

## CURRICULUM VITAE

### Dr. Sanchita Hati

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## EDUCATION

- 1997 Ph.D. in Chemistry, Indian Association for the Cultivation of Science, India.
- 1991 Master of Science in Chemistry, University of Burdwan, India
- 1989 Bachelor of Science in Chemistry (Honors), Physics and Mathematics, University of Burdwan, India

## PROFESSIONAL POSITIONS

- 2017-present **Professor**, Department of Chemistry and Biochemistry, University of Wisconsin-Eau Claire
- 2011-2017 **Associate Professor**, Department of Chemistry, University of Wisconsin-Eau Claire.
- 2006-2011 **Assistant Professor**, Department of Chemistry, University of Wisconsin-Eau Claire (*Early Tenure and Promotion*)
- 2004-2006 **Postdoctoral Associate**, Department of Chemistry, University of Minnesota, Twin Cities. *Research Advisor*: Dr. Karin Musier-Forsyth  
*Project Title*: Biochemical studies to probe the editing mechanisms of prolyl-tRNA synthetases.
- 2002-2004 **Full-time mother**
- 2000-2002 **Postdoctoral Associate**, Department of Chemistry, Indiana University, Bloomington, Indiana. *Research Advisor*: Dr. Donald H. Burke  
*Project Title*: Application of "SELEX" to isolate self-aminoacylating ribozymes.
- 1998-2000 **Postdoctoral Research Fellow**, Department of Chemistry and Institute for Molecular Biology and Biochemistry, Simon Fraser University, Burnaby, BC, Canada. *Research Advisor*: Dr. Alan S. Tracey  
*Project Title*: NMR studies to prove the reaction intermediates of vanadium and molybdenum complexes of alpha-hydroxycarboxylic acids in aqueous solution.
- 1997-1998 **Assistant Professor of Chemistry**, Raniganj Girl's College, University of Burdwan, India
- 1991-1997 **Graduate Research**, Indian Association for the Cultivation of Science, India  
*Thesis Advisor*: Dr. D. Datta  
*Thesis Title*: Studies on Some Electronic and Structural Concepts in Chemistry.

## GRANTS AND SCHOLARSHIPS

2024	Biomedical Innovator Grants, \$10,000
2023	National Institutes of Health (NIH) “Administrative Supplements for Equipment for Select NIGMS-Funded Awards.” \$99,900
2022	Research Innovation Council, UWEC & Mayo Clinic Health System, \$29,228 “Surface-Enhanced Raman Spectroscopy of Human Saliva as a Non-invasive Tool for Cancer Diagnostics”
2021	NSF-REU, Senior Personnel, \$385,762 “Advancing high-performance computing opportunities in undergraduate research at UW-Eau Claire to meet challenges of multidisciplinary computational science.”
2021	NIH-AREA, Co-PI, \$397,331 “Exploring the Dynamics of Prolyl-tRNA Synthetases: Towards Developing a Screening Method for Species-Specific Inhibitors.”
2020	Biomedical Innovator Grants, \$10,000
2019	NSF-MRI, Senior Personnel, \$350,000 “MRI: Acquisition of a High-Performance Computing Cluster to Enhance the Undergraduate Discovery Experience.”
2016	NIH-AREA, Co-PI, \$383,900 “Exploring the Dynamics of Prolyl-tRNA Synthetases: Towards Developing a Screening Method for Species-Specific Inhibitors.”
2015	NSF-REU, Senior Personnel, \$300,000 “Give Research Opportunity to Underrepresented Minority STEM Students.”
2011-present	NSF-supported XSEDE (grant # MCB110173, 1,775,000 Service Units
2006-present	Summer Research Experiences for Undergraduates and Faculty/Student Research Collaboration programs, UWEC Office of Research and Sponsored Programs, \$250,000
2012	NIH-AREA renewal, \$220,000 (priority score: 31; usually a grant gets funded with such a high score, but it was denied due to budget cuts to NIH funding)
2010	NIH-Recovery Act Administrative Supplement Award, \$53,740 “Exploring the molecular basis of domain-domain communication in aminoacyl-tRNA synthetases.”
2008	NIH-Academic Research Enhancement Award (AREA), \$184,205 “Exploring the molecular basis of domain-domain communication in aminoacyl-tRNA synthetases.”
2006	Research Corporation Cottrell College Science Award, \$39,000 "To explore the molecular basis of domain-domain communication in prolyl-tRNA synthetases."
2006	University of Wisconsin-Eau Claire Startup Grant, \$50,000

1991-1996 Graduate Research Fellowship, Indian Association for the Cultivation of Science, India

## AWARDS AND HONORS

2023 Career Excellence in Mentoring, Research, Scholarship, and Creative Activity Award

2021 Faculty Excellence in Scholarship Award

2017 University Merit Award

2016 Recognized at Authors Celebration Event for several publications with undergraduate students, UWEC.

2015, 2017 Excellence in Mentoring in Research, Scholarship, and Creative Activity Nominee, UWEC.

