*, Plasmonic tunability of spheroidal metal nanoshells is higher than spherical ones: The effect of aspect ratio studied by discrete dipole approximation, *Journal of Physical Chemistry Letters*, **2011**, 2 (5), 374-378.

105. C. Deeb, X. Zhou, D. Gerard, A. Bouhelier, **P. K. Jain**, J. Plain, O. Soppera, P. Royer, and R. Bachelot*, Off-resonant optical excitation of gold nanorods: Nanoscale imprint of polarization surface charge distribution, *Journal of Physical Chemistry Letters*, **2011**, 2 (1) 7-11.

106. C. Trappetti, L. Gualdi, L. Di Meola, **P. K. Jain**, C. C. Korir, P. Edmonds, F. Iannelli, S. Ricci, G. Pozzi and M. R. Oggioni*, The impact of the competence quorum sensing system on Streptococcus pneumoniae biofilms varies depending on the experimental model, *BMC Microbiology*, **2011**, 11 (75), published online 14 Apr.
Designated as Highly Accessed by the journal

107. C. Deeb, R. Bachelot*, J. Plain, A.-L. Baudrion, S. Jradi, A. Bouhelier, O. Soppera, **P. K. Jain**, L. Huang, C. Ecoffet, L. Balan, and P. Royer, Quantitative analysis of localized surface plasmons based on molecular probing, *ACS Nano*, **2010**, 4 (8), 4579-4586.

108. **P. K. Jain*** and M. A. El-Sayed*, Plasmonic coupling in noble metal nanostructures, *Chemical Physics Letters*, **2010**, 487 (4-6), 153-164.
Frontier Article and Journal Cover
#1 Most cited Chemical Physics Letter of 2010
#4 Most cited Chemical Physics Letter of 2009-2013
Thomson Reuters Highly Cited (top 1%) Featured in special issue on 50 Years of Chemical Physics letters

109. **P. K. Jain**, Y. Xiao, R. Walsworth, and A. E. Cohen*, Surface plasmon resonance-enhanced magneto-optics (SuPREMO): Enhanced inter-band Faraday rotation in gold-coated iron oxide nanocrystals, *Nano Letters*, **2009**, 9 (4), 1644-1650.
Top 20 Most accessed as per Nano Letters list in April 2009

110. **P. K. Jain** and M. A. El-Sayed*, Noble metal nanoparticle pairs: Effect of medium for enhanced nanosensing, *Nano Letters*, **2008**, 8 (12), 4347-4352.

111. **P. K. Jain** and M. A. El-Sayed*, Surface plasmon coupling and its universal size scaling in nanostructures of complex geometry: Elongated particle pairs and nanosphere trimers, *Journal of Physical Chemistry C*, **2008**, 112 (13), 4954-4960.

112. **P. K. Jain**, X. Huang, I. H. El-Sayed, and M. A. El-Sayed*, Noble metals at the nanoscale: Optical and photothermal properties and applications in imaging, sensing, biology, and medicine, *Accounts of Chemical Research* **2008**, 41 (12), 1578-1586.
Invited review, Special Issue on Nanoscience
#2 Most cited accounts in the last 3 years as per Feb 2011 list
Thomson Reuters Highly Cited (top 1%)

113. X. Huang, **P. K. Jain**, I. H. El-Sayed, and M. A. El-Sayed*, Plasmonic photothermal therapy (PPTT) using gold nanoparticles, *Lasers in Medical Science,* **2008**, 23 (3), 217-228.
Invited review
#1 Most cited of 2008 articles of the journal
Thomson Reuters Highly Cited (top 1%)

114. **P. K. Jain** and M. A. El-Sayed*, Surface plasmon resonance sensitivity of metal nanostructures: Physical basis and universal scaling in metal nanoshells, *Journal of Physical Chemistry C*, **2007**, 111 (47), 17451-17454.
Top 20 Most accessed JPCC paper of 2007 4th quarter

115. W. Huang, W. Qian, **P. K. Jain** and M. A. El-Sayed*, The effect of plasmon field on the coherent lattice phonon oscillation in electron-beam nanofabricated gold particle pairs, *Nano Letters*, **2007**, 7 (10), 3227-3234.

116. **P. K. Jain** and M. A. El-Sayed*, Universal scaling of plasmon coupling in metal nanostructures: Extension from particle pairs to nanoshells, *Nano Letters*, **2007**, 7 (9), 2854-2858.

117. **P. K. Jain**, W. Huang, and M. A. El-Sayed*, On the universal scaling behavior of the distance decay of plasmon coupling in metal nanoparticle pairs: A plasmon ruler equation, *Nano Letters*, **2007**, 7 (7), 2080-2088.
#12 Hot paper of Nano Letters as per May 2008 list
Top 20 Most-cited Nano Letters of 2008
Thomson Reuters Highly Cited (top 1%)

118. X. Huang, **P. K. Jain**, I. H. El-Sayed, and M. A. El-Sayed*, Gold nanoparticles and nanorods in medicine: From cancer diagnostics to photothermal therapy, *Nanomedicine*, **2007**, 2 (5), 681-693.
Invited review
#1 Most cited of all-time articles of the journal as per Oct 09 list
Thomson Reuters Highly Cited (top 1%)

119. **P. K. Jain**, X. Huang, I. H. El-Sayed, and M. A. El-Sayed*, Review of some surface plasmon resonance-enhanced properties of noble metal nanoparticles and their applications to biosystems, *Plasmonics*, **2007**, 2 (3), 107-118.
Invited review for Special Issue on Advances in Metal-Molecular interactions
#1 Most cited of all-time articles of journal as per Oct 09 list
Thomson Reuters Highly Cited (top 1%)

120. **P. K. Jain**, I. H. El-Sayed, and M. A. El-Sayed*, Au nanoparticles target cancer, *Nano Today*, **2007**, 2 (1), 18-29.
Invited review
#1 Most cited of all-time articles of journal as per Oct 09 list
Thomson Reuters Highly Cited (top 1%)

121. **P. K. Jain**, S. Eustis, and M. A. El-Sayed*, Plasmon coupling in gold nanorod assemblies: Optical absorption, discrete dipole approximation simulation and exciton coupling model, *Journal of Physical Chemistry B*, **2006**, 110 (37), 18243-18253.
#12 Most cited paper of JPCB in 2006
#2 Hot papers of JPCB as per Mar 2008 list
Thomson Reuters Highly Cited (top 1%)

122. **P. K. Jain**, K. S. Lee, I. H. El-Sayed, and M. A. El-Sayed*, Calculated absorption and scattering properties of gold nanoparticles of different shape and composition: Applications in biological imaging and biomedicine, *Journal of Physical Chemistry B*, **2006**, 110 (14), 7238-7248.
#1 in citations of 4000 JPCB papers in 2006
#1 Hot paper in JPCB list of March 2008
Top 10 most-accessed article for 2006 and for 2007
The most read JPCB article as per 2012 list
Thomson Reuters Highly Cited (top 1%)

123. X. Huang, **P. K. Jain**, I. H. El-Sayed, and M. A. El-Sayed*, Determination of the minimum temperature required for selective photothermal destruction of cancer cells with the use of immunotargeted gold nanoparticles, *Photochemistry and Photobiology*, **2006**, 82 (2), 412-417.
#2 Most cited article of 300 articles of journal in 2006

124. **P. K. Jain**, W. Qian, and M. A. El-Sayed*, Ultrafast cooling of photoexcited electrons in gold nanoparticle-thiolated DNA conjugates involves the dissociation of the gold-thiol bond, *Journal of the American Chemical Society*, **2006**, 128 (7), 2426-2433.
Awarded Outstanding Poster Award by PHYS division, ACS Fall 2006 National Meeting

125. **P. K. Jain**, W. Qian, and M. A. El-Sayed*, Ultrafast electron relaxation dynamics in coupled metal nanoparticles in aggregates, *Journal of Physical Chemistry B*, **2006**, 110 (1), 136-142.

126. **P. K. Jain***, A DFT-based study of the low-energy electronic structures and properties of small gold clusters, *Structural Chemistry*, **2005**, 16 (4), 421-426.
#3 Most cited of articles published by journal in 2005

PUBLISHED RESEARCH SOFTWARE TOOLS

P. K. Jain, N. Sobh, J. Smith, A. N. Sobh, S. White, J. Faucheaux, and J. Feser (2015)
nanoDDSCAT, https://nanohub.org/resources/dda, DOI: 10.4231/D3QN5ZC6H

A. N. Sobh, S. White, J. Smith, N. Sobh, and **P. K. Jain** (2015)
nanoDDSCAT+, https://nanohub.org/resources/ddaplus, DOI:10.4231/D32V2CB5K.

PATENTS

Room-temperature, catalyst-free alkane chlorination, US Patent No. 11,578,021, Issued Feb 14, 2023, V. Mohan and **P. K. Jain**

Process for making a regenerable oxide-based adsorbent, US Patent No. 9,561,488, Issued Feb 7, 2017, **P. K. Jain**, M. Behl, M. A. Shannon, J. Yeom.

Regenerable oxide-based adsorbent, US Patent No. 9,248,428, Issued Feb 2, 2016, **P. K. Jain**, M. Behl, M. A. Shannon, J. Yeom.

BOOK CHAPTERS

P. K. Jain* and C. Deeb, Near-fields in assembled plasmonic nanostructures, In *Handbook of Molecular Plasmonics*, ISBN: 9789814303200, Editors Fabio Della Sala and Stefania D'Agostino, Pan Stanford Publishing, **2013**, 261-294.

S. Yu and **P. K. Jain***, Plasmonic catalysis, photoredox chemistry, and photosynthesis, In *Plasmonic Catalysis: From Fundamentals to Applications*, Editors Pedro Camargo and Emiliano Corts., Wiley-VCH, **2021**, 137-164.

NEWS AND VIEWS

P. K. Jain*, Shape-induced optical activity of chiral nanocrystals: Spotlight Summary, *Optical Society of America*, May **2016**.

