

SAURADIP CHAUDHURI

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PROFESSIONAL POSITIONS

- The University of Texas Health Science Center at Houston (UTHealth),
Department of Neurosurgery, Houston, TX, USA** (July 2018-present)
Postdoctoral Research Fellow
- Tennessee Technological University, Department of Chemistry, Cookeville, TN, USA** (Jan 2018-April 2018)
Postdoctoral Research Associate
- University of Rhode Island, Department of Chemistry, Kingston, RI, USA** (Sep 2015-Dec 2017)
Graduate Research Assistant
- University of Rhode Island, Department of Chemistry, Kingston, RI, USA** (Sep 2012-May 2015)
Graduate Teaching Assistant

EDUCATION

- University of Rhode Island, Kingston, RI, USA** 2017
Doctor of Philosophy (PhD), Organic Chemistry
Thesis: Derivatized Cyclodextrins and Their Modified Synthetic Architectures for Sensing and Catalysis
Advisor: Dr. Mindy Levine
- Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India** 2012
BS + MS (Integrated), Chemistry
Thesis: Synthesis of mesoporous silica and its utilization to develop UV-rays absorbing materials
Advisor: Prof. Ashis Sarkar
- M.P. Birla Higher Secondary School, Kolkata, India** 2007
Indian School Certificate Examination (ISCE)
Indian Certificate Secondary Education (ICSE)

RESEARCH EXPERIENCE

- University of Texas Health Science Center at Houston (UTHealth)** 2018-present
Postdoctoral Research Fellow with Professor Rachael W. Sirianni
Development of cyclodextrin based nanoparticles for encapsulation of Histone deacetylase inhibitor (HDACi) drugs, resulting in higher loading, sustained release and improved pharmacokinetics for treatment of pediatric neuro-oncology. Design and synthesis of amphiphilic β -cyclodextrin, cyclodextrin based polymeric networks and their derivatives for the formulation of drug-loaded nanoparticles.
- Tennessee Tech University, Department of Chemistry, Cookeville, TN, USA** 2018
Postdoctoral Research Associate with Professor Jesse D. Carrick
Design and synthesis of novel 'click' reaction based complexant scaffolds for minor actinide separations. Synthetic methodology for Sonogashira reactions on Br-MTP (6-bromo-2- [1,2,4-triazine-3-yl] pyridine) scaffolds for alkyne-diazo based click in pyrazole synthesis. Investigation of a wide variety of MTP scaffold scope, including different functional groups for post-synthetic modifications.
- University of Rhode Island, Department of Chemistry, Kingston, RI, USA** 2017
PhD student with Professor Mindy Levine
Studied the impact of supramolecular complexation of commercially available cyclodextrins and their modified synthetic derivatives on the reactivity and regioselectivity of organic reactions, with the goal of developing environmentally friendly novel organic methodology. Synthesis and characterization of fluorophore appended derivatives of cyclodextrins, as well as higher order cyclodextrin architectures for sensing and catalysis. Synthesis of near infra-red (NIR) squaraine dyes as complimentary guests for supramolecular cyclodextrin dimer hosts. Developing and optimizing reaction conditions, studying reaction mechanisms by ^1H NMR spectroscopy, and characterizing all supramolecular host-guest complexes using spectroscopic techniques. Binding analysis of triazolophane-based macrocycle with fluoride anions.
- Collaboration with Professor Arijit Bose (Dept. of Chemical Engineering) and Dr. Marc Mamak (Procter & Gamble Inc.)*
Investigation of the interaction of organic perfume compounds with multilamellar vesicles (MLV) composed of DEEDMAC surfactant. This provides insight into the underlying mechanism of vesicular structural transformations in presence of perfume raw materials (PRMs), therefore contributing to vesicular delivery of encapsulated ingredients like perfume in cosmetic industries.

Collaboration with Professor Thomas Boving (Dept. of Geosciences) and Dr. Alan Burke (International Dioxide Inc)

Characterization of solid α -cyclodextrin/chlorine dioxide complex as a potential water purification agent. Investigated complexes using a variety of spectroscopic techniques, developed key insights into the mechanism of cyclodextrin-based purification, packaging, and transport. Examined kinetics and selectivity of chlorine dioxide oxidation of organic contaminant compounds in presence of α -cyclodextrin. Investigated the scope of other cyclodextrin derivatives and prospective use of their synthetically modified derivatives.