2010 Granted early Tenure and Promotion, UWEC.

2009 Recognized at Authors Celebration Event for an outstanding publication with undergraduate students, UWEC.

2009 Recognized as High Demand Faculty, UWEC.

1991 Lectureship and Research Fellowship Award in Chemistry, University Grant Commission, India.

## INVITED/CONFERENCE TALKS

1. "Impaired Binding of the SARS-CoV-2 Spike Protein with the Angiotensin-Converting Enzyme 2 upon Disulfide to Thiol Conversion." Department of Chemistry, Oakland University. April 14, 2021.
2. "Protein Dynamics and Drug Design: Big targets, Small molecules." Saldiha College, West Bengal, India, August 2020.
3. "Protein Dynamics and Drug Design." Meals with Honors, UWEC, April 26, 2019.
4. "Protein dynamics and their role in catalysis." Delhi University, August 2, 2017.
5. "Role of Intrinsic Dynamics on Substrate Binding and Catalysis of *Escherichia coli* Prolyl-tRNA Synthetase." *The 253<sup>rd</sup> ACS National Meeting, San Francisco, April 5, 2017.*
6. "Enzyme dynamics and its role in enzymatic function." Hamline University, Saint Paul, Minnesota, September 16, 2016.
7. "What do scientists do in their jobs?" NSF-RUI, Chemistry Department, UW-Eau Claire, June 8, 2016.
8. "Enzyme dynamics and its role in enzymatic function." University Wisconsin-La Crosse, March 25, 2016.
9. "Integrating research into the curriculum: A low-cost strategy for promoting undergraduate research" (final paper number: CHED 1951), 251<sup>st</sup> ACS National Meeting & Exposition, San Diego, California, March 17, 2016.
10. "Incorporating authentic research into an upper-level chemistry course." Community of Practice, ORSP, UW-Eau Claire, January 7, 2016.
11. "Panel discussion about careers at PUI institutions, NIH-BEST," Wayne State University, September 2015.
12. "Integrating Research into the Curriculum – A Low-cost Strategy for Promoting Undergraduate Research, Department of Chemistry." Wayne State University, September 2015.

13. "Integrating Research into the Curriculum – A Low-cost Strategy for Promoting Undergraduate Research." Department of Women's Studies, UW-Eau Claire, 2015.
14. "Mapping Pathways of Allosteric Communication in Multi-Domain Proteins." Macalester College, Saint Paul, MN, 2009.
15. "Editing Activity of Prolyl-tRNA Synthetases." Eastern Illinois University, Charleston, IL, 2006.

**STUDENT CO-AUTHORED PUBLICATIONS SINCE 2006** ("\*" designates undergraduate students; 54 peer-reviewed publications in total; UWEC: 29 publications and pre-UWEC: 25 publications)

Publications that resulted from pedagogical projects:

1. Writing a Literature Review as a Class Project in an Upper-Level Undergraduate Biochemistry Course. S. Hati and S. Bhattacharyya. *Biochem. Mol. Biol. Educ.* 2024. doi: 10.1002/bmb.21814.
2. Integrating Research into the Curriculum – A Low-cost Strategy for Promoting Undergraduate Research. S. Hati and S. Bhattacharyya. *ACS Book Chapter* (Book: Best Practices for Supporting and Expanding Undergraduate Research in Chemistry) (2018) 119–141.
3. Incorporating modeling and simulations in an undergraduate biophysical chemistry course to promote an understanding of structure-dynamics-function relationships in proteins. S. Hati and S. Bhattacharyya. *Biochem. Mol. Biol. Educ.* (2016) 44, 140-59.