DOCTORAL DISSERTATIONS SUPERVISED

Chloe Litts, PhD in Chemistry, Defended Oct 2025
Title: Non-traditional catalysis by plasmonic nanostructures

Wenxin Zhang, PhD in MatSE, Defended Oct 2025
Title: Non-metallic nanostructures for light-driven chemistry and catalysis

Rachel Nixon, PhD in Chemistry, Defended Apr 2025
Title: Toward the sustainable production of ammonia by integration of electrochemistry with light energy and

nanostructured catalysts

Francis Alcorn, PhD in Chemistry, Defended May 2023
Title: Investigating nanoscale dynamics in light absorbing nanostructures using transmission electron microscopy

Dinumol Devasia, PhD in Chemistry, Defended Jun 2021
Title: Label-free tracking of photocatalysis on a single nanoparticle

Jaeyoung Heo, PhD in Materials Science and Engineering, Defended Oct 2020
Novel phase and phase transition behavior of a superionic conductor observed on the nanoscale

Varun Mohan, PhD in Materials Science and Engineering, Defended Nov 2020
Title: Tracking the evolution of photoexcitations in strongly light-absorbing systems

Daniel Dumett Torres, PhD in Chemistry, University of Illinois - Urbana Champaign, Defended Sep 2019
Title: Computational electronic structure studies of novel condensed matter phases

Progna Banerjee, PhD in Physics, University of Illinois - Urbana Champaign, Defended Apr 2018
Title: An exploration of the emergent properties and phase transition behavior in engineered semiconducting nanocrystals prepared by cation exchange transformations

Jeremy Smith, PhD in Chemistry, University of Illinois - Urbana Champaign, Defended Jun 2016
Title: Revealing hidden dynamics via single-nanoparticle studies

Aaron Routzahn, PhD in Chemistry, University of Illinois - Urbana Champaign, Defended May 2016
Title: Single nanocrystal microscopy and spectroscopy unveils hidden mechanistic information in cation exchange

Sarah White, PhD in Chemistry, University of Illinois - Urbana Champaign, Defended Mar 2016
Title: Transformations in inorganic nanomaterials: Role of defects, surfaces, and size

Mayank Behl, PhD in ChBE, University of Illinois - Urbana Champaign, Defended Feb 2014
Title: Reactive chemistry and catalysis by doped metal-oxide nanostructures in environment-related applications

SENIOR THESES SUPERVISED

Maya Chattoraj, B.S. in Specialized Chemistry, May 2022
Title: Electrocatalytic CO_2 reduction by intermetallic gold-copper nanoparticles

SYMPOSIA ORGANIZED

Plasmon and Nanophotonics for Photo-(electro)chemical Reactions, Sensing, and Medical Therapy, Oct 12-15, 248th ECS Meeting, Chicago, IL, co-organizer with Nianqiang Wu and others.

Plasmonic Nanomaterials: From Physical Chemistry Fundamentals to Societal Impact, Apr 5-6 2017, Spring 2017 ACS National Meeting, San Francisco, CA, Co-Organizer with Catherine Murphy

nanoBIO node Workshop on Light/Matter Interactions at the nanoBIO interface, Nov 28-29, 2016, UIUC, Urbana-Champaign, IL Lead Organizer with Nahil Sobh, Alexsei Aksimentiev, Progna Banerjee, Chen-Yu Li, Abby Sobh, and Bara Saadah.

Physical Principles in Functional Nanoscience: Symposium in Honor of Mostafa A. El-Sayed, Mar 13-17, 2016,

Spring 2016 ACS National Meeting, San Diego, CA, Lead Organizer with Stephan Link and Christy Landes

nanoBIO node Workshop on Plasmonics and Its Applications, Mar 21-22, 2016, University of Colorado at Boulder, Boulder, CO Co-Organizer with Sayantani Ghosh, Nahil Sobh, and Ivan Smalyukh

Functional Plasmonics, Nov 27 - Dec 2, 2016, Fall 2016 MRS National Meeting, Boston MA, Co-organizer with Laura Na Liu (lead), Yuebing Zheng, and Yongmin Liu

MEDIA COVERAGE AND HIGHLIGHTS

- SciX 2025 award plenary to spotlight breakthroughs in catalysis and biomedical imaging (Feature by Spectroscopy Magazine)
- SERS-Based Nanoscale Insights into Surface Chemistry of CO Photoreduction: An Interview with 2025 Clara Craver Award Winner Prashant Jain (Interview by Spectroscopy Magazine)
- Visible light energy yields two-for-one deal when added to CO2 recycling process (UIUC News Bureau press release)
- Licht versnelt de omzetting van CO2 in nieuwe producten (feature in Dutch magazine New Scientist)
- The room-temperature superconductor that wasnt (Ars Technica article)
- Understanding superconductivity (Feature in the Istanbul Chronicle)
- Como a Internet ajudou a resolver o mistrio do LK-99, o falso supercondutor (Portuguese national newspaper feature on our contribution to the puzzle of purported room-temperature superconductor LK-99)
- LK-99 isnt a superconductor - how science sleuths solved the mystery (Nature news article on our contribution to the puzzle of purported room-temperature superconductor LK-99)
- Illuminating electrocatalysis (Nature Energy article on our light- and electricity-powered ammonia synthesis process)
- Plasmonic catalyst smashes record for reducing vital chemical feedstock (Features opinion from interview for Chemistry World article)
- Light-harvesting nanoparticle catalysts show promise in quest for renewable carbon-based fuels (UIUC News Bureau press release)
- Breakthrough in creating fuel from sunlight puts Us closer to carbon-neutral energy (Feature article in Leaps magazine article)
- Taking lessons from nature (Science News feature on top 10 scientists of 2020 to watch)
- Forschende zeigen uns wie es richtig geht: Knstliche Photosynthese an der University of Illinois (Feature on our artificial photosynthesis efforts in PhoSy magazine of Freie Universitt, Berlin)
- Professor Prashant Jains path to Chemistry at Illinois: feature by Department of Chemistry
- Cheap nanoparticles pave the way for carbon-neutral fuel: Wired magazine article
- Scientists create photosynthesis-inspired fuel from CO_2 and water (Express UK article)
- Scientists have copied plants and turned CO_2 into fuel (Sustainability Times article)
- Artificial photosynthesis could clean up polluted air and produce fuel (The Week Magazine article)
- New artificial photosynthesis breakthrough uses gold to turn CO_2 into liquid fuel (Science Alert article)
- Artificial photosynthesis may alleviate climate change by transforming greenhouse gas carbon dioxide into liquid fuel(Techtimes article)

- Artificial photosynthesis transforms carbon dioxide into liquefiable fuels (UIUC News Bureau press release)
- Forcing reactions with plasmons (RSC Chemistry World Feature Article)
- Nine Illinois researchers rank among worlds most influential (UIUC News Bureau press release)
- Prashant K. Jain selected as a member of the 2020-2021 Defense Science Study Group (UIUC Department of Chemistry News article)
- First round of Chemistry Discovery Fund launches innovative projects by Burke, Jain, and Mitchell (UIUC Department of Chemistry news article)
- Carbon-recycling system (Science Daily article on our plasmonic phototocatalysis work)
- 2 electrons are better than 1 (Highlight of our multi-electron photocatalysis on NSF Science360 Now)
- Team achieves two-electron chemical reactions using light energy, gold (Illinois News Bureau highlights our work multi-electron photocatalysis)
- Prashant interviewed about lithium ion batteries and solid electrolytes by *Brains On* American Public Radio podcast.
- Superionic nanoclusters highlighted in cover story in India's Outlook Magazine (Storing the Change)
- Prashant Jain shines a light on achieving goals (Article on ACS Show Daily)
- Artificial photosynthesis, materials with unprecedented properties (Highlight on Kavli lectures at Fall 2017 ACS National Meeting)
- Chemistry World article quotes Prashant on recent plasmonic catalysis advance (Article: Plasmonic catalyst makes light work of carbon monoxide)
- Prashant interviewed about nanocrystals in future optical computing (Featured in La Recherche, France's monthly science magazine)
- Charging ahead: the future of batteries (Smithsonian Magazine)
- Layered graphene, imaging nematodes, preventing battery explosions (CEMag)
- Nanoclusters and the future of lithium batteries (AzoNano)
- Nanoclusters help improve lithium-ion batteries (R&D Magazine)
- Tiny nanoclusters could solve big problems for lithium-ion batteries (UIUC News Bureau)
- Illinois faculty among most highly cited worldwide (Engineering at Illinois News)
- Nanocrystal atoms cooperate like biomolecules, making better photonic devices possible (Laser Focus World article)
- Three faculty members awarded 2014 Sloan Fellowships (UIUC News Bureau)
- Perspective on quantum dot plasmons featured on cover of JPC Letters, featured in editorial and selected as ACS Editor's Choice Article
- Top Cited Paper Award from Elsevier: top 5 most-cited paper from 2009-2013 in Chemical Physics Letters
- Atoms in a nanocrystal cooperate, much like in biomolecules (UIUC News Bureau)
- Gas clean-up technology triumphs at global IChemE Awards (Sulfur cleanup chemistry highly commended as Energy award runner up)
- The Energy Award: Nanosponge soaks up sulphur (tce magazine summary of finalists)

- DuPont Celebrates Scientific Innovation by Recognizing Young Professors (Reuters article)
- Among select American innovators interviewed for National Academy of Engineering's "Educate to innovate program": contribution to become part of NAE workshop in Oct 2013
- Interviewed about quantum dots and nanoscience by Discovery Channel's Brave New World series
- Improved sulfur removal from petroleum-based fuels, Tech Beat article in Tribology and Lubrication Technology Magazine
- Nanofibers work featured by NSF and nano.gov
- Nanofibers clean sulfur from fuel, UIUC News Bureau + Science Daily, PhysOrg, The Engineer, R&D Magazine, New Energy and Fuel, and others
- Metal oxide fibers scrub sulphur from petrol fuels, theengineer.co.uk science news
- Big Little Matter: Two Indian scientists on controlling particles and creating possibilities
- Two Illinois chemists named top young innovators, UIUC News Bureau
- Five of South Asian origin amongst top 35 innovators under 35
- IACAT Fellowships support diverse collaborative projects, UIUC SCS News
- Rewriting selection rules, Nature Nanotechnology commentary
- Berkeley Lab Researcher Discover Why Pure Quantum Dots and Nanorods Shine Brighter (LBNL press release)
- Scientists make advancements in the field of quantum dots (Daily Cal article)
- Breaking Kasha's Rule: Berkeley Lab Scientists Find Unique Luminescence in Tetrapod Nanocrystals (LBNL press release)
- Berkeley Lab researchers find plasmonic resonances in semiconductor nanocrystals (LBNL press release)
- Quantum dots enable plasmonic semis (EE Times feature)
- Feature on Miller Fellow Prashant Jain (Miller Newsletter)
- Frontier Article and Cover of Chemical Physics Letters (2010 Mar issue) on Plasmonic Coupling
- #1 most cited papers of all time in Nano Today
- #1 most cited papers of all time in Nanomedicine
- #1 most cited papers of all time in Plasmonics

CONTRIBUTED TALKS

- **Key intermediates of carbon dioxide reduction on silver from vibrational nanospectroscopy**, Mini-symposium: Multiple Potential Energy Surfaces, International Symposium on Molecular Spectroscopy, Urbana, IL, Jun 2017.
- **Imaging carbon dioxide reduction on single nanoparticles**, Session on Applications of Microspectroscopy for Materials Characterization, Pittcon 2017, Chicago, IL, Mar 2017.

