Subhajyoti Chaudhuri

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Current Position

Postdoctoral Fellow	**Northwestern University** (2020 - Present) Department of Chemistry Advisor: **Prof. George C. Schatz**

Education

PhD MPhil & MS	**Yale University** (Spring 2020) School of Engineering & Applied Science Department of Chemistry Advisor: **Prof. Victor S. Batista** Thesis Title: Studies on electron transfer in weakly coupled systems
MSc	**Jadavpur University** Department of Instrumentation Advisor: Prof. Arun K. Pal Thesis Title: BN / Pd composite films for liquid petroleum gas sensing
BSc	**University of Calcutta** Department of Physics Minor: Mathematics & Electronics

Publications

Peer-reviewed Journals

Updated list available on **Google Scholar** [ ]

23. Silver Nanoparticle Synthesis in Glycerol by Low-pressure Plasma Driven Electrolysis: The Roles of Free Electrons and Photons
Chi Xu, Subhajyoti Chaudhuri, Julian Held, Himashi Andaraarachchi, George C Schatz, Uwe Kortshagen
J. Phys. Chem. Lett. 2023 (In Press)

22. Observing Similarities and Differences in the Properties of Isostructural Niobium(V)/Tantalum(V) Coordination Compounds with Strong Pi-donor Ligands
Maxwell H Furigay*, Subhajyoti Chaudhuri*, Chenshuai Li, Jiawang Zhou, Pragati Pandey, Robert Higgins, Himanshu Gupta, Patrick Carroll, Michael R Gau, Jessica Anna, George C Schatz, Eric J Schelter
Inorg. Chem. 2023 (In Press)
* Contributed equally

21. A Reaction Mechanism for Plasma Electrolysis of AgNO3 Forming Silver Nanoclusters and Nanoparticles
Astrid L Raisanen, Chelsea M Mueller, Subhajyoti Chaudhuri, George C Schatz, Mark J Kushner
J. Appl. Phys. 2022, 132, pp 203302 [🐾]

20. Tantalum, Easy as Pi: Understanding Differences in Metal-Imido Bonding Towards Improving Ta/Nb Separations
Alexander B Weberg*, Subhajyoti Chaudhuri*, Thibault Cheisson, Christian Uruburo, Ekaterina Lapsheva, Pragati Pandey, Michael Gau, Patrick Carroll, George C Schatz, Eric J Schelter
Chem. Sci. 2022, 13, pp 6796-6805 [🐾]
* Contributed equally | Front Cover

19. 300-fold conductivity increase in microbial cytochrome nanowires due to 5 temperature-induced restructuring of hydrogen bonding networks
Peter J. Dahl, Sophia M. Yi, Yangqi Gu, Atanu Acharya, Catharine Shipps, Jens Neu, J. Patrick O'Brien, Uriel N. Morzan, Subhajyoti Chaudhuri, Matthew J. Guberman-Pfeffer, Dennis Vu, Sibel Ebru Yalcin, Victor S. Batista, Nikhil S. Malvankar
Sci. Adv. 2022, 8, eabm7193 [🐾]

18. Selective Reduction of Niobium(V) Species to Promote Molecular Niobium/Tantalum Separation
Maxwell H. Furigay, Subhajyoti Chaudhuri, Sean M. Deresh, Alexander B. Weberg, Pragati Pandey, Patrick J. Carroll, George C. Schatz, and Eric J. Schelter
Inorg. Chem. 2022, 61, 1, pp 23-27 [🐾]

17. A Conductive Metal-Organic Framework Photoanode
Brian Pattengale, Jessica Freeze, Matthew Guberman-Pfeffer, Ryotaro Okabe, Sarah Ostresh, Subhajyoti Chaudhuri, Victor S. Batista, Charles Schmuttenmaer
Chem. Sci. Edge Article, 2020, 11, pp 9593-9603 [🐾]