Publications that resulted from course-embedded research projects:

4. Understanding the Molecular Mechanism of Opioid Action in the Human Body through A Course-embedded Computational Research Project. F. Oldenburg\*, K. Gunderson\*, S. Bhattacharyya, and S. Hati. [CHEM. 106 project, Fall 2022, 40 students] **Manuscript in preparation.**
5. Quantum Chemical Computation of Hardness and Electronegativity of Neurochemicals and Application of the Hard-Soft Acid-Base (HSAB) Theory in Neurochemical-Receptor Interactions. M. Mohr, M. A. Smith, S. Bhattacharyya, and S. Hati. [CHEM. 106 project, Fall 2021, 20 students] **Manuscript in preparation.**
6. Methionine and Cysteine as Sinks for Reactive Oxygen and Nitrogen Species: A Review with Bioinformatic Analysis of Percent Compositions of These Sulfur-containing Amino Acids in Metabolic Proteins. B. F. Laatsch\*, B. A. Ali\*, A. R. Berthiaume\*, G. C. Cunningham\*, S. M. Duncan\*, N. Hau\*, A. Ho\*, M. A. Loomis\*, H.R. Lowater\*, B. L. McNally\*, K. L. Mueller\*, M. Poppitz\*, S. A. Prickett\*, S. E. Schroeder\*, M. L. Shepler\*, B. H. Shoberg\*, C. G. Shult\*, L. S. Smith\*, K. L. Snyder\*, J. E. Steczynski\*, A. Torti\*, A. Voon\*, M. M. Weiss\*, T. B. Wilson\*, S. Bhattacharyya, and S. Hati [CHEM. 454 project, Spring 2022, 24 students], *Biochemistry Research International* (2023) **Manuscript in preparation.**
7. Conformational Fluidity of the Intrinsically Disordered Protein in Crowded Environment: A Molecular Dynamics Simulation Study. C. Shult, K. Gunderson, S. J. Coffey, B. McNally, M. Brandt, L. Smith, J. Steczynski, E. R. Olerich, S. E. Schroeder, N. J. Severson, Sanchita Hati, and Sudeep Bhattacharyya. [CHEM. 406 project, **Co-PI**] *Biomol. Struct. Dyn.* (2024) **in press.**
8. Evolution of Stronger SARS-CoV-2 Variants as Revealed Through the Lens of Molecular Dynamics Simulations. Alec J. Wozney\*, Macey A. Smith\*, Mobeen Abdrabbo\*, Cole M. Birch\*, Kelsey A. Cicigoi\*, Connor C. Dolan\*, Audrey E. L. Gerzema\*, Abby Hansen\*, Ethan J. Henseler\*, Ben LaBerge\*, Catterra M. Leavens\*, Christine N. Le\*, Allison C. Lindquist\*, Rikaela K. Ludwig\*, Maggie G. O'Reilly\*, Jacob H. Reynolds\*, Brandon A. Sherman\*, Hunter W. Sillman\*, Michael A. Smith\*, Marissa J. Snorheim\*, Levi M. Svaren\*, Emily C. Vanderpas\*, Aidan Voon\*, Miles J. Wackett\*, Moriah M. Weiss\*, Sanchita Hati, and Sudeep Bhattacharyya. [CHEM. 406 project, 25 students, **Co-PI**] *Protein J.* (2022) 41, 444-456. doi: 10.1007/s10930-022-10065-6.
9. Vitamin D and COVID-19: A Review on the Role of Vitamin D in Reducing the Severity of COVID-19 Infection. Mobeen Abdrabbo\*, Cole M. Birch\*, Michael Brandt\*, Kelsey A. Cicigoi\*, Stephen J. Coffey\*, Connor C. Dolan\*, Hannah Dvorak\*, Ava C. Gehrke\*, Audrey E. L.