INVITED/AWARD/SPECIAL TALKS

1. **Ultrafast flow of energy and carriers in plasmonic catalysis: Theory meets experiment**, Invited talk, Plasmon and Nanophotonics for Photo-(electro)chemical Reactions, Sensing, and Medical Therapy, Oct 12-15, 248th ECS Meeting, Chicago, IL, Oct 2025
2. **Catalysis under the light**, Plenary lecture, Craver Awardee, SciX 2025, Covington, KY, Oct 2025.
3. **Lights, Computer, Action!**, Physical Chemistry Seminar (volunteered), Department of Chemistry, University of Illinois Urbana-Champaign, Urbana, IL, Oct 2025.
4. **Dynamics of non-equilibrium electrons in plasmonic chemistry**, GRC on Plasmonically Powered Processes, Ventura, CA, Jun 2025.
5. **Benchtop energy chemistry**, ACS Chem Caf, American Chemical Society UIUC Student Chapter, University of Illinois Urbana-Champaign, Urbana, IL, Apr 2025.
6. **Making bonds in new ways**, Professor talk, Alpha Chi Sigma Zeta Chapter, University of Illinois Urbana-Champaign, Urbana, IL, Apr 2025.
7. **Catalysis under the light**, Invited seminar, Department of Chemistry, Amherst College, Amherst, MA, Feb 2025.
8. **Catalysis under the light**, Invited seminar, Department of Chemistry, University of Massachusetts Amherst, MA, Feb 2025.
9. **Chemical manufacturing using light**, Invited seminar, Department of Chemistry & Physics, Alcorn State University, Lorman, MS, Jan 2025 (delivered virtually).
10. **Chemical manufacturing using light**, Invited seminar, Department of Chemistry & Physics, Alcorn State University, Lorman, MS, Jan 2025 (delivered virtually).
11. **Photon-dressed chemical reactions**, Department of Chemistry–Ångström Laboratory, Uppsala University, Uppsala, Sweden, Nov 2024.
12. **Fast ions in nanostructures**, Materials for Sustainable Development Conference (MATSUS Fall 24), Lausanne, Switzerland, Nov 2024.
13. **Thermodynamics and kinetics of plasmonic carrier harvesting**, Materials for Sustainable Development Conference (MATSUS Fall 24), Lausanne, Switzerland, Nov 2024.
14. **Vibrational probing of nonthermal reactivity**, Invited seminar, Plasmonics and SPR session, SciX 2024, Raleigh, NC, Oct 2024.
15. **Chemical manufacturing using light**, Invited seminar, Department of Chemistry, American Chemical Society Rock River Local Section and Northern Illinois University, Dekalb, IL, Oct 2024.
16. **Plasmonic manufacturing of fuels and chemicals**, Symposium on Functional Metal and Related Oxide Nanomaterials: Synthesis, Characterization, and Applications, 32nd International Materials Research Conference, Cancn, Mxico, Aug 2024.
17. **My path to alternative chemistry**, Honor Initiate talk, 57th Conclave of Alpha Chi Sigma, University of Illinois Urbana-Champaign, Urbana, IL, Jul 2024.
18. **Features of plasmonic photocatalysis deduced from single-molecule-level studies**, Symposium B07 on Renewable Fuels via Artificial Photosynthesis or Heterocatalysis 10, Electrochemical Society Meeting, San Francisco, CA, May 2024.
19. **Simultaneous use of electric fields and plasmonic carriers for catalysis**, Symposium I02 on Light Energy Conversion with Metal Halide Perovskites, Inorganic/Organic Hybrid Materials, and Dynamic Exciton, Electrochemical Society Meeting, San Francisco, CA, May 2024.

20. **Few-electron plasmon resonances**, Condensed Matter Physics seminar, Department of Physics, University of Illinois Urbana-Champaign, Urbana, IL, Apr 2024.

21. **Path of a photon in artificial photosynthesis**, Food for Thought talk, Center for Advanced Study, University of Illinois Urbana-Champaign, Urbana, IL, Apr 2024.

22. **From photons to chemical bonds**, Department of Chemistry Seminar, Missouri University of Science and Technology, Rolla, MO, Mar 2024.

23. **From photons to chemical bonds**, Physics and Astronomy Seminar, University of Texas at San Antonio, San Antonio, TX, Mar 2024.

24. **Catalysts dressed in light**, Akron ACS Award Seminar, Department of Chemistry, University of Akron, Akron, OH, Nov 2023.

25. **The photoficiation of chemical manufacturing**, Akron ACS Award Evening Lecture, Kent State University, Kent, OH, Nov 2023.

26. **The chemical potential of light**, Jeffrey I. Zink Inorganic Chemistry Seminar, University of California at Los Angeles, Los Angeles, CA, Nov 2023.

27. **The rise and fall of LK-99**, Data Sciences Institute Reproducibility Thematic Program Workshop, University of Toronto, Toronto, ON, Canada, Oct 2023.

28. **Holes in the LK-99 story**, Physical Chemistry Seminar, University of Illinois Urbana-Champaign, Urbana, IL Sep 2023.

29. **Uncovering mechanisms and intermediates in plasmonic catalysis**, Invited talk, Symposium on Catalyst Dynamics of Active Sites, Catalyst Structure, and Reaction Environment, American Chemical Society Fall 2023 National Meeting, San Francisco, CA, Aug 2023.

30. **Plasmonic nanoparticle electrodes for zero-carbon fuels**, Invited talk, Colloid & Surface Chemistry (COLL) Division Nanomaterials Symposium, American Chemical Society Fall 2023 National Meeting, San Francisco, CA, Aug 2023.

31. **Chemical reactivity at the interface of catalysis and plasmonics**, Invited talk, Symposium on Molecular and Heterogeneous Photocatalysts: Advances in Experiments and Theory, American Chemical Society Fall 2023 National Meeting, San Francisco, CA, Aug 2023.

32. **Cold truths about hot electrons**, Invited talk, Telluride Workshop on Solar Solutions to Energy and Environmental Problems, Telluride, CO, Jul 2023.

33. **Opportunities and challenges in plasmonically powered processes**, Invited discussion leader, Gordon Research Conference on Plasmonically Powered Processes, Ventura, CA, Jun 2023.

34. **Non-equilibrium conversion using plasmons**, Invited talk, International Conference on Surface Plasmon Photonics (SPP10), Rice University, Houston, TX, May 2023.

35. **The interface of plasmonics and catalysis**, Chemistry colloquium, Northwestern University, Chicago, IL, May 2023.

36. **Manufacturing fuels and chemicals using plasmonically concentrated light**, Nanomaterials and Sustainability virtual workshop at the APS/CNM user meeting, Argonne National Laboratory, Argonne, IL, May 2023 (delivered virtually).

37. **Catalysis in photonic fields**, Physical Chemistry Seminar, MIT, Cambridge, MA, Apr 2023.

38. **The interface of plasmonics and catalysis**, Invited talk, Symposium on Molecular and Colloidal PlasmonicsSynthesis and Applications, 2023 MRS Spring Meeting, San Francisco, CA, Apr 2023.

39. **Electroconversion beyond the equilibrium limit using plasmons**, Invited talk, Symposium on Nanosized PhotocatalystsFrom Fundamentals to Applications, 2023 MRS Spring Meeting, San Francisco, CA, Apr 2023.

40. **Catalysis in photonic fields**, Invited lecture, International Lecture Series on Nanophotonics, organized by Faculty of Physics, Ludwig-Maximilians Univeristy (LMU), Munich, Germany, Jan 2023 (delivered virtually).

41. **Novel forms of catalysis using plasmons**, Invited talk, International Symposium on Emerging Nanoarchitectures and Plasmonics for Energy Conversion 2022 (ENAPEC22), organized by Curtin University and Australian National University, Nov 2022 (delivered virtually).

42. **Manufacturing fuels and chemicals using light**, Invited talk, Conference on Advances in Catalysis for Energy and Environment (CACEE-2022), Mumbai, India, Oct 2022 (delivered virtually).

43. **The interface of optics and catalysis**, CBE Shell seminar series, Colorado School of Mines, Golden, CO, Oct 2022.

44. **Non-equilibrium electroconversion using plasmons**, Invited talk, Symposium on Photocatalysts, Photoelectrochemical Cells, and Solar Fuels, 242nd ECS Meeting, Atlanta, GA, Oct 2022.

45. **Manufacturing fuels and chemicals using concentrated light**, Invited webinar, 3M NTFA Symposium, Aug 2022.

46. **Manufacturing fuels and chemicals using concentrated light**, British Petroleum International Center for Advanced Studies (bp-ICAM) webinar, Aug 2022.