16. Electric Field Stimulates Production of Highly Conductive Microbial OmcZ Nanowires
Sibel Ebru Yalcin, J. Patrick O'Brien, Yangqi Gu, Krystle Reiss, Sophia M. Yi, Ruchi Jain, Vishok Srikanth, Peter J. Dahl, Winston Huynh, Dennis Vu, Atanu Acharya, Subhajyoti Chaudhuri, Tamas Varga, Victor S. Batista, Nikhil S. Malvankar
Nat. Chem. Biol. 2020, 16, pp 1136–1142 [🐾]

15. Decelerating Charge Recombination Using Fluorinated Porphyrins in N,N-bis(3,4,5-trimethoxy phenyl)aniline - Aluminum(III) Porphyrin - Fullerene Reaction Center Models
Niloofar Zarrabi, Sairaman Seetharaman, Subhajyoti Chaudhuri, Noah Holzer, Victor S. Batista, Art van der Est, Francis D'Souza, Prashanth K Poddutoori
J. Am. Chem. Soc. 2020, 142, 22, pp 10008–10024 [🐾]

14. Regioselective Ultrafast Photoinduced Electron Transfer from Naphthols to Halocarbon Solvents
Subhajyoti Chaudhuri, Atanu Acharya, Erik TJ Nibbering, Victor S Batista
J. Phys. Chem. Lett. 2019, 10 (11), pp 2657-2662 [🐾]

13. Effect of Electronic Coupling on Electron Transfer Rates from Photoexcited Naphthalenediimide Radical Anion to Re(bpy)$(CO)_3$X
Jose F Martinez, Nathan T La Porte, Subhajyoti Chaudhuri, Alessandro Sinopoli, Youn Jue Bae, Muhammad Sohail, Victor S Batista, Michael R Wasielewski
J. Phys. Chem. C 2019, 123 (16), pp 10178–10190 [🐾]

12. Phenothiazine Radical Cation Excited States as Super-oxidants for Energy Demanding Reactions
Joseph A Christensen, Brian T Phelan, Subhajyoti Chaudhuri, Atanu Acharya, Victor S Batista, Michael R Wasielewski
J. Am. Chem. Soc. 2018, 140 (15), pp 5290–5299 [🐾]

11. Can TDDFT Describe Excited Electronic States of Naphthol Photoacids? A Closer Look with EOM-CCSD
Atanu Acharya, Subhajyoti Chaudhuri, Victor S Batista
J. Chem. Theory Comput. 2018, 14 (2), pp 867–876 [🐾]

10. Photoexcited Radical Anion Super-reductants for Solar Fuels Catalysis
Nathan T La Porte, Jose F Martinez, Subhajyoti Chaudhuri, Svante Hedström, Victor S Batista, Michael R Wasielewski
Coord. Chem. Rev. 2018, 361: 98-119 [🐾]

9. Electron Transfer Assisted by Vibronic Coupling from Multiple Modes
Subhajyoti Chaudhuri*, Svante Hedström, Dalvin D Méndez-Hernández, Heidi P Hendrickson, Kenneth A Jung, Junming Ho, Victor S Batista
J. Chem. Theory Comput. 2017, 13 (12), pp 6000–6009 [🐾]
* Corresponding author

8. Thousandfold Enhancement of Photoreduction Lifetime in Re (bpy)(CO)3 via Spin-Dependent Electron Transfer from a Perylenediimide Radical Anion Donor
Svante Hedström*, Subhajyoti Chaudhuri*, Nathan T La Porte, Benjamin Rudshteyn, Jose F Martinez, Michael R Wasielewski, Victor S Batista
J. Am. Chem. Soc. 2017, 139 (46), pp 16466–16469 [🐾]
* Contributed equally

7. Linker Length-Dependent Electron-injection Dynamics of Trimesitylporphyrins on SnO2 Films
Shin Hee Lee, Kevin P Regan, Svante Hedström, Adam J Matula, Subhajyoti Chaudhuri, Robert H Crabtree, Victor S Batista, Charles A Schmuttenmaer, Gary W Brudvig
J. Phys. Chem. C 2017, 121 (41), pp 22690–22699 [🐾]