- Gerzema\*, Abby Hansen\*, Ethan J. Henseler\*, Alyssa C. Huelsbeck\*, Ben LaBerge\*, Caterra M. Leavens\*, Christine N. Le\*, Allison C. Lindquist\*, Rickaela K. Ludwig\*, Jacob H. Reynolds\*, Nathaniel J. Severson\*, Brandon A. Sherman\*, Hunter W. Sillman\*, Michael A. Smith\*, Macey A. Smith\*, Marissa J. Snorheim\*, Levi M. Svaren\*, Emily C. Vanderpas\*, Miles J. Wackett\*, Alec J. Wozney\*, Sudeep Bhattacharyya, and Sanchita Hati [CHEM. 454 project, 28 students] *Protein Sci.* (2021) 30, 2206-2220. doi: 10.1002/pro.4190.
10. Effects of Distal Mutations on Prolyl-adenylate Formation of *Escherichia coli* Prolyl-tRNA Synthetase. J. Zajac\*, H. Anderson\*, L. Adams\*, D. Wangmo\*, S. Suhail\*, A. Almen\*, L. Berns\*, B. Coerber\*, L. Dawson\*, A. Hunger\*, J. Jehn\*, J. Johnson\*, N. Plack\*, S. Strasser\*, M. Williams\*, S. Bhattacharyya, and S. Hati [CHEM. 406, 15 students] *Protein J.* (2020) <https://doi.org/10.1007/s10930-020-09910-3>.
  11. Investigation of Intrinsic Dynamics of Enzymes Involved in Metabolic Pathways using Coarse-grained Normal Mode Analysis. S. Meeuwssen\*; L. M. Adams\*; A. N. Hodac\*; R.D. McMunn\*, A. S. Maxwell\*, K. J. Carothers\*, R. E. Egdorf\*, P. M. Hanneman\*, J. P. Kitzrow\*, C. K. Keonigsberg\*, O. Lopez-Martinez\*, P. A. Matthew\*, E. H. Richter\*, J. E. Schenk\*, H. L. Schmit\*, M.A. Scott\*, E. M. Volenec\*, and S. Hati [CHEM. 406, 15 students] (2017) *Cogent Biology*, 3, 1291877 (open access).
  12. “Insight into the Kinetics and Thermodynamics of the Hydride Transfer Reactions between Quinones and Lumiflavin: A Density Functional Theory Study.” C. R. Reinhardt\*, T. C. Jaglinski\*, A. M. Kastenschmidt\*, E. H. Song\*, A. K. Gross\*, A. J. Krause\*, J. M. Gollmar\*, K. J. Meise\*, Z. S. Stenerson\*, T. J. Weibel\*, A. Dison\*, M. R. Finnegan\*, D. S. Griesi\*, M. D. Heltne\*, T. G. Hughes\*, C. D. Huntv, K. A. Janseny, A. H. Xiong\*, S. Hati, and S. Bhattacharyya [CHEM. 434, 18 students, Co-PI] *J. Mol. Model.* (2016) 22, 199-213.
  13. “Comparison of intrinsic dynamics of cytochrome P450 proteins using normal mode analysis.” M. Dorner\*, R. McMunn\*, T. Bartholow\*, B. Calhoun\*, M. Conlon\*, J. Dulli\*, S. Fehling\*, C. Fisher\*, S. Hodgson\*, S. Keenan\*, A. Kruger\*, J. Mabin\*, D. Mazula\*, C. Monte\*, A. Olthafer\*, A. Sexton\*, B. Soderholm\*, A. Strom\*, and S. Hati [CHEM. 406, 18 students] *Protein Science* (2015) 24, 1495-1507.
  14. Comparison of the intrinsic dynamics of aminoacyl-tRNA synthetases. N. Warren\*, A. Strom\*, B. Nicolet\*, K. Albin\*, J. Albrecht\*, B. Bausch\*, M. Dobbe\*, M. Dudek\*, S. Firgens\*, C. Fritsche\*, A. Gunderson\*, J. Heimann\*, C. Her\*, J. Hurt\*, D. Konorev\*, M. Lively\*, S. Meacham\*, V. Rodriguez\*, S. Tadayon\*, D. Trcka\*, Y. Yang\*, S. Bhattacharyya, and S. Hati [CHEM. 406, 21 students] *Protein J.* (2014) 33, 184-98.

Publications that resulted from traditional research lab:

15. Polyethylene Glycol Impacts Conformation and Dynamics of *Escherichia coli* Prolyl-tRNA Synthetase via Crowding and Confinement Effects. J. Liebau\*, B. Laatsch\*, J. Rusnak\*, K. Gunderson\*, B. Finke\*, K. Bargender\*, A. Narkiewicz-Jodko\*, K. Weeks\*, M. Williams\*, I. Shulgina, T. Yang, K. Musier-Forsyth, S. Bhattacharyya, and S. Hati. *Biochemistry* (2024)63, 1621-1635.
16. Insight into the Mechanism of Tryptophan Fluorescence Quenching due to Synthetic Crowding Agents: A Combined Experimental and Computational Study. C. J. Fossum\*, B. O. V. Johnson\*, S. T. Golde\*, A. J. Kielman\*, B. Finke\*, M. A. Smith\*, H. R. Lowater\*, B. F. Laatsch\*, S. Bhattacharyya, and S. Hati, *ACS Omega* (2023) 8, 47, 44820–44830.
17. Polyethylene Glycol 20k. Does It Fluoresce? B. F. Laatsch\*, M. Brandt\*, B. Finke\*, C. J. Fossum\*, M. J. Wackett\*, H. R. Lowater\*, A. Narkiewicz-Jodko\*, C. N. Le\*, T. Yang, E. M. Glogowski, S. C. Bailey-Hartsel, S. Bhattacharyya, and S. Hati. *ACS Omega* (2023) 8, 15, 14208–14218.