47. **Opto-catalysis**, Keynote talk, Advanced Photonic Congress, Optical Society of America (OSA) Novel Optical Materials and Applications (NOMA) conference, Session on Hot Electrons and Non-thermal Processes, Maastricht, Netherlands, UK, Jul 2022 (delivered virtually).

48. **Energetic charge states in plasmonic catalysis**, Invited talk, CECAM workshop on Light-matter interaction and ultrafast nonequilibrium dynamics in plasmonic materials, University of Warwick, Coventry, UK, Jul 2022.

49. **Harvesting the free energy of light by plasmonic excitation**, Invited talk, Gordon research conference (GRC) on Plasmonics and Nanophotonics, Newry, ME, Jul 2022.

50. **The interface of plasmonics and catalysis**, Keynote talk, Symposium on Plasmonics: From Synthesis to Applications, CCCE 2022, Calgary, Canada, Jun 2022.

51. **The photification of chemical manufacturing**, Keynote talk, Baekeland award symposium, Farleigh Dickinson University, Morristown, NJ, May 2022.

52. **Lights, catalyst, action!** Department of Chemistry and Biochemistry, The University of Texas at El Paso, TX, Mar 2022.

53. **Nanoantennas for harvesting light and driving chemical transformations**, Keynote lecture, Nanomaterials for Energy Conversion and Storage Application (NECSA- 2022), held virtually, Jan 2022.

54. **Inducing new catalytic behavior in noble metal nanoparticles by light excitation**, Session on Trends in Plasmonic Photochemistry, Pacifichem 2021, held virtually, Dec 2021.

55. **Storing light energy in chemical bonds**, Southern Illinois University, Carbondale, IL Oct 2021.

56. **Manufacturing chemicals using light**, Truman State University, American Chemical Society Chapter talk, Kirksville, MO, held virtually, Oct 2021.

57. **Fast ions in nanostructures**, 1st International Shell Advanced Energy Storage Battery Conference, held virtually, Sep 2021.

58. **Holes in the plasmonic chemistry story**, Session on Plasmonically driven processes and energy conversion II, METANANO 2021, held virtually, Sep 2021.

59. **Storing energy from plasmons in chemical bonds**, Nanoplasmonics Track, 21st IEEE International Conference on Nanotechnology (NANO 2021), held virtually, Jul 2021.

60. **From photons to chemical bonds**, Keynote lecture, Plasmonics session, 95th ACS Colloid and Surface Science Symposium, held virtually, Jun 2021.

61. **Three surprises from single-molecule-level probing of a photocatalyst**, Probing Chemical Reactions by Single-Molecule Spectroscopy 2021 Conference, held virtually, Jun 2021.

62. **Using concentrated light for the manufacturing of fuels and chemicals**, Chemistry in the times of Corona seminar (held virtually), Shell Oil, Apr 2021.

63. **Harnessing light using chemistry**, Guest lecture (held virtually), ACS Student Chapter, University of Illinois at Urbana-Champaign, Urbana, IL Apr 2021.

64. **The path from light to chemical bonds**, Division of Chemistry and Biological Chemistry Virtual Seminar Series, Nanyang Technological University, Singapore, Mar 2021.

65. **Light-matter coupling for energy harvesting and chemical manufacturing**, International Physics Webinar, Department of Physics, Pabna University of Science and Technology, Bangladesh, Feb 2021.

66. **Special relativity and optical control of chemistry**, Department of Physics & Astronomy colloquium (held virtually), Ohio University, Athens, OH, Feb 2021.

67. **An emerging paradigm in nanoparticle-based photocatalysis**, Webinar for News in Nanocrystals Community (NiNC), Jan 2021.

68. **Plasmonic chemistry: concepts and controversies**, Opening webinar in series on Elementary Processes of Light-Driven Reactions at Nanoscale Metals, Institut fr Physik und Astronomie, Universitt Potsdam, Potsdam and Ultrafast Dynamics group, Helmholtz-Zentrum, Berlin, Germany, Jan 2021.

69. **Harnessing the chemical potential of light**, Department of Chemistry seminar (held virtually), Dalhousie University, Halifax, NS, Canada, Nov 2020.

70. **Harvesting the free energy of light using gold**, Invited webinar on Gold for catalysis by a highly cited research over the past 3 years, International GOLD conference, Nov 2020.

71. **Plasmonic materials**, VAIBHAV summit of the Government of India, session on Advanced Materials co-organized by IISER Thiruvananthapuram, held virtually, Oct 2020.

72. **Capturing intermediates and intrinsic noise in CO_2 reduction catalysis (as published title)**, 260th ACS National meeting, PHYS symposium on Spectroscopy for Understanding Catalysis, held virtually, Aug 2020.

73. **Harvesting charge carriers and free energy from plasmonic excitations**, Plasmonic Photonics Session, Virtual Conference on Nanoscale Science and Technology (VC-NST) 2020, Hosted online amid COVID-19 outbreak, Mar 2020.

74. **The chemical potential of plasmonic excitations**, 2nd Frontiers in Photochemistry Conference, Nassau, The Bahamas, Feb 2020.

75. **Plasmonic photosynthesis**, Physical Chemistry seminar, Purdue University, West Lafayette, IN, Dec 2019.

76. **Turning plasmons in C-C and C-H bonds**, Graduate seminar series, Chemical Engineering, Oklahoma State University, Nov 2019.

77. **What goes on at the surface of a plasmonic catalyst?**, Innovative Nanomaterials for Electronics, Energy, Photonics & Bioanalytics, 2019 ACS Southwest-Rocky Mountain Regional Meeting, El Paso, TX, Nov 2019.

78. **Using plasmons for harvesting energy and tuning reaction selectivity**, Light for Energy: Photonic & Thermal Nanotechnology, 2019 ACS Southwest-Rocky Mountain Regional Meeting, El Paso, TX, Nov 2019.

79. **Plasmonic photosynthesis**, Plasmonics and Solar Energy Conversion (I04), 236th ECS National Meeting, Atlanta, GA, Oct 2019.

80. **Unusual catalog of hydrocarbons captured in plasmon-catalyzed chemistry**, Symposium on Getting to the Bottom: Optical & Electron Imaging of Reactive Chemical Systems, 258th ACS National Meeting, San Diego, CA, Aug 2019.

81. **Harvesting plasmons for the formation of energy-rich bonds**, Research seminar, University of Hong Kong, Hong Kong, Aug 2019.

82. **Plasmonically-powered energy storage in carbon-carbon bonds**, Gordon Research Conference on Plasmonically Powered Processes, Hong Kong, Jul 2019.

83. **Label-free single-molecule-imaging of a catalytic reaction**, Plenary Talk, 4th International Conference on Enhanced Spectroscopies, London, Ontario, Canada, Jun 2019.

84. **Plasmon excitation-driven reduction and coupling of carbon dioxide molecules**, Symposium on Renewable Fuels via Artificial Photosynthesis or Heterocatalysis (I03), 235th ECS National Meeting, Dallas, TX, May 2019.

85. **Multi-electron harvesting and catalysis using plasmonic nanoparticles: A mechanistic understanding**, Symposium on Light Energy Conversion (B07), 235th ECS National Meeting, Dallas, TX, May 2019.

86. **Plasmonic photosynthesis**, Fitzpatrick Institute of Photonics Seminar Co-hosted with Chemistry, MEMS & MatSci, Duke University, Durham, NC, Apr 2019.

87. **Fixing carbon with assistance from plasmon excitations**, Physical/Analytical Seminar, Texas A&M University, College Station, TX, Oct 2018.

88. **Watching carbon fixation on a plasmonic catalyst nanoparticle**, Symposium on Technical Developments & Applications of Optical Chemical Imaging, 256th ACS National Meeting, Boston, MA, Aug 2018.

89. **Carbon fixation on plasmonic catalysts**, Department of Chemical Sciences, Tata Institute of Fundamental Research, Jun 2018.

90. **Carbon fixation on plasmonic catalysts**, College of Environment and Energy, South China University of Science and Technology, May 2018.

91. **Carbon fixation on plasmonic catalysts**, School of Chemistry and Chemical Engineering, Nanjing University, May 2018.

92. **Carbon fixation on plasmonic catalysts**, Electroanalytical Chemistry Lecture series, Changchun Institute of Applied Chemistry, May 2018.

93. **Carbon dioxide to hydrocarbon conversion on plasmonic catalysts**, Frontiers in Photochemistry Conference, Cancun, MX, Feb 2018.

94. **Turning Photons into Chemical Bonds: artificial photosynthesis, sculpting EM fields, multi-electronic states and energy-rich bonds**, Lunch hour seminar, American Vacuum Society UIUC student chapter, Urbana, IL, Oct 2017.

95. **Turning photons into chemical bonds**, Chemistry seminar, Wabash College, Crawfordsville, IN, Oct 2017.

96. **Turning photons into chemical bonds using strong light-matter coupling**, Invited award talk, AVS Prairie Chapter meeting, Milwaukee, WI, Sep 2017.

97. **Turning photons into chemical bonds**, Kavli Emerging Leader in Chemistry Lecture, 254th ACS National Meeting, Washington DC, Aug 2017.

98. **Key insights into carbon dioxide photoreduction from single-nanoparticle catalysis studies**, Invited talk, Colloidal Metal and Semiconductor Nanostructures Symposium, 254th ACS National Meeting, Washington DC, Aug 2017.

99. **Advanced energy materials based on nanocrystals**, Invited talk, NaNaX8, Braga, Portugal, Jul 2017.

100. **Light/matter interactions for the biomedical researcher**, Tutorial lecture, NSF-funded Workshop on Light/Matter Interactions at the nanoBIO interface, UIUC, Urbana, IL, Nov 2016.

101. **Chemical secrets told, one nanocrystal at a time**, Physical chemistry seminar, UIUC, Urbana, IL, Sep 2016.

102. **Plasmon in a box**, Symposium on new directions in nanoplasmonics, SciX 2016, Minneapolis, MN, Sep 2016.