Indian Institute of Technology (ISM), Department of Chemistry, Dhanbad, India

2012

M.S. Dissertation with Professor A. Sarkar

Studied the synthesis of mesoporous silica materials by various methods and their characterization by SEM & TEM to confirm porosity. The high surface area and ordered hexagonal pores of these materials make them perfect matrices for loading various drugs and active molecules. These materials are subsequently surface functionalized and incorporated with UV absorbing compounds to develop sunscreens for UV protection. Resulted in a departmental presentation and one platform presentation.

University of Rhode Island, Department of Chemistry, Kingston, RI, USA

2011

Visiting graduate student with Professor Mindy Levine

Synthesis of a variety of chiral polyamines from the cationic polymerization of chiral oxazolines. Studying potential applications of these polymers, including the complexation and delivery of siRNA to tumor cells, and templating the synthesis of gold nanoparticles for cellular delivery.

University of Hyderabad, School of Chemistry, Hyderabad, India

2010

Visiting Summer Researcher with Professor P.K. Panda

Synthesis of a new class of BODIPY dendrimers and characterized the complexes by ^1H NMR and mass spectral analysis. Synthesized a new isomer of a single side-strapped calix[4]pyrrole and characterized it by IR, ^1H NMR, ^{13}C NMR, and mass spectral analysis. Studied the binding of this macrocycle with anions and neutral small molecules.

Indian Institute of Technology (ISM), Department of Chemistry, Dhanbad, India

2009

Undergraduate Research Assistant with Professor Biswajit Chowdhury

Studied the preparation and characterization of rare-earth metal catalysts. Used sol-gel techniques to prepare mesoporous Gallium-TUD catalysts with variable loadings of Gallium. Found that mesoporous TUD materials with metal nanoparticles are highly efficient catalysts for organic transformations.

TEACHING & MENTORING EXPERIENCE

2019-current

Brandon Knight, Medical student, Dept. of Neurosurgery, UTHealth (Summer 2019)
Jose S. Enriquez Ortiz, Graduate student, Dept. of Neurosurgery, UTHealth (Fall 2019)

2014-2017

Mentor for Graduate, Undergraduate and High School Students, Dept. of Chemistry, University of Rhode Island

Tyler Phelan, Undergraduate student (Summer 2014)
Chitopam Chanthalya, Undergraduate student (Fall 2014)
Hossam Zaki, Visiting high school student (Summer 2015)
Rebecca Thurber, Undergraduate student (Spring 2016)
Gordon Rix, Undergraduate student (Summer 2016)
Benjamin Smith, Graduate student (Summer 2016)
Molly Verderame, Undergraduate student (Summer 2017)

Trained fellow Graduate and Postgraduate Students, Dept. of Chemistry, University of Rhode Island

Amitesh Saha (Graduate Student, Dept. of Chemical Engineering) in $^1\text{H-NMR}$ analyses
Ashvin Fernando (Graduate Student, Dept. of Chemistry) in *NMR titration experiments/Job's plot analyses*
Dr. Ingrid Suzi Tamgho (Postdoctoral Associate, Levine group) in *NMR titration experiments/Job's plot analyses*
Dr. Nelson Martin Anaya (Research Intern, Dept. of Civil and Environmental Engineering) in *Thin Layer Chromatographic experiments and analyses*
Teresa Mako (Graduate Student, Dept. of Chemistry) in *Fluorescence titration experiments/Job's plot analyses*

2012-2015

Graduate Teaching Assistant, Dept. of Chemistry, University of Rhode Island
General Chemistry Laboratory (80 students); Organic Chemistry Laboratory (46 students)

PEER REVIEW EXPERIENCE

2017

Peer-reviewed scientific posters for International Oil Spill Conference (IOSC)

2016-2017

Peer-reviewed scientific manuscripts for *ACS Sensors*, *Letters in Organic Chemistry*, *JACS*

2018-present

Peer reviewer of manuscripts for *Science Journal of Chemistry*

PUBLICATIONS [ORCID: 0000-0003-3578-5293]

I. Chaudhuri, S.; DiScenza, D.; Verderame, M.; Levine, M. "Colorimetric Detection of Polycyclic Aromatic Hydrocarbons Using Supramolecular Cyclodextrin Dimer-Squaraine Constructs." *Supramolecular Chemistry* **2019**, *31*(3), 211-219. [DOI: [10.1080/10610278.2019.1579332](https://doi.org/10.1080/10610278.2019.1579332)]