18. Pre-existing Oxidative Stress Creates a Docking-Ready Conformation of the SARS-CoV-2 Receptor-Binding Domain. C. Fossum, H. Lowater, A. Jodko-Narkiewicz, B. Laastch, L. Lonzarich, S. Hati, and S. Bhattacharyya. *ACS Bio. Med. Chem. Au* (2022) 2, 1, 84–93.
19. Lost in Transition.” Reply: e-letter. S. Hati and A. Rai. *Science*. (2020) <https://science.sciencemag.org/content/368/6489/343/tab-e-letters>
20. Role of Oxidative Stress on SARS-CoV (SARS) and SARS-CoV-2 (COVID-19) Infection: A Review. S. Suhail\*, J. Zajac\*, C. Fossum\*, H. Lowater\*, C. McCracken\*, N. Severson\*, B. Laatsch\*, A. Narkiewicz-Jodko\*, B. Johnson\*, J. Liebau\*, S. Bhattacharyya, and S. Hati. *Protein J.* (2020) 39, 644-656.
21. Editing Domain Motions Preorganize the Synthetic Active Site of Prolyl-tRNA Synthetase. Q. H. Hu\*, M. T. Williams\*, I. Shulgina\*, C.J. Fossum\*, K. M. Weeks\*, L. M. Adams\*, C. R. Reinhardt\*, K. Musier-Forsyth, S. Hati, and S. Bhattacharyya. *ACS Catal.* (2020) 10, 10229–10242.
22. “Impact of Thiol-Disulfide Balance on the Binding of Covid-19 Spike Protein with Angiotensin Converting Enzyme 2 Receptor.” S. Hati and S. Bhattacharyya. *ACS Omega* (2020) 5,16292-16298.
23. “Crowder-Induced Conformational Ensemble Shift in *Escherichia coli* Prolyl-tRNA Synthetase.” L. M. Adams\*, R. J. Andrews\*, Q. H. Hu\*, H. L. Schmit\*, S. Hati and S. Bhattacharyya. *Biophys. J.* (2019) 117, 1269-1284.
24. Cyclic Changes in Active Site Polarization and Dynamics Drive the ‘Ping-pong’ Kinetics in NRH: Quinone Oxidoreductase 2: An Insight from QM/MM Simulations. C. R Reinhardt\*, H. Hu\*, C. G. Bresnahan\*, S. Hati and S. Bhattacharyya. *ACS Catal.* (2018) 8, 12015–12029.
25. Nanoparticles and *Escherichia coli* prolyl-tRNA synthetase: Impact of Au and Ag nanoparticles on protein conformation and function. S. Mitchell\*, A. Lato, O. Hurst, L. Adams, J. Dahl and S. Hati. *Curr. Top. Pept. Protein. Res.* (2017) 18, 17-24.
26. A Comparative Study of All-atom Molecular Dynamics Simulation and Coarse-grained Normal Mode Analysis in Identifying Pre-existing Residue Interaction Networks that Promote Coupled-Domain Dynamics in *Escherichia coli* Methionyl-tRNA Synthetase. S. C. Fehling, A. M. Strom, B. P. Lehman, R. J. Andrews\*, S. Bhattacharyya, and S. Hati. *American J. of Undergraduate Research* (2017) 14, 27-44.
27. Probing the global and local dynamics of aminoacyl-tRNA synthetases using all-atom and coarse-grained simulations. A. Strom\*, S. Fehling\*, S. Bhattacharyya and S. Hati. *Journal of Molecular Modeling* (2014) 20, 2245-55.
28. Strictly conserved lysine of prolyl-tRNA synthetase editing domain facilitates binding and positioning of misacylated tRNA<sup>Pro</sup>. T. G. Bartholow\*, B. L. Sanford, B. Cao\*, H. L. Schmit\*, J. M. Johnson\*, J. Meitzner\*, S. Bhattacharyya, K. Musier-Forsyth, and S. Hati. *Biochemistry* (2014) 53, 1059-68.
29. Multiple pathways promote dynamical coupling between catalytic domains in *Escherichia coli* prolyl-tRNA synthetase. J. M. Johnson\*, B. L. Sanford, A. M. Strom\*, S. N. Tadayon\*, B. P. Lehman\*, A. M. Zirbes\*, S. Bhattacharyya, K. Musier-Forsyth, and S. Hati. *Biochemistry* (2013) 52, 4399-4412.
30. Role of coupled dynamics in the catalytic activity of prokaryotic-like prolyl-tRNA synthetases. B. Sanford\*, B. Cao\*, J. M. Johnson\*, K. Zimmerman\*, A. M. Strom\*, R. M. Mueller\*, S. Bhattacharyya, K. Musier-Forsyth, S. Hati. *Biochemistry* (2012) 51, 2146-56.
31. Interplay of flavin's redox states and protein dynamics: an insight from QM/MM simulations of dihydronicotinamide riboside quinone oxidoreductase 2. R. M. Mueller\*, M. A. North\*, C. Yang\*, S. Hati, S. Bhattacharyya. *J. Phys. Chem. B* (2011) 115, 3632-3641.
32. Evolutionary basis for the coupled-domain motions in *Thermus thermophilus* leucyl-tRNA synthetase. K. Weimer\*, B. Shane\*, M. Brunetto\*, S. Bhattacharyya, and S. Hati. *J. Biol. Chem.* (2009) 284, 10088-10099.