103. **Dynamics and heterogeneity of carbon dioxide adsorption and photoreduction uncovered from single-nanoparticle studies**, 252nd ACS National Meeting, Philadelphia, PA, Aug 2016.

104. **The nature of nanocrystalline transformations**, Seminar in Catalysis Chapter, 3M, St. Paul, MN, Jun 2016.

105. **Learning atomistic secrets of chemistry from nanosolids**, Physical chemistry seminar, MIT, Cambridge, MA, May 2016.

106. **Atomic secrets of solid-state transformations**, Physical chemistry seminar, Stanford University, Palo Alto, CA, May 2016.

107. **Atomic secrets of solid-state transformations**, Physical chemistry seminar, Rice University, Houston, TX, Apr 2016.

108. **Learning atomistic secrets of chemistry from nanosolids**, Physical/Analytical chemistry seminar, Iowa State University, Ames, IA, Apr 2016.

109. **The nature of nanocrystalline transformations**, Webinar, Center for Sustainable Nanotechnology, University of Wisconsin-Madison, WI, Mar 2016.

110. **Plasmon in a box**, Invited lecture in honor of Priestley medalist M. A. El-Sayed, PHYS Symposium on Physical principles in functional nanoscience, 251st ACS National Meeting, San Diego, CA, Mar 2016.

111. **Some hidden facts about chemistry in the solid-state**, Chemical Physics seminar, Caltech, Pasadena, CA, Feb 2016.

112. **Some hidden facts about chemistry in the solid-state**, Physical Chemistry seminar, University of Wisconsin-Madison, Madison, WI, Nov 2015.

113. **Some hidden facts about chemistry in the solid-state**, Physical Chemistry seminar, University of Colorado at Boulder, Boulder, CO, Nov 2015.

114. **Some hidden facts about chemistry in the solid-state**, Physical Chemistry seminar, University of California at Berkeley, CA, Oct 2015.

115. **Some hidden facts about chemistry in the solid-state**, James Frank Institute Colloquium, University of Chicago, Chicago, IL, Sep 2015.

116. **Hidden dynamics of solid-state reactions, revealed one nanocrystal at a time**, JPC C Award lecture, 250th ACS National Meeting, Boston, MA, Aug 2015.

117. **Collective behavior in the solid-state**, MRSEC colloquium, Northwestern University, Evanston, IL, May 2015.

118. **Collective behavior in the solid-state elucidated by plasmonic spectroscopy**, Invited talk, Session on Probing Nano-Plasmonic Phenomena at the Single Molecule, Single Electron, & Single Photon Level, 249th ACS National Meeting, Denver, CO, Mar 2015.

119. **Atomistic insights into chemical reactions, one nanocrystal at a time**, DuPont, Mar 2015.

120. **Atomistic insights into reactive and catalytic transformations, one nanocrystal at a time**, Physical chemistry seminar, Cornell University, Mar 2015.

121. **Atomistic insights into reactive and catalytic transformations, one nanocrystal at a time**, Physical chemistry seminar, UCLA, Mar 2015.

122. **Atomistic insights into reactions, one nanocrystal at a time**, MRSEC colloquium, Columbia University, Jan 2015.

123. **Collective behavior of electrons and atoms in the solid-state**, CeNSE seminar, Indian Institute of Science, Bengaluru, India, Jan 2015.

124. **Making a difference through your work: Some examples from nanoscience research**, Keynote address, National Honor Society Induction Ceremony, Champaign Central High School, Dec 2014.

125. **Atomistic insights into reactive transformations obtained one nanocrystal at a time**, Department of Chemical Engineering, University of Illinois at Chicago, Nov 2014.

126. **Collective behavior of electrons and atoms in nanosolids**, Materials Chemistry seminar, Department of Chemistry and Biochemistry, Indiana University, Bloomington, IL, Nov 2014.

127. **Atomistic insights into reactive and catalytic transformations obtained from single-nanocrystal studies**, Physical Chemistry seminar, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, Sep 2014.

128. **Deciphering solid-state chemistry and catalysis one nanocrystal at a time**, Noble Metal Nanoparticles Gordon Research Conference, Mount Holyoke, MA, Jun 2014.

129. **Collective Behavior of Electrons and Ions**, Institut des NanoSciences de Paris, Universite Pierre et Marie Curie, Paris, France, Jun 2014.

130. **Collective Behavior of Electrons and Ions**, Laboratory for Nanoscience, Instrumentation, and Optics, Universite de Technologie de Troyes, France, Jun 2014.

131. **Chemistry on the nanoscale**, Radiation Lab and Physical/Analytical Chemistry seminar, University of Notre Dame, IN, May 2014.

132. **Deciphering solid-state chemistry on the nanoscale**, MSE Department, Stanford University, Palo Alto, CA, Apr 2014.

133. **Deciphering chemistry on the nanoscale using optical spectroscopy**, Modern Optics Seminar, MIT, Cambridge, MA, Apr 2014.

134. **Elucidating chemical transformations one nanocrystal at a time**, Chemistry dept, Indiana University-Purdue University, Indianapolis, IN, Mar 2014.

135. **Chemistry on the nanoscale**, Golden Jubilee Visiting Fellow lecture, Institute of Chemical Technology, Mumbai, India, Jan 2014.

136. **Elucidating chemical transformations one nanocrystal at a time**, Institute of Materials Science and Engineering, Washington University at St. Louis, MO, Nov 2013.

137. **Elucidating chemical transformations one nanocrystal at a time**, Invited talk, M. A. El-Sayed 80th Birthday Symposium, ACS Southeastern Regional Meeting, Atlanta, GA, Nov 2013.

138. **Chemical transformations on the nanoscale**, Invited talk, Nanocrystal Analytical Chemistry Session, 246th ACS National Meeting, Indianapolis, IN, Sep 2013.

139. **Single-nanocrystal reaction trajectories reveal co-operative nature of transition**, Invited Young Investigator Talk, Gordon Research Conference on Nanocrystals, Mount Holyoke, MA, Aug 2013.

140. **Nanoscience in the Classroom: Nanoparticles, light, and solar energy**, Hot Topic Session, Beginning Teacher STEM Conference, Champaign, IL, Jul 2013.

141. **Chemical transformations on the nanoscale**, Plenary talk, 87th ACS Colloids and Surface Science Symposium, Riverside, CA, Jun 2013.

142. **Computational Nano-Optics**, Institute for Advanced Computing Applications and Technologies, UIUC, Urbana, IL, Jun 2013.

143. **Optical computing**, Google Solve for [X], San Martin, CA, Feb 2013.

144. **Nanocrystal Chemistry and Photochemistry**, Genesys Crystal and Graphene Science Symposium, Boston, MA, Sep 2012.

145. **Controlling electrons, ions, and photons using inorganic nanostructures**, Dow Chemical Day, Young Investigators talk, UIUC, IL, May 2012.

146. **Nano-optics and chemistry**, Berkeley Nanotechnology Forum 2012, UC Berkeley, CA, Apr 2012.

147. **Light on the nanoscale**, Center for Advanced Theory and Material Simulation (CATMS) Lunch Series talk, UIUC, IL, Apr 2012.

148. **Nano-optics and chemistry: From Metals to Semiconductors**, CGSA-sponsored talk, Chemistry Dept., University of Maryland, Baltimore County, MD, Feb 2012.

149. **Nano-optics and chemistry: From Metals to Semiconductors**, Invited talk, Chemistry Dept., University of Louisville, Louisville, KY, Jan 2012.

150. **Nano-optics and chemistry**, Invited talk, Argonne National Lab, Center for Nanoscale Materials, IL, Jan 2012.

151. **Actively tunable plasmon resonances in doped semiconductor quantum dots**, Invited Hot topic talk, Gordon Research Conference on Nanocrystals, Clusters, and Nanostructures, Mount Holyoke, MA, Jul 2011.

152. **Photons, ions, and defects on the nanoscale**, Invited talk, IIT Bombay, Chemistry Dept., Mumbai, India, Jun 2011.

153. **Lighting up the nanoscale**, Invited keynote speech, National Science Teachers Association Symposium, San Francisco, CA, Mar 2011.

154. **Photons, ions, and defects on the nanoscale**, Invited talk, Materials Science and Engineering Dept., Cornell University, Ithaca, NY, Mar 2011.

155. **Photons, ions, and defects on the nanoscale**, Dept. of Chemistry, UC Berkeley, CA, Jan 2011.

156. **Photons, ions, and defects on the nanoscale**, Dept. of Chemistry, Yale University, New Haven, CT, Jan 2011.

157. **Photons, ions, and defects on the nanoscale**, Dept. of Chemistry, University of Chicago, Chicago, IL, Dec 2010.

158. **Photons, ions, and defects on the nanoscale**, Dept. of Chemistry, University of Wisconsin, Madison, WI, Dec 2010.

159. **Photons, ions, and defects on the nanoscale**, Dept. of Chemistry, University of Illinois, Urbana-Champaign, IL Dec 2010.

160. **Photons, ions, and defects on the nanoscale**, Depts. of Chemical Sciences and of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai, India, Nov 2010.

161. **Lighting up nanostructures**, Chemical Engineering and Physics Depts., Institute of Chemical Technology, Mumbai, India, Feb 2010.

162. **Rational design of noble metal nanostructures: Implications for nanosensing**, Program track on NanoScience, SPIE Optics + Photonics Annual Meeting, San Diego, CA, Aug 2009.

163. **Using nanostructures to control Light: Implications for biomedicine**, University of California San Francisco Medical School, CA, Jul 2009.

164. **Controlling light at the nanoscale using noble metals**, Department of Condensed Matter Physics and Materials Science, Tata Institute of Fundamental Research, Mumbai, Feb 2009.

165. **Gold nanoparticles: Properties and some applications in medicine and biology**, Program Track on Nano/Biophotonics, SPIE Photonics West, San Jose, CA, Jan 2009.

166. **Surface plasmon resonance-enhanced magneto-optics (SuPREMO)**, Walsworth group, Center for Astrophysics, Harvard University, Cambridge, MA, Nov 2008.