6. Ultrafast Photo-induced Charge Transfer of 1-naphthol and 2-naphthol to Halocarbon Solvents
Subhajyoti Chaudhuri, Benjamin Rudshteyn, Mirabelle Prémont-Schwarz, Dina Pines, Ehud Pines, Dan Huppert, Erik TJ Nibbering, Victor S Batista
Chem. Phys. Lett. 2017, 683:49-56 [🐾]
Ahmed Zewail Commemoration Issue

5. Fundamental Role of Oxygen Stoichiometry in Controlling the Band Gap and Reactivity of Cupric Oxide Nanosheets
Zachary S Fishman, Benjamin Rudshteyn, Yulian He, Bolun Liu, Subhajyoti Chaudhuri, Mikhail Askerka, Gary L Haller, Victor S Batista, Lisa D Pfefferle
J. Am. Chem. Soc. 2016, 138 (34), pp 10978–10985 [🐾]

4. Facile Solvolysis of a Surprisingly Twisted Tertiary Amide
Aaron J Bloomfield, Subhajyoti Chaudhuri, Brandon Q Mercado, Victor S Batista, Robert H Crabtree
New J. Chem. 2016, 40, 1974-1981 [🐾]
Front Cover

3. Molecular Titanium–hydroxamate Complexes as Models for TiO_2 Surface Binding
Bradley J Brennan, Jeffrey Chen, Benjamin Rudshteyn, Subhajyoti Chaudhuri, Brandon Q Mercado, Victor S Batista, Robert H Crabtree, Gary W Brudvig
Chem. Commun. 2016, 52, 2972-2975 [🐾]

2. Synthesis of Carbon Nano-fibers on p-Si Having Improved Temperature Sensing Capability
Shamima Hussain, Dibyendu Ghosh, Barun Ghosh, Subhajyoti Chaudhuri, Radhaballabh Bhar, Arun K Pal
Mater. Sci. Eng. B 2013, 178, 83–88 [🐾]

1. Novel BN/Pd Composite Films for Stable Liquid Petroleum Gas Sensor
Dibyendu Ghosh, Barun Ghosh, Shamima Hussain, Subhajyoti Chaudhuri, Radhaballabh Bhar, Arun K Pal
Appl. Surf. Sci. 2012, 263, 788–794 [🐾]

Submitted/ In-Revision

4. Interface passivation revealed by transient spectroscopy in 24% performance solar cell
Jafar I. Khan, Yi Yang, Jonathan Palmer, Samuel Tyndall, Subhajyoti Chaudhuri, Cheng Liu, Luke Grater, Jamie D North, Bin Chen, Ryan M Young, George C Schatz, Michael Wasielewski, Mercouri G Kanatzidis, Edward H Sargent, Dayne F Swearer

3. Probing Time-Resolved Plasma-Driven Solution Electrochemistry in a Falling Liquid Film Plasma Reactor
Tanubhav Srivastava, Subhajyoti Chaudhuri, Christopher Rich, George C Schatz, Renee Frontiera, Peter J Bruggeman

2. Selective Redox-reactive Separations of Niobium and Tantalum
Maxwell H Furigay, Qiaomu Yang, Subhajyoti Chaudhuri, Michael R Gau, George C Schatz, Eric J Schelter

1. Effects of Structural Constraints on Excited-state Properties in Dimeric Cu(I) Diimine Complexes
Waleed Helweh, Pyosang Kim, Zachary J Mast, Brian T Phelan, Nicholas P Weingartz, Subhajyoti Chaudhuri, Randolph P Thummel, George C Schatz, Lin X Chen

Awards

Ta-Nb International Study Center (TIC)

Anders Gustaf Ekeberg Tantalum Prize (2022)
The Anders Gustaf Ekeberg Tantalum Prize ('Ekeberg Prize') is awarded annually by the T.I.C. for excellence in tantalum research and innovation. The Prize is awarded to the lead author(s) of the published paper, book or patent that is judged by an independent panel of experts to have made the greatest contribution to understanding the processing, properties or applications of tantalum.
2022 Prize awarded for Chem. Sci. 2022, 13, pp 6796-6805

AIChE

AIChE Foundation Grant (2022)
Registration and travel award from The American Institute of Chemical Engineers to selected participants for attending the AIChE Annual Meeting.