**SELECTED PRESENTATIONS** (Selected from a total of 50 off-campus and 60 on-campus presentations (oral/poster); \*\* designates UWEC students; underlined represents the presenter)

1. “Conformational Dynamics and Function of Escherichia coli Prolyl-tRNA Synthetase in Crowded Environments.” Alexis Kielman\*, Brianna Finke\*, Bethany Laatsch\*, Sudeep Bhattacharyya, and Sanchita Hati. ACS National Meeting, March 26 – 30, 2023 Indianapolis, IN.
2. “Evaluation of the Effects of Molecular Crowding on the Enzyme-Substrate Binding Using Saturated-Transfer Difference (STD) NMR.” Brianna Finke\*, Bethany Laatsch\*, Molly Mohr\*, Thao Yang, Sudeep Bhattacharyya, and Sanchita Hati. ACS National Meeting, March 26 – 30, 2023 Indianapolis, IN.
3. “Artificial Intelligence-Mediated Drug Design for Alzheimer’s Disease.” Molly Mohr\*, Sanchita Hati, and Sudeep Bhattacharyya. ACS National Meeting, March 26 – 30, 2023 Indianapolis, IN.
4. “Understanding the Molecular Mechanism of Opioid Action in the Human Body Through a Course-Embedded Computational Research Project.” Keegan Gunderson\*, Faith Oldenburg\*, and Sanchita Hati. NCUR, April 13-15, 2023, University of Wisconsin-Eau Claire.
5. “Conformational Dynamics and Function of Escherichia coli Prolyl-tRNA Synthetase in Crowded Environments.” Alexis Kielman\*, Brianna Finke\*, Bethany Laatsch\*, Sudeep Bhattacharyya, and Sanchita Hati. NCUR, April 13-15, 2023, University of Wisconsin-Eau Claire.
6. “Evaluation of the Effects of Molecular Crowding on the Enzyme-Substrate Binding Using Saturated-Transfer Difference (STD) NMR.” Brianna Finke\*, Bethany Laatsch\*, Molly Mohr\*, Thao Yang, Sudeep Bhattacharyya, and Sanchita Hati. NCUR, April 13-15, 2023, University of Wisconsin-Eau Claire.
7. Investigation of Cancer Biomarkers in Saliva Samples of Cancer Patients Using SERS. Bianca Spoerl\*, Anna Berthiaume\*, Sanchita Hati, Laurel McEllistrem, and Sandeep Basu. NCUR, April 13-15, 2023, University of Wisconsin-Eau Claire.
8. Molly Mohr\*, Macey Smith\*, Sudeep Bhattacharyya, and Sanchita Hati. Investigation into Brain Chemistry and the Chemical Hardness of Neurotransmitters and Antidepressants. NCUR, April 13-15, 2023, University of Wisconsin-Eau Claire.
9. “Investigation into Brain Chemistry and the Chemical Hardness of Antidepressants: Application of the Hard-Soft Acid-Base (HSAB) Theory to Aid in Antidepressant Drug Development.” Molly Mohr\*, Macey Smith, Sanchita Hati, and Sudeep Bhattacharyya. *Board of Regents Meeting*, UW-Eau Claire, September 29, 2022.
10. “Investigating the Macromolecular Crowding and Confinement Effects Using High-Performance Computational Simulations: A Case Study with *Escherichia coli* Prolyl-tRNA Synthetase.” Joshua Rusnak\*, Sanchita Hati, and Sudeep Bhattacharyya. *WISYS Spark Poster Presentation* at UW-Lacrosse, July 31 - August 2, 2022.
11. “Probing the Chemistry of COVID-19 Severity Using High-Performance Computing.” Carl Fossum\*, Macey Smith\*, Sanchita Hati, and Sudeep Bhattacharyya. *Research at Rotunda*, Spring 2022.
12. “Studying the Effects of Crowding on Structure and Conformational Changes of Prolyl-tRNA Synthetase Using Fluorescence Spectroscopy.” Miles Wackett\*, Christine Le\*, Harrison Lowater\*, Bethany Laatsch, Sudeep Bhattacharyya, and Sanchita Hati. *The ACS National Meeting*, March 20 – 24, 2022 San Diego, CA. (*Online*)
13. “Exploring The Effects of Macromolecular Crowding on Protein Systems: A Combined Experimental-Computational Approach.” Alex Narkiewicz-Jodko\*, Sanchita Hati, Sudeep Bhattacharyya. *The ACS National Meeting*, March 20 – 24, 2022 San Diego, CA. (*Online*)
14. “Analysis of Intrinsic Dynamics to Study Preorganization in Prolyl-tRNA Synthetases.” Carl Fossum\*, Macey Smith\*, Jamare McMurtry, Sanchita Hati, and Sudeep Bhattacharyya. *The ACS National Meeting*, March 20 – 24, 2022 San Diego, CA. (*Online*)