167. **Plasmonic nanostructures for enhancing optical activity**, Chemistry and Chemical Biology Student and Postdoc Seminar Series, Harvard University, Cambridge, MA, Nov 2008.

168. **A universal scaling model for materials design of plasmonic nanostructures**, Graduate Student Awards Symposium, Fall MRS Meeting, Boston, MA, Nov 2007.

169. **The physical nature of coupling between noble metal plasmons**, Atlanta Area Chemical Physics Prize Lectures, Emory University, Atlanta, GA, Mar 2008.

170. **The physical nature of plasmon coupling**, University of California at Berkeley, Liphardt Lab, Dept. of Physics, Nov 2007.

171. **How do noble metal plasmons couple**, Harvard University, Department of Chemistry and Chemical Biology, Oct 2007.

172. **Plasmonic gold nanotechnology for the diagnosis and selective photothermal therapy of cancer**, Elan Drug Technologies Georgia Tech Visit, Petit Institute for Bioscience and Bioengineering, Georgia Institute of Technology, Atlanta, GA, Jan 2007.

173. **Coupling in nanoparticle assemblies: An interesting look at plasmons and their nanotechnological applications**, PhD Student Awards Symposium, School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, Oct 2006.

FUNDING AWARDED AS PI OR LEAD PI

- Discovery fund, Chemistry department, Yeast factories powered by plasmonic light harvesters for manufacturing of valuable chemicals from carbon dioxide, PI with collaborator Angad Mehta, $40,000 awarded, 01/01/2025-12/31/2026.

- National Science Foundation-Deutsche Forschungsgemeinschaft MISSION: Unraveling structures and dynamics of plasmonic catalysts by in situ X-ray and electron-based Probing (CAPTURE), US PI with German collaborators Renske van der Veen and Christoph Koch, $333,850 awarded, 12/15/2024-12/14/2027.
- Aramco Services Company, A plasmonic redox technology for hydrogen production, PI, $699,000 awarded, 09/16/2023-09/15/2026
- National Science Foundation CHE Division, Maximizing the harvesting of photogenerated electron-hole pairs in hybrid plasmonic nanosystems, PI, $441,678 awarded, 06/15/2023-06/14/2026
- American Chemical Society Petroleum Research Fund New Directions, Mechanistic elucidation of C-H activating carboxylation on heterogeneous catalysts, PI, $110,000 awarded, 01/01/2023-08/31/2025
- University Scholar, Awardee, $45,000 awarded, 08/16/2022-08/15/2025
- John Simon Guggenheim Memorial Foundation, Energy from light stored, shuttled, and used on demand, Guggenheim fellowship of $70,000 awarded, 05/01/2022-04/30/2023
- National Science Foundation CAREER Award Supplement, Elucidation of the mechanistic origins of plasmon-induced chemical reactions, PI, $119,848 awarded, 09/01/2021-02/28/2023
- Alumni Research Scholar, Awardee, $75,000 awarded, 08/16/2020-08/15/2025
- Discovery Fund, Department of Chemistry, PI, $40,000 awarded, 09/01/2018-8/31/2020
- Richard and Margaret Romano Professorial Scholar, Awardee, $45,000 awarded, 01/01/2018-12/31/2020
- Energy and Biosciences Institute/Shell, Enhancing clean energy technologies by visible light plasmonic excitation, PI, $879,736 awarded, 09/01/2017-05/31/2021
- Energy and Biosciences Institute/Shell, Fast-ion transport in nanostructured solid electrolytes, PI, $750,000 awarded, 09/01/2017-05/31/2021
- National Science Foundation CAREER Award, Elucidation of the mechanistic origins of plasmon-induced chemical reactions, PI, $655,580 awarded, 08/01/2015-08/31/2021
- 3M Nontenured Faculty Award, PI, $45,000 awarded, 08/01/2015-07/31/2018
- American Chemical Society Petroleum Research Fund Doctoral New Investigator, Discovery of active sites on nanostructured oxides for desulfurization, PI, $110,000 awarded, 09/01/2015-08/31/2017
- Arnold and Mabel O. Beckman Young Investigator Award, PI, $750,000 awarded, 09/01/2014-08/31/2019
- Alfred P. Sloan Foundation Research Fellowship in Chemistry, Awardee, $50,000 awarded, 09/15/2014-09/14/2016
- DuPont Young Professor grant, Discovery of Structure-Activity Relationships on the Nanoscale, PI, $75,000 awarded, 09/01/2013-08/31/2016
- UIUC Campus Research Board, PI, $14,240 awarded, 10/10/2013-07/01/2015
- NCSA Faculty fellowship, A Platform for Characterization and Prediction of Novel Nano-optic Phenomena, PI, $25,000 awarded, 09/01/2012-08/31/2013

FUNDING AWARDED AS CO-PI/COLLABORATOR

- National Science Foundation, Designing Materials to Revolutionize and Engineer our Future (DMREF) program, Rational design of redox-responsive materials for critical element separations, Co-PI with lead PI Xiao Su and co-PIs Shukla, Mironenko, and Calabrese, $2,000,000 awarded, 10/01/2023-09/31/2027.
- National Science Foundation, EAGER: Quantum Manufacturing: Machine learning-powered deterministic nanoassembly of ultrafast quantum photonic devices, co-PI with lead PI Bogdanov and co-PI Clark, $250,000 awarded, 09/15/2023-08/31/2025
- UNAM and U of I Research Partnership Program, Electricity and solar-powered upconversion of waste nitrate to ammonia, UIUC PI with UNAM PI Romo-Herrera, $39,990 awarded, 03/01/2023-12/31/2023
- National Science Foundation, ECLIPSE program, Mechanistic understanding and control of nitrogen activation in an atmospheric-pressure plasma-liquid reaction, co-PI with lead PI Sankaran, $457,087 awarded, 08/15/2022-07/31/2025
- Strategic research initiatives (SRI), Phase II award, Grainger College of Engineering, Scalable fabrication of ultrafast quantum photonic devices by a machine learning-powered deterministic assembly process, co-PI with PI Bogdanov and co-PI Clark, $75,000 awarded, 05/16/2022-05/15/2023
- Strategic research initiatives (SRI), Phase I award, Grainger College of Engineering, Scalable fabrication of ultrafast quantum photonic devices by a machine learning-powered deterministic assembly process, co-PI with PI Bogdanov and co-PI Clark, $70,000 awarded, 05/16/2021-05/15/2022
- iSEE Research Seed Funding, Integrated electrochemical separation technologies for nutrient recovery and valorization, co-PI with PI Su and co-PIs Sankaran and Wang, $30,000 awarded, 01/16/2021-01/15/2022
- ACES Future Interdisciplinary Research Explorations, Electrified production of ammonia and its energy and environmental impact, co-PI with PI Wang and co-PIs Sankaran and Su, $59,931 awarded, 10/01/2020-09/30/2022
- National Science Foundation, Major Research Instrumentation, Acquisition of an electron energy-loss spectrometer for in situ time-resolved chemical mapping of nanomaterials, co-PI with PI Renske van der Veen and others, $561,254 (+ cost-sharing), awarded, 08/01/2018-07/31/2021
- National Science Foundation, Major Research Instrumentation, Development of a dynamic environmental transmission electron microscope, Senior Personnel with PI Jian Min-Zuo and several others, $1,792,000 (+ cost-sharing), awarded, 08/01/2012-07/31/2015
- National Science Foundation, Network for Computational Nanotechnology, NanoBIO Node, Key participant with PI Emad Tajkhorshid and several others, $3,777,990 awarded, 09/01/2012-08/31/2017

COMPUTATIONAL TIME AWARDS

- Spring 2023 Illinois Quantum Applications Grant Program, Quantum simulations of plasmons, Funding for PI Jain to take the two-part Quantum Computing for Everyone EdX course and $1000 in AWS Braket computing credits for running code on a 34 qubit simulator and real quantum computing hardware, awarded Nov 2022
- Fall 2022 Illinois Quantum Applications Grant Program, Quantum simulations of plasmons, Funding for PI Jain to take the two-part Quantum Computing for Everyone EdX course and $1000 in AWS Braket computing credits for running code on a 34 qubit simulator and real quantum computing hardware, awarded Apr 2022
- NCSA Blue Waters General Allocation Renewal & Supplement, Investigation of Novel Crystal Phases & Electronic Topologies in Semiconductor Nanostructures, 440,000 NUs (equivalent to $273,000) awarded, 1/16/2019-12/20/2019

- XSEDE Renewal Research Allocation, DFT Computational Study of Cation Exchange & Transport in Crystalline Solids, 350,000 SUs awarded, 1/1/2019-12/31/2019
- XSEDE Full Research Allocation, DFT Computational Study of Cation Exchange & Transport in Crystalline Solids, 300,000 SUs awarded, 1/1/2018-12/31/2018
- NCSA Blue Waters General Allocation, Investigation of Novel Crystal Phases & Electronic Topologies in Semiconductor Nanostructures, 75,000 NUs awarded (equivalent to $46,000), 11/22/2017-11/21/2018
- XSEDE Full Research Allocation, DFT Computational Study of Cation Exchange & Transport in Crystalline Solids, 350,000 SUs awarded, 10/16/2016-9/30/2017
- XSEDE Supplemental Allocation, DFT Study of Doping & Cation Exchange in CdSe Nanocrystals, 50,000 SUs awarded, 7/16/2016-2/2/2017
- NCSA Blue Waters Exploratory Allocation, Atomistic Modeling of Transformations in Ionic Semiconductor Nanocrystals, 30,000 NUs awarded, 5/16/2016-12/16/2016
- XSEDE Scholar (DDT) Award, DFT Study of Doping & Cation Exchange in CdSe Nanocrystals, 30,000 SUs awarded, 5/16/2016-10/16/2016
- XSEDE Supplemental Allocation, DFT Study of Doping & Cation Exchange in CdSe Nanocrystals, 50,000 SUs awarded, 4/16/2016-2/2/2017
- XSEDE Startup Allocation, DFT Study of Doping & Cation Exchange in CdSe Nanocrystals, 50,000 SUs awarded, 2/3/2016-2/2/2017