2. **Chaudhuri, S.**; Carrick, J. D. "Synthetic Access to Functionalized Dipolarophiles of Lewis Basic Complexant Scaffolds through Sonogashira Cross-Coupling." *J. Org. Chem.* **2018**, 83(17), 10261-10271. [DOI: 10.1021/acs.joc.8b01446; PMID: 30016113]
3. **Chaudhuri, S.**; Verderame, M.; Mako, T. L.; Bandara, Y. M. N. D. Y.; Fernando, A. I.; Levine, M. "Synthetic β -cyclodextrin dimers for squaraine binding: Effect of host architecture on photophysical properties, aggregate formation and chemical reactivity." *Eur. J. Org. Chem.* **2018**, 17, 1964-1974. [DOI: 10.1002/ejoc.201800283]
4. Hane, F.*; Fernando, A.*; Prete, B.; Peloquin, B.; Karas, S.; **Chaudhuri, S.**; Chahal, S.; Shepelytskyi, Y.; Wade, A.; Li, T.; DeBoef, B.; Albert, M. "Cyclodextrin-based Pseudorotaxanes: Easily Conjugatable Scaffolds for Synthesizing Hyperpolarized Xenon-129 Magnetic Resonance Imaging Agents." *ACS Omega* **2018**, 3(1), 677-681. (* Co-first authors) [DOI: 10.1021/acsomega.7b01744]
5. **Chaudhuri, S.**; DiScenza, D.; Smith, B.; Yocum, R.; Levine, M. "Array-based detection of isomeric and analogous analytes employing synthetically modified fluorophore attached β -cyclodextrin derivatives." *New J. Chem.* **2017**, 41, 14431-14437. [DOI: 10.1039/C7NJ02968C]
6. Tamgho, I.*; **Chaudhuri, S.***; Verderame, M.; DiScenza, D.; Levine, M. "A highly versatile fluorenone-based macrocycle for the sensitive detection of polycyclic aromatic hydrocarbons and fluoride anions." *RSC Advances* **2017**, 7, 28489-28493. (* Co-first authors) [DOI: 10.1039/C7RA05404A]
7. Saha, A.*; **Chaudhuri, S.***; Godfrin, M.; Mamak, M.; Reeder, B.; Hodgdon, T.; Saveyn, P.; Tripathi, A.; Bose, A. "Impact of Nearly Water-Insoluble Additives on the Properties of Vesicular Suspensions." *Ind. Eng. Chem. Res.* **2017**, 56(4), 899-906. (* Co-first authors) [DOI: 10.1021/acs.iecr.6b03821]
8. **Chaudhuri, S.**; Zaki, H.; Levine, M. "An Environmentally Friendly Procedure for the Aqueous Oxidation of Benzyl Alcohols to Aldehydes with Dibromodimethylhydantoin (DBDMH) and Cyclodextrin – Scope and Mechanistic Insights." *Synth. Commun.* **2016**, 46 (7), 636-644. [DOI: [10.1080/00397911.2016.1161801](https://doi.org/10.1080/00397911.2016.1161801)]
9. Levine, M.; Serio, N.; Radaram, B.; **Chaudhuri, S.**; Talbert, W. "Addressing the STEM Gender Gap by Designing and Implementing an Educational Outreach Chemistry Camp for Middle School Girls." *J. Chem. Educ.* **2015**, 92(10), 1639-1644. [DOI: 10.1021/ed500945g]
10. **Chaudhuri, S.**; Phelan, T.; Levine, M. "Cyclodextrin-promoted Diels Alder Reactions of a Polycyclic Aromatic Hydrocarbon under Mild Reaction Conditions." *Tetrahedron Lett.* **2015**, 56(13), 1619-1623. [DOI: [10.1016/j.tetlet.2015.01.185](https://doi.org/10.1016/j.tetlet.2015.01.185); PMID: 26692588]
11. Samanta, R.; Mahanta, S. P.; **Chaudhuri, S.**; Panda, P. K.; Narahari, A. "New Strapped Calix[4]pyrrole based receptor for anions." *Inorg. Chim. Acta* **2011**, 372(1), 281-285. [DOI: [10.1016/j.ica.2011.02.004](https://doi.org/10.1016/j.ica.2011.02.004)]

PATENT AND DISCLOSURES

1. Chaudhuri, S.; Sirianni, R. Formulation of β -cyclodextrin-poly(β -amino ester) nanoparticles encapsulating small molecules. U.S. Provisional Patent Ser. No. 62/850,308, filed [May 2019].
2. Levine, M.; Chaudhuri, S.; Mako, T.; Verderame, M. Use of Non-Covalent Squaraine-Cyclodextrin Complexes for Colorimetric Toxicant Detection *URI invention disclosure* [November 2018].