15. "A Hybrid QM/MM Study to Investigate the Evolutionary Differences in Structural Dynamics Among Prolyl-tRNA Synthetases from Different Species." Murphi Weinzetl\*, Huakun Hu\*, Katelyn Weeks\*, Sanchita Hati, and Sudeep Bhattacharyya. *The 257th American Chemical Society National Meeting & Exposition, Orlando, Florida. April 2019.*
16. "Exploring the Effects of Macromolecular Crowding on Conformational Change in Escherichia coli Prolyl-tRNA Synthetase Using Intrinsic Tryptophan Fluorescence." Katelyn Weeks\*, Murphi Weinzetl\*, Jessica Liebau\*, Sanchita Hati, and Sudeep Bhattacharyya. *The 257th American Chemical Society National Meeting & Exposition, Orlando, Florida. April 2019.*
17. "Functionally Relevant Intrinsic Dynamics of Prolyl-tRNA Synthetase." Haukun Hu\*, Clorice Reinhardt\*, Sanchita Hati and Sudeep Bhattacharyya. *The 255th American Chemical Society National Meeting & Exposition, New Orleans, LA. March 2018.*
18. "Investigation of the Effect of Gold Nanoparticles on the Structure and Catalytic Function of Escherichia coli Prolyl-tRNA Synthetases." Stanford Mitchell\*, Olivia Hurst\*, Ashley Lato\*, Jennifer Dahl, and Sanchita Hati. *The 253<sup>rd</sup> ACS National Meeting, San Francisco, April 2017.*
19. "Experimental and Computational Studies to Explore the Impact of Macromolecular Crowding on the Structure and Function of Escherichia coli of Prolyl-tRNA Synthetase." Ryan Andrews\*, Lauren Adams\*, An Nam Hodac, Heidi Schmit, Sudeep Bhattacharyya, and Sanchita Hati. *The 251<sup>st</sup> ACS National Meeting, San Diego, 2016.*
20. Exploring the Interplay of Dynamics and Catalysis in Escherichia coli Prolyl-tRNA Synthetase using Quantum Mechanical/Molecular Mechanical Simulations Tiffany Huynh\*, An Nam Hodac\*, Lauren Adams\*, Clorice Reinhardt\*, Sanchita Hati, and Sudeep Bhattacharyya. *The 251<sup>st</sup> ACS National Meeting, San Diego, 2016.*
21. "Steered-Molecular Dynamic Simulations and Mutational Studies to Explore the Interplay of Coupled-Domain Dynamics and Substrate Binding in Prolyl-tRNA Synthetases." Matthew Mocol, Lauren Adams\*, Ann Nam Hodac\*, Sudeep Bhattacharyya, and Sanchita Hati. *The 251<sup>st</sup> ACS National Meeting, San Diego, 2016.*
22. "Exploring the Intrinsic Dynamics of Proteins involved in Metabolic Pathways using Coarse-Grained Normal Mode Analysis." Ryan McMunn\*, Sarah Bretl\*, and Sanchita Hati, *The 249<sup>th</sup> ACS National Meeting, Denver, 2015.*
23. "Exploring the role of a distant domain dynamics on substrate binding of Escherichia coli prolyl-tRNA synthetase." Matthew Mocol\*, Sudeep Bhattacharyya, and Sanchita Hati. *The 249<sup>th</sup> ACS National Meeting, Denver, 2015.*
24. "Comparison of Coarse-Grained and Atomistic-Level Simulations for Aminoacyl tRNA-Synthetases." Alexander M. Strom\*, S. Bhattacharyya, and S. Hati. *The 245<sup>th</sup> ACS National Meeting, New Orleans, 2013.*
25. "Application of Statistical-Thermal Coupling Analysis to Identify Residue-Residue Interaction Networks that Facilitate Coupled-Domain Dynamics in Aminoacyl-tRNA Synthetases." Brent P. Lehman\*, Stephanie N. Tadayon\*, Arrianna M. Zirbes\*, James M. Johnson\*, Sudeep Bhattacharyya, and Sanchita Hati, *The 243rd American Chemical Society National Meeting, San Diego, California, March 2012.*
26. "Role of protein electrostatics on the post-transfer editing function of Escherichia coli prolyl-tRNA synthetase." Bach Cao\*, Karl Jet Meitzner\*, Matthew Tschudy\*, Karin Musier-Forsyth, Sudeep Bhattacharyya, and Sanchita Hati. *The 239<sup>th</sup> American Chemical Society National Meeting, San Francisco, March 2010.*
27. "Role of coupled domain motions on the catalytic activity of Escherichia coli prolyl-tRNA synthetase." Kurt Zimmerman\*, Brianne Shane, Michael Ignatov, Karin Musier-Forsyth, and Sanchita Hati. *The 237<sup>th</sup> American Chemical Society National Meeting; Salt Lake City, March 2009.*
28. "Exploring cooperative domain dynamics in Thermus thermophilus leucyl-tRNA synthetase using low-frequency normal mode calculations and statistical coupling analysis." Kristina Weimer\*,