NSF - CSSM

Mentorship Award (2022)
Awarded by NSF Center for Sustainable Separation of Metals for demonstration of exemplary mentorship.

NSF - CSSM

Sustainability Ambassador Award (2022)
Awarded by NSF Center for Sustainable Separation of Metals for considering and promoting sustainability in research and leading sustainability outreach efforts in the community.

Council for Lindau Nobel Laureate Meetings

Young Scientist | 69th Lindau Nobel Laureate Meeting (Physics) (2019)
Among the group of students & early career scientists selected from 88 countries to attend the 69th Lindau Nobel Laureate Meeting.
Funding: Deutsche Forschungsgemeinschaft (DFG)

ACS Publications

Best Poster | Cokerfest Symposium (2018)
Adjudged best out of 40 posters at the Cokerfest Symposium organized by Boston University.
Award Sponsor: Journal of Physical Chemistry

Yale University GSAS

University Fellowship (2013)
First year training fellowship awarded to selected incoming graduate students in the Graduate School of Arts & Sciences

DST Govt. of India

INSPIRE Fellowship (2013)
5-year fellowship awarded by the Department of Science & Technology (DST), Govt. of India to students standing 1st in the order of merit in a STEM Program at selected Universities/ Institutes in India.

CSIR Govt. of India

Junior Research Fellowship (2012)
5-year fellowship awarded by the Council of Scientific & Industrial Research (CSIR), Govt. of India, to students scoring > 99 percentile in the National Eligibility Test (NET) for pursuing PhD in Physical Sciences.

UGC Govt. of India

Lectureship (2012)
Awarded by the University Grants Commission (UGC), Govt. of India, to students selected through National Eligibility Test (NET) scoring > 99 percentile, deeming them eligible to be recruited as College/ University Lecturers in Physical Sciences.

Jadavpur University **University Gold Medal** (2012)
Awarded by Jadavpur University to the student standing 1st in the order of merit.

Jadavpur University **MSc Thesis Award** (2012)
Awarded by the Department of Instrumentation, Jadavpur University to the student with the best thesis in the MSc program.

NSS Govt. of India **National Merit Certificate** (2004 - 2006)
Awarded under the National Scholarships Scheme (NSS), Govt. of India to students scoring > 99.9 percentile in the Board Examinations. Awarded for securing a rank in the top 50 out of over 500,000 students.

Teaching Experience

2022 **DFT for Non-theorists**
NSF-CSSM (virtual)
Designed and taught a short course introducing the basic concepts and applications of density functional theory to a broad audience including undergraduate and graduate students, researchers, and faculty members.

2014 **Thermodynamics & Fluid Mechanics Laboratory**
Yale University
Helped design new experiments for the lab. Held weekly teaching sessions. Graded weekly reports. Provided feedback on scientific writing (this course was also taken to fulfill writing credit requirements).

2012 **Thin Films & Solid-State Materials**
Jadavpur University
Delivered lectures on thin-films deposition methods and design principles of photovoltaic devices. Graded weekly assignments.

2012 **Analytical Instrumentation Laboratory**
Jadavpur University
Held weekly laboratory sessions. Graded weekly reports.

2011 **Vacuum Science & Technology**
Jadavpur University
Held laboratory demonstration sessions. Graded weekly reports.