SERVICE AS PEER-REVIEWER

- Outstanding (top 5%) reviewer for JPC Letters
- Outstanding (top 5%) of reviewers for Angewandte Chemie in 2016
- Refereeing for journals: Science, Nature, Nature Chemistry, Nature Catalysis, Nature Energy, Nature Materials, Nature Nanotechnology, Science Advances, Nature Communications, Physical Review Letters, Journal of the American Chemical Society, Proceedings of the National Academy of Sciences, Chemical Society Reviews, Chemistry - A European Journal, Applied Physics A, Journal of Physical Chemistry (A, B, C, and Letters), ACS Photonics, Journal of Chemical Physics, Langmuir, Accounts of Chemical Research, Analytical Chemistry, ACS Nano, Nano Letters, Nanotechnology, Nanomedicine, Small, Journal of Nanoscience & Nanotechnology, Colloids & Surfaces, Colloids & Polymer Science, Chemistry of Materials, Applied Physics Letters, ACS Catalysis, Solid State Communications, Journal of Applied Physics, Physica Status Solidi, IEEE Transactions on Nanotechnology, ACS Energy Letters, ChemPhysChem, Angewandte Chemie, Ionics, Nanoscale, ACS Sustainable Chemistry and Engineering, Industrial and Engineering Chemistry, Chemical Science, Journal of Materials Chemistry A
- Books: Angewandte Chemie book review, Book proposals reviewed for John Wiley and Sons, Springer, and Elsevier

TEACHING

Sp'15,18,20,21,24;Fa'19-22,24 **University of Illinois** - Urbana Champaign, IL
Instructor for CHEM 444, Physical Chemistry II: Statistical Thermodynamics
Listed Teachers Ranked as Excellent by Their Students
Outstanding Ratings in Fa'19, Sp'20, Fa'22, and Fa'24

Sp'13,14,18; Fa'14,15 **University of Illinois** - Urbana Champaign, IL
Instructor for CHEM 447, Physical Principles laboratory II
Listed Teachers Ranked as Excellent by Their Students

Sp'13,14,18; Fa'13-16 **University of Illinois** - Urbana Champaign, IL
Instructor for CHEM 445, Physical Principles laboratory I
Listed Teachers Ranked as Excellent by Their Students

Fa'11,12 **University of Illinois** - Urbana Champaign, IL
Instructor for CHEM 544A, Graduate-Level Statistical Mechanics
Listed Teachers Ranked as Excellent by Their Students

Sp'19,22; Fa'25 **University of Illinois** - Urbana Champaign, IL
Instructor for CHEM 545, Graduate Physical Chemistry Seminar

SERVICE TO UNIVERSITY

2020- **University of Illinois** - Urbana Champaign, IL
Materials Research Laboratory Facilities Committee

2018-20 **University of Illinois** - Urbana Champaign, IL
School of Chemical Sciences Committee for Energy Service Company (ESCO) Project

2015-16 **University of Illinois** - Urbana Champaign, IL
Physical Chemistry Graduate Student Advising

2013&14 **University of Illinois** - Urbana Champaign, IL
NSF-3M REU Program Committee

2013-17 **University of Illinois** - Urbana Champaign, IL
Physical Chemistry Seminar Chair

2011-13 **University of Illinois** - Urbana Champaign, IL
Graduate Admissions and Recruiting for Physical Chemistry

2012-13 **University of Illinois** - Urbana Champaign, IL
Radiation and Laser Safety Committee

2012-14 **University of Illinois** - Urbana Champaign, IL
Organizer for Chemistry Faculty Lunch Meetings

2011- **University of Illinois** - Urbana Champaign, IL
Thesis Committee - Chris Berg (Chem), Subalakshmi Kumar (MatSE)
Sumit Ashtekar (Chem), Bruno Giuliano Nicolau (Chem)
William Shaw (Chem), Jonathan Eller (Chem), Nardine Abadeer (Chem)
Melinda Sindoro (Chem), Hyo Na Kim (Chem), Nuri Oh (MatSE)
Lisa Jacob (Chem), Neil Wilson (ChBE), Kandis Gillard (Chem)
Lea Nienhaus (Chem), Zachary Goldsmith (Chem), Huy Nguyen (Chem)
Jordan Dennison (Chem), Alan Sykes (Chem), Michael Counihan (Chem)
Kendrich Hatfield (Chem), Sean Meyer (Chem), Yiming Wang (Chem)
Abinaya Sampath (ChBE), Alex Schrader (Chem), Mahima Unnikrishnan (Chem)
Stanley Bram (Chem), Stephen Cotty (ChBE)
Lakshmy Priya Ajayakumar (Chem), Grant Barton (Chem)
Ziqiu Chen (ChBE), Jonathan Matsuura (Chem)
Nathan Forney (Chem), Lawrence Salvati (Chem)
Katherine Greskovich (Chem), Kristin Martin (Chem)
Pin-Yi Lu (Phys), Ching-Hsiu Chung (ChBE)
Adrija Dutta (Chem), Aditi Prasad (Chem)
Sukanya Dutta (Chem), Ojasvi Verma (Chem)
—¿Levi Dumpert (Chem)
Vanessa DeMarco (Chem senior thesis)

MENTORING AND OUTREACH

2011- **University of Illinois** - Urbana Champaign, IL

PhDs graduated

Chloe Litts (PhD Chem, Fall 2025), Currently Visiting Assistant Professor, Southwestern University
Wenxin Zhang (PhD MatSE, Fall 2025), Currently in Consulting at McKinsey and Company
Rachel Nixon (Chem, Spring 2025) Currently at Naval Research Laboratory as postdoctoral research associate
Francis Alcorn (Chem, Summer 2023) Currently at Sandia National Laboratories as postdoctoral research associate
Dimumol Devasia (Chem, Summer 2021) Currently at Intel as Process Engineer
Varun Mohan (MatSE, Fall 2020) Currently at Intel as Mask Operations Engineer
Jaeyoung Heo (MatSE, Fall 2020) Currently LG Chem following Postdoctoral Researcher position at Pacific Northwest National Lab
Daniel Dumett Torres (Chem, Fall 2019), Currently Physicist at Lawrence Livermore National Lab
Progna Banerjee (Physics, Fall 2018) Currently Assistant Professor in Department of Chemistry and Biochemistry at Loyola University, Chicago
Sarah White (Chem, Spring 2016) Currently at MKS Instruments as Sr. Scientist
Jeremy Smith (Chem, Spring 2016) Currently at KLA as Sr. Applications Engineer
Aaron Routzahn (Chem Spring 2016 Currently at Lam Research Corp. as Process Engineer
Mayank Behl (CHBE, Spring 2014) Currently at Intel as Process Engineer

PhD candidates:Chloe Litts (Chem)
Wenxin Zhang (MatSE), Sreelekshmi Venu (Chem)
Omar Ghaleb (Chem), Shantiv Sudarshan (MatSE)

Postdocs: Dr. Daeho Kim, Dr. Hyun-Hang Shin
Dr. Devashish Gokhale (co-advised with Prof. Xiao Su)

Undergraduates: Rucha Shukla (Chem), Sofia Koziura (Chem)
Claudia Niemyjski (Chem)

Former Postdocs: Enrique Contreras (Currently Assistant Professor, Department of Chemistry and Biochemistry, California State University, San Bernandino)
Biswanath Dutta (Currently Heterogeneous Catalysis Scientist, Leidos/National Energy Technology Lab)
Ki-Hyun Cho (Currently Assistant Professor of Energy Engineering, Dankook University)
Ankita Das
Youngsoo Kim (Currently Assistant Professor, School of Chemistry and Biochemistry Yeungnam University)
Andrew Wilson (Currently Assistant Professor of Chemistry,e University of Louisville)
Sungju Yu (Currently Assistant Professor, Departments of Chemistry and Energy Systems, Ajou University)
Jianxiao Gong (Currently Professor at National Center for Nanoscience and Technology)
Jun Wang (Currently Professor at Nanjing Tech University)
Indranath Chakraborty (Currently Assistant Professor in the School of Basic Sciences at the Indian Institute of Technology, Kharagpur
Pooja Tyagi (Currently Senior Data Science Consultant at QuantumBlack)
Gayatri Kumari (Completed Postdoctoral Research at DIFFER, Netherlands)
Xueqiang Zhang (Currently Professor at the Beijing Institute of Technology Advanced Research Institute of Multidisciplinary Science and the Department of Mechanical Engineering)

Former UG Researchers:
Xindi Yang (Chem), Maya Chattoraj (Chem), Omar Ghaleb (Chem), Bladen Lee (Chem)
Haobo Wu (Chem exchange program), Roma Frances Ripani (Chem)
Qing Yang (Chem), Melika Fini (Chem), Luis Garibay (NSF REU student)
Jiayi Fu (NSF REU student), Dinumol Devasiya (Bose Scholar)

Ryan Sanders (ChBE), Naveed Akhter (Chem), Priya Patel (Chem)
Roarke Burnett (Chem), Johan Yapo (Chem), Aditi Sharma (Bose Scholar)
Bara Saadah (BioE), Ria Christie Christina (Chem)
Tobias Blickhan (UG exchange, TMU Germany), Mahima Unnikrishnan (Bose Scholar)
Junqi Fressia Peng (Chem), Paul Butkovich (Chem)
Zhe Zhang (Peking University UG summer intern), Eric Wu (ChBE), David Qiu (Chem)
Aidan Lindsay (Chem), Emmet Rubin (Chem)
Molly Deely (Chem), Ayush Sharma (Engineering Physics)
Ram Ganesan (Computer Science and Chem), Tharun Baburaj (ChBE)
Other Former Researchers: Juhee Ha (visiting researcher for Yeungnam University, S. Korea)
Jose Manuel Ruiz Marizcal (visiting researcher from
CNyN-Universidad Nacional Autonoma de Mexico, Mexico)
Lucas Germano (visiting researcher from University of São Paulo, Brazil)
Wei Lin (visiting scientist), Shengjie Xia (visiting professor)
Lam-Kiu Fong (intern), Rebecca Smith (intern)
Milo Russell (Chem grad 2011-2013),Jacob Faucheaux (Chem grad 2012-2014)
Alexandria Stanton (Chem grad 2012-2014), Cecilia Gentle (Chem grad 2015)
Cody Tripp (Masters program), Alexander K,urzhals (Masters program)