ORAL PRESENTATIONS

1. **Levine, M.**; Chaudhuri, S. (2018). Higher order cyclodextrin architectures: Synthesis, binding, and colorimetric detection applications 256th ACS National Meeting, Boston.
2. **Chaudhuri, S.** (2018). Progress towards selective and sensitive detection systems employing synthetic cyclodextrin derivatives. *Invited Seminar*, Tennessee Tech University, Cookeville, TN.
3. **Chaudhuri, S.** (2017). Progress towards selective and sensitive detection systems employing synthetic cyclodextrin derivatives. *Departmental Presentation*, University of Rhode Island, Kingston, RI.
4. **Chaudhuri, S.** (2017). Progress towards selective and sensitive detection systems employing synthetic cyclodextrin derivatives. *Interview Presentation*, University of Michigan, Ann Arbor, MI.
5. **Chaudhuri, S.** (2017). Derivatized cyclodextrins and their modified synthetic architectures for sensing and catalysis. *Interview Presentation*, Worcester Polytechnic Institute (WPI), Worcester, MA.
6. **Chaudhuri, S.** (2014). Metal-Organic Frameworks: Porous Crystalline Materials for Numerous Applications. *Departmental Presentation*, University of Rhode Island, Kingston, RI.
7. **Chaudhuri, S.** (2012). Synthesis of Mesoporous Silica and its Utilization to Develop UV-Rays Absorbing Materials. *Departmental Presentation*, Department of Applied Chemistry, Indian Institute of Technology (Indian School of Mines) Dhanbad, India.
8. **Chaudhuri, S.** (2011). New Strapped Calix[4]pyrrole based receptor for anions. *Departmental Presentation*, Department of Applied Chemistry, Indian Institute of Technology (Indian School of Mines) Dhanbad, India.

POSTER PRESENTATIONS

1. Chaudhuri, S.; Fowler, M. J.; Knight, B. E.; Stabenfeldt, S. E.; Sirianni, R. W. (2019). Panobinostat loaded β -cyclodextrin-poly(β -amino ester) nanoparticles for sustained drug delivery. Gordon Research Conference, *Cancer Nanotechnology (GRC)* West Dover, Vermont.
2. Chaudhuri, S.; Levine, M. (2017). Synthesis and application of higher order cyclodextrin architectures for improved sensing and identification of medium-sized environmental toxicants. Gordon Research Conference, *Artificial Molecular Switches and Motors (GRC)* Holderness, New Hampshire.
3. Chaudhuri, S.; Levine, M. (2017). Synthesis and application of higher order cyclodextrin architectures for improved sensing and identification of medium-sized environmental toxicants. Gordon Research Seminars, *Artificial Molecular Switches and Motors (GRS)* Holderness, New Hampshire.
4. Chaudhuri, S.; Levine, M. (2016). Synthetically modified cyclodextrin for sensing and catalysis. Department of Chemistry, University of Rhode Island, Kingston.
5. Chaudhuri, S.; Levine, M. (2016). Synthesis of fluorophore appended cyclodextrins and higher order architectures for improved sensing and understanding of molecular interactions. 252nd ACS National Meeting, Philadelphia.
6. Rix, G.; Chaudhuri, S.; Levine, M. (2016). Synthesis of BODIPY appended β -cyclodextrin sensors for improved understanding of molecular interactions. 9th Annual RI SURF Conference, Kingston, RI.
7. Chaudhuri, S.; Levine, M. (2016). Synthetically modified cyclodextrin for sensing and catalysis. ACS Graduate Research Symposium (Division of Organic Chemistry), Bryn Mawr, PA.
8. Chaudhuri, S.; Levine, M. (2015). Cyclodextrin-Mediated Supramolecular Catalysis of Organic Reactions Under Mild Reaction Conditions. 250th ACS National Meeting, Boston.
9. Chaudhuri, S.; Phelan, T.; Levine, M. (2014). Cyclodextrin-Mediated Supramolecular Catalysis of Diels-Alder Reactions Involving Polycyclic Aromatic Hydrocarbons. Department of Chemistry, University of Rhode Island, Kingston, RI.
10. Chaudhuri, S.; Phelan, T.; Levine, M. (2014). Cyclodextrin-Mediated Supramolecular Catalysis of Diels-Alder Reactions Involving Polycyclic Aromatic Hydrocarbons. 16th Annual Northeast Student Chemistry Research Conference, Boston.
11. Chaudhuri, S.; Radaram, B.; Levine, M. (2013). Electronically Dissymmetric Fluorescent Organic Macrocycle for the Detection of Polycyclic Aromatic Hydrocarbons. 245th ACS National Meeting, New Orleans.
12. Chaudhuri, H.; Chaudhuri, S.; Sarkar, A. (2013). Development of Si-MCM-41 Based UV Rays Absorbing Windows. IUMRS-ICA, Indian Institute of Science, Bangalore, India.