Mentorship Experience

Involved in research project design and scientific training of

Graduate Students
Baxter Flor Northwestern University (2023 - present)
Zachary Mast Northwestern University (2021 - present)
Nikhil Chellam Northwestern University (2020 - present)
Peter Dahl Yale University (2018 - 2019)
Raj Basak Yale University (2015 - 2016)
Yueshen Wu Yale University (2015 - 2016)

Summer Students
Michaela Polley Carleton College 2022
Max Wirtz University of Wisconsin, Platteville 2021

Visiting Student	Lu Wang	China University of Petroleum-Beijing	2020 - 2022

Mentored undergraduate and graduate students as part of

2022 - present	Lindau Mentoring Hub
2021 - present	Yale Cross Campus
2020 - present	CSSM Sustainability Ambassadors Program

Service & Outreach

Committee Service

Theoretical Chemistry Seminar Series
Organizer (2022 - present)
Organize and host the biweekly theoretical/ computational chemistry seminars in the Department of Chemistry at Northwestern University.

Center for Molecular Quantum Transduction
Thrust Coordinator (2023 - present)
Northwestern University
In charge of research updates for monthly CMQT meetings

Center for Sustainable Separation of Metals
Trainee Advisory Board Member (2020 - 2022)
Helped design and execute outreach projects for the NSF-CSSM. Organized the annual Sustainability Ambassadors Program.

Mathematical & Computational Methods in Quantum Chemistry
Organizing Committee (2016)
Yale University
Organized the KI-Net sponsored conference with Prof. Victor S. Batista at Yale University.

Yale BMS Symposium
Student Organizing Committee (2014)
Yale University
Helped organize the annual Bristol Myers Squibb Symposium in the Department of Chemistry at Yale University.

Outreach

NSF Critical Materials Outreach
Organizing Committee (2021 - 2023)
Designed and organized lectures and hands-on activities for K12 students in the greater Chicago area to teach them principles and methods of materials separation. Helped promote awareness about critical materials through social media content desig in collaboration with the Mütter Museum, Philadelphia.

New Haven Science Fair
Judge (2015 - 2018)
Mentor (2018 - 2019)
Evaluated science projects for the Science Fair Program and helped teachers in New Haven public schools design physical science experiments.

Splash at Yale
Instructor (2014)
Taught "Seeing the invisible", introducing concepts of microscopy and spectroscopy to students participating in the program.

Journal Reviewer

Journal of the American Chemical Society
Chemical Science
Journal of Physical Chemistry
Journal of Chemical Theory & Computation
Applied Materials & Interfaces
Chemical Physics Letters
Nano-Structures & Nano-Objects
Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy

Conferences, Symposia & Workshops

Talks & posters

AIChE Annual Meeting, FL, 2023
MRS Fall Meting, MA, 2023
77th ACS Northwest Regional Meeting, MT, 2023
AIChE Annual Meeting, AZ, 2022
DOE EFRC PI Meeting, DC, 2019
69th Lindau Nobel Laureate Meeting, Germany, 2019
256th ACS National Meeting, MA, 2018
Electron Donor Acceptor Interactions GRC, RI, 2018
Computational Chemistry GRC, VT, 2018
Cokerfest Symposium, MA, 2018
American Conference on Theoretical Chemistry, MA, 2017
253rd ACS National Meeting, CA, 2017
Connecticut Valley Quantum Chemistry Meeting, CT, 2017
KI-Net Mathematical & Computational Methods in Quantum Chemistry, CT, 2016
Yale-UCL Symposium on Materials, CT, 2016

Schools

What do your data say?, Northwestern University, IL, 2020
TSRC Summer School: Fundamental Science for Alternative Energy, CO, 2016

Skills

Scripting/ Programming

Bash, Python, C, Fortran
Mathematica, MATLAB

Softwares

QChem, Gaussian, ADF, ORCA, NWChem, VASP, NAMD

Languages

Native/ Bilingual

English, Hindi, Bengali

References

PhD Advisor

Prof. Victor S. Batista
John Gamble Kirkwood Professor
Department of Chemistry
Yale University
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Postdoc Advisor

Prof. George C. Schatz
Charles E. & Emma H. Morrison Professor
Department of Chemistry
Northwestern University
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Collaborators

Prof. Nikhil S. Malvankar
Associate Professor
Department of Molecular Biophysics and Biochemistry
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Benjamin Silliman Professor
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More on request