Aug 2023 **Arnold and Mabel O. Beckman Foundation**
Panelist on the Matriculating Through Academia Panel at the 2023 Beckman Symposium, Irvine, CA

Oct 2022 **Electrochemical Society**
Co-chair on session on Plasmonics and Photocatalysis
at 242nd Electrochemical Society (ECS) Meeting, Atlanta, GA

Feb 2022 **University of Illinois Urbana-Champaign**
Panelist on strategies for dissemination of research for Chem 590F Preparing Future Faculty class

Aug 2020 **American Chemical Society**
Session Chair, 260th ACS National Meeting PHYS symposium
on Spectroscopy for Understanding Catalysis (held virtually)

Jan 2019 **American Chemical Society**
Awards committee, PHYS Division and Journal of Physical Chemistry

Apr 2017 **253rd ACS National Meeting, San Francisco, CA**
Judging panel, PHYS Poster Session

Mar 2016 **251st ACS National Meeting, San Diego, CA**
Lead Organizer, Physical Principles in Functional Nanoscience Symposium

Mar 2016 **nanoBIO node Plasmonics workshop, University of Colorado at Boulder**
Organizing committee member

Sep 2015 **University of Illinois** - Urbana Champaign, IL
Panelist for President's Executive Leadership Program (PELP) selected by Chancellor

Nov 2013 **University of Illinois** - Urbana Champaign, IL
Panelist, Professional development workshop for postdoctoral scholars

2012-17 **nanoBIO node at University of Illinois** - Urbana Champaign, IL
Lead scientific developer of nanoDDSCAT, educational/research tool for nanophotonic simulations

Jul 2013 **STEM Beginning Teacher Conference, Illinois New Teacher Collaborative** - Urbana, IL
Discussed nanoscience education as featured breakout session speaker

Spring 2013 **EnLiST/University of Illinois Chemistry Outreach Program** - Urbana, IL
Faculty mentor for chemistry outreach program at ML King school

Apr 2012 **Eastern Illinois ACS WCC Undergraduate Symposium** - Urbana, IL
Judging panel, Undergraduate research oral presentations

Apr 2012 **Berkeley Nanotechnology Forum** - Berkeley, CA
Judging panel, Nanotechnology research poster presentation

2009-10 **Community in the Classroom** - Berkeley, CA
Instructor for lesson activities on solar energy and photochemistry at local schools

2005-06 **Nano@Tech, Georgia Institute of Technology** - Atlanta, GA
Participated in Nanotechnology Outreach (CEISMC camp, 'Ask a Scientist') for school students

LAB MEMBER ACHIEVEMENTS

2025 Omar Ghaleb Peixin He and Xiaoming Chen PhD4 Graduate Fellowship

2025 Rachel Nixon Walter Klemperer Award for Outstanding Materials Chemistry PhD Thesis

2024 Devashish Gokhale - Materials Research Laboratory Professor Joe Greene Postdoctoral Fellowship

2024 Arda Turk - Kenneth L. Rinehart Fellowship

2024 Sreelekshmi Venu - Thor R. Rubin Fellowship

2024 Omar Ghaleb - Eugene P. and Julianne V. Janulis Graduate Fellowship

2023 Francis Alcorn - Klemperer Award for Outstanding Materials Chemistry PhD Thesis

2023 Chloe Litts - University Block Grant

2023 Chloe Litts - Peixin He and Xiaoming Chen PhD4 Graduate Fellowship

2023 Omar Ghaleb - Robert F. Carr Fellowship in Chemistry

2023 Sreelekshmi Venu - John and Margaret Witt Fellowship

2023 Wenxin Zhang Racheff Teaching Fellow (twice)

2023 Aidan Lindsay - ACS PHYS Division Undergraduate Award in Physical Chemistry for UIUC

2023 Aidan Lindsay UIUC Undergraduate Research Symposium Honorable Mention for Poster Presentation

2023 Aidan Lindsay Barry M. Goldwater Scholarship

2023 Wenxin Zhang Racheff Teaching Fellow

2023 Molly Deeley John E. Gieseking Scholarship for Undergraduate Research

2022 Aidan Lindsay East Central Illinois ACS Undergraduate Research Conference
Outstanding Oral Presentation

2022 Rachel Nixon - Thor R. Rubin Fellowship

2022 Sreelekshmi Venu - Carl S. Marvel Fellowship

2022 Chloe Litts - Thor R. Rubin Fellowship

2022 Aidan Lindsay - Oliver J. Bell Merit Scholarship in Chemical Sciences

2022 Aidan Lindsay - Glenn Rhodes Wilson Scholarship in Chemistry

2022 Rachel Nixon - ACS Summer School on Green Chemistry & Sustainable Energy

2022 Rachel Nixon - National Defense Science and Engineering Graduate Fellowship Honorable Mention

2022 Aidan Lindsay - Peter Beak Scholarship for Undergraduate Research (declined)

2022 Rachel Nixon - Diffenbaugh Fellowship

2021 Chloe Litts - Thor R. Rubin Fellowship

2021 Rachel Nixon - Thor R. Rubin Fellowship

2021 Frank Alcorn - Thor R. Rubin Fellowship

2021 Maya Chattoraj - Clare Boothe Luce Research Scholar

2021 Maya Chattoraj - Mary-Dell and Scott Chilton Scholarship for Undergraduate Research

2021 Maya Chattoraj - Campus Honors Program Summer Research Grant (declined)

2021 Rachel Nixon - NSF Graduate Research Fellowship Honorable Mention

2020 David Qiu - Worth H. Rodebush Award

2020 David Qiu - ACS Division of Physical Chemistry Undergraduate Award

2020 Varun Mohan - Racheff-Intel Award for Outstanding MatSE Graduate Students

2020 Maya Chattoraj - Campus Honors Program Summer Research Grant

2020 Dinumol Devasia - TechnipFMC Fellowship

2021 Frank Alcorn - NSF Graduate Research Fellowship Honorable Mention

2019 Dinumol Devasia - Women in Chemistry Committee Travel Award

2019 Daniel Dumett Torres - Physical Chemistry Dissertation Award

2019 Dinumol Devasia - Victor E. Buhrke Graduate Fellowship

2019 David Qiu - John E. Gieseking Scholarship for Undergraduate Research

2019 Dinumol Devasia - J.C. Martin Memorial Student Travel Award

2018 Stanley Bram - Roger Adams Fellowship

2018 Frank Alcorn - Springborn Graduate Fellowship and Roger Adams Fellowship

2018 Daniel Dumett Torres - Workshop for Nanomaterials for Energy Storage and Conversion, Tel Aviv

2018 Dinumol Devasia - Sloan Chemical Prize

2018 Alex Kurzhals - Mark Pytosh Fellowship

2018 Progna Banerjee - Scott Anderson Outstanding (Physics) Graduate Assistant Award

2017 Sungju Yu Bronze Medal at 2017 Samsung Electro-Mechanics Paper Competition

2017 Daniel Dumett Torres - Dorothy M. and Earl S. Hoffman Travel Grant, American Vacuum Society

2017 Daniel Dumett Torres - Drickamer Fellowship

2017 Dinumol Devasia - Mark Pytosh Fellowship

2017 Progna Banerjee - First Prize, Monsanto Research Symposium Poster Presentation

2017 Progna Banerjee - Department of Physics Grad Student Travel Award

2016 Bara Saadah - Mayo Clinic Summer UG Research Fellowship

2016	Andrew Wilson - Springborn Postdoctoral Fellowship
2016	Daniel Dumett Torres- Mr. Chinoree T. and Mrs. Kimiyo Enta Fellowship
2016	Daniel Dumett Torres - Eastman Travel Award
2016	Progna Banerjee - Academic Leadership for Women Engineers Program & Travel Award
2016	Daniel Dumett Torres- XSEDE Scholar
2015	Jeremy Smith - Geerdes Travel Award
2015	Cody Tripp - SCS Graduate Teaching Travel Award
2015	Aaron Routzahn - Eastman Travel Award
2015	Daniel Dumett Torres - Chinoree T. Kimiyo Enta Scholarship
2015	Naveed Akhter - John E. Gieseking Scholarship
2015	Sarah White - Klemperer/Materials Chemistry Best Dissertation Award
2015	Jeremy Smith - Eastman Travel Grant Award
2014	Sarah White- J. & M. Witt Fellowship
2014	Cody Tripp - J. & M. Witt Fellowship
2014	Jeremy Smith - Buhrke Fellowship
2014	Cody Tripp - Dept. of Chemistry Teaching Excellence Fellowship
2013	Mayank Behl - Hanratty Travel Award
2013	Chemistry in Motion College and University Challenge, ACS Indianapolis
2013	Sarah White - University Fellowship and Jeremy Smith - James R. Beck Fellowship
2013	Paul Butkovich - Summer Research Scholarship from Chemistry Dept.
2013	Aaron Routzahn - NSF Graduate Fellowship
2013	Jacob Faucheaux - NSF Graduate Fellowship
2012-13	Mayank Behl - FMC Graduate Fellowship
2012	Qing Yank and Melika Fini - Summer Research Scholarships from Chemistry Dept.
2012	Luis Garibay - NSF-3M REU Fellowship
2012	Aaron Routzahn - NSF Graduate Research Fellowship Honorable Mention
2012	Mayank Behl - Dow Chemical Company Graduate Fellowship
2012	Lam-Kiu Fong - NSF Graduate Student Fellowship
2011-12	Sarah White - Sylvia Stoesser Departmental Fellowship
2012	Melika Fini and Qing Yang - Summer Research Fellowships
2012	Qing Yang - Wilson Scholarship
2012	Sarah White and Mayank Behl - ACS International-Domestic Student Summit

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