Brianne Shane\*, Michael Brunetto, Sudeep Bhattacharyay, and Sanchita Hati, 235<sup>th</sup> American Chemical Society National Meeting; New Orleans, April 2008.

## **PROFESSIONAL MEMBERSHIPS**

American Chemical Society, Biophysical Society, IUPAC.

## **SYNERGISTIC ACTIVITIES**

- Editorial Board Member of Biochemistry and Molecular Biology Education
- Ad hoc reviewer for the Journal of American Chemical Society, Journal of Biological Chemistry, Biochemistry, PLOS ONE, Proteins, Protein Science, In Silico Pharmacology, International Journal of Molecular Sciences, Chemical Biology & Drug Design, Journal of Biomolecular Structure and Dynamics, Journal Molecular Graphics and Modeling, Current Computer-Aided Drug Design, Biochemistry and Molecular Biology Education and Journal of Biomolecular Structure and Dynamics, Journal of Computational Science
- National Institute of Health Reviewer and Review Panelist
- Ad hoc grant proposal reviewer for Research Corporation for Science Advancement.
- Ad hoc reviewer for the Office of Research and Sponsored Program, UWEC
- Ad hoc Reviewer of the National Conference on Undergraduate Research (NCUR)
- Ad hoc Reviewer of the World-CUR
- Ph.D. thesis reviewer/examiner
- Ignite Grant Program Technical Reviewer, WISYS.
- Internal reviewer of Biology Program, UWEC
- Served in Search & Screen Committee for ORSP Executive Director, 2019, 2023
- Advisory member of Center for Racial and Restorative Justice, UWEC, 2020-2022
- Fulbright Award Campus Committee Member
- Reviewer for Biomedical Innovator Applications