HONORS & AWARDS

- 2017** Bruno Vittimberga Organic Chemistry Research Award, Dept. of Chemistry, University of Rhode Island
- 2016** Richard Beaupre Hope and Heritage Travel Award for ACS Graduate Research Symposium, University of Rhode Island
- 2015** Richard Beaupre Hope and Heritage Travel Award for 250th ACS National Meeting, University of Rhode Island
- 2013** Richard Beaupre Hope and Heritage Travel Award for 245th ACS National Meeting, University of Rhode Island
- 2013** Division of Organic Chemistry Graduate Student Travel Award 245th ACS National Meeting
- 2011** Summer Research Fellowship Program, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bangalore
- 2009** Invited Participant, 2nd Science Conclave - Interaction with Nobel Laureates and Eminent Scientists, IIIT-Allahabad
- 2009** Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholarship (Dept. of Science & Technology, Govt. of India)

CONTRIBUTION TO FUNDED GRANTS

1. National Science Foundation, Faculty Early Career Development CAREER Award. "Cyclodextrin-Promoted Energy Transfer: From Fundamental Molecular Interactions to Complex System Performance" 2015-2020. Role: Graduate student researcher. Grant Amount: \$718,667.
2. Lanxess Corporation Collaborative Grant. "Cyclodextrin-Based Complexation of Small Molecules for Improved Toxicant Degradation and Water Purification Efforts." 2016. Role: Graduate student researcher. Grant Amount: \$80,602.

PUBLIC OUTREACH ACTIVITIES

- 2016-2017** Coordinator and Volunteer, Sugar Science Day for High School Girls, Kingston, Rhode Island
- 2015** Co-Host, Student Hosted Seminar, Dept. of Chemistry, University of Rhode Island
- 2013-2017** Coordinator and Supervisor, Chemistry Camp for Girls, Kingston, Rhode Island
(*Demonstration of scientific experiments for high school girls, chaperoning educational tour to Mystic Aquarium, volunteering for experimental setups and cleanups*)

MEDIA

The University of Rhode Island (MOMENTUM: RESEARCH & INNOVATION), Spring 2017 Issue, Page 6
http://web.uri.edu/researchcondev/files/URI_Research_Magazine_Momentum_Spring_2017_Melissa-McCarthy.pdf

SKILLS

Applications: Proficient in Microsoft Word, Excel, and Powerpoint. Experienced in usage of scientific software, including ChemDraw, ChemBio3D Ultra, SciFinder, MestReNova, and Spartan'14.

Languages: Fluent in English, Hindi and Bengali.

Technical Skills: Proficient in NMR (1D & 2D), FTIR, UV-Vis, Fluorescence Spectroscopy, GC/MS, LC/MS, Cryogenic Imaging (cryo-TEM), MALDI-TOF, DLS & HPLC. Skilled in organic synthesis and drug-nanoparticle formulation chemistry. Use of automated CombiFlash systems. Small scale reactions for methodology optimization and screening. Generation and handling of chlorine dioxide (ClO₂). Small angle PXRD (powder X-ray diffraction). Sound knowledge of Rheology and Imaging techniques/Microscopy (SEM/TEM). Basic cell-culture techniques.

MEMBERSHIPS & CERTIFICATIONS

American Chemical Society (ACS) Regular Member

Responsible Conduct of Research (RCR) Certification

National Postdoctoral Association (NPA)

Statistical Design of Experiments (DoE) for Chemical Process R&D and Manufacturing (*Tutor: Dr. Andrei Zlota, Zlota Chemical Company, LLC*)

Science Publishing Group Reviewer (SciencePG) Certification (*Science Journal of Chemistry*)

REFERENCES

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Dr. Mindy Levine
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Dr. Arijit Bose
Distinguished Professor
Dept. of Chem. Engineering
University of Rhode Island
bosea@egr.uri.edu
Phone: (+1)401-874-2804