

Dipobrato Sarbapalli

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EDUCATION

University of Illinois at Urbana Champaign (UIUC) *Urbana-Champaign, IL*
Doctor of Philosophy in Materials Science and Engineering, GPA: 3.90/4.00 *Dec 2022 (expected)*
Focus: Use of graphene to study interfaces in Li-ion and redox flow batteries

University of Illinois at Urbana Champaign (UIUC) *Urbana-Champaign, IL*
Master of Science in Civil Engineering, GPA: 4.00/4.00 *May 2018*
Focus: Nucleation seeding for controlling kinetics of inorganic aluminosilicate binder reactions

HONORS

- Honorable mention, [Link Foundation Energy Fellowship](#) (9/120 applicants) (June 2021)
- Awarded for Best Poster during the SEAC Poster session, PITTCON, Chicago (Feb 2020)
- Awarded DAAD-RISE Fellowship to intern with BASF at Ludwigshafen, Germany (March 2017)
- Rated as Outstanding Teaching Assistant for CEE 300 – Behavior of Materials (Spring 2018)
- Rated as Outstanding Teaching Assistant for CEE 401 – Concrete Materials (Fall 2016, 2017)

WORK EXPERIENCE

BASF, Ludwigshafen, Germany || Supervisor: [Dr. Tobias Umbach](#) *Summer 2017*

- Used atomic force microscopy to measure adhesion of paint and adhesive polymer particles to inorganic fillers like calcium carbonate, mica, silica and iron oxide
- Applied numerical models to treat experimental data on Mathematica to quantify adhesion

RESEARCH AND TEACHING EXPERIENCE

Department of Chemistry, UIUC || Adviser: [Dr. Joaquín Rodríguez-López](#) *Fall 2018 - Present*

- Exploring Na-ion and Li-ion intercalation in graphene anodes using cyclic voltammetry, ion-sensitive electrochemical microscopy and *in-situ* Raman spectroscopy
- Characterizing interfacial processes affecting redox-flow battery performance with electrochemical microscopy and COMSOL simulations, in collaboration with the Joint Center for Energy Storage Research ([JCESR](#))
- Using MATLAB and Python to develop scripts for rapid analysis of electrochemical data

Department of Civil Engineering, UIUC || Adviser: [Dr. Paramita Mondal](#) *Fall 2015 - Summer 2018*

- Improved microstructural properties of aluminosilicate based binders by adding external seeds
- Characterized the dissolution mechanism of sodium aluminosilicates in salicylic acid-methanol using spectroscopy and x-ray diffraction

Department of Civil Engineering, UIUC || Courses: [CEE 300](#) and [CEE 401](#) *Spring 2016 - Spring 2018*

- Demonstrated experiments on the mechanical properties of steel, cast iron and polymers
- Guided classes with 16-22 students, 10-20 hours per week, held office hours, graded lab reports

SELECT PUBLICATIONS

1. [Dipobrato Sarbapalli](#), Abhiroop Mishra, and Joaquín Rodríguez-López. “Pt/Polypyrrole Quasi-References Revisited: Robustness and Application in Electrochemical Energy Storage Research” *Anal. Chem.* **2021**. (Submitted)
2. Jingshu Hui, A. Nijamudheen, [Dipobrato Sarbapalli](#), Chang Xia, Zihan Qu, Jose L. Mendoza-Cortes, and Joaquín Rodríguez-López. *Chem. Sci.* **2020**. DOI: [10.1039/D0SC03226C](https://doi.org/10.1039/D0SC03226C)
3. Tylan S. Watkins*, [Dipobrato Sarbapalli](#)*, Michael J. Counihan*, Andrew S. Danis, Jingjing Zhang, Lu Zhang, Kevin R. Zavadil, and Joaquín Rodríguez-López. *J. Mater. Chem. A* **2020**, *8*, 15734–15745. DOI: [10.1039/D0TA00836B](https://doi.org/10.1039/D0TA00836B)
4. Zachary T. Gossage, Jingshu Hui, [Dipobrato Sarbapalli](#), and Joaquín Rodríguez-López. *Analyst.* **2020**, *145*, 2631-2638. DOI: [10.1039/C9AN02637A](https://doi.org/10.1039/C9AN02637A)
5. Michael J. Counihan, [Dipobrato Sarbapalli](#), and Joaquín Rodríguez-López. *Electrochem. Soc. Interface.* **2020**, *29*, 30–32. DOI: [10.1149/2.f03203if](https://doi.org/10.1149/2.f03203if)
6. Jingshu Hui, Zachary T. Gossage, [Dipobrato Sarbapalli](#), Kenneth Hernández-Burgos, and Joaquín Rodríguez-López. *Anal. Chem.* **2019**, *91*, 60–83. DOI: [10.1021/acs.analchem.8b05115](https://doi.org/10.1021/acs.analchem.8b05115)

*Denotes equal contribution

Google Scholar: <https://bit.ly/3c9oQqC>

Publications: 8

SKILLS

Programming Languages, Typesetting tools: Python, MATLAB, Mathematica, L^AT_EX

Packages: OriginPro, COMSOL, ImageJ, AutoCAD 2D, VESTA, CasaXPS, TOPAS, Illustrator

Materials Characterization: Scanning Electron Microscopy, X-Ray Diffraction, X-Ray Photoelectron Spectroscopy, Infrared and Raman Spectroscopy, Isothermal Calorimetry, Atomic Force Microscopy, Dynamic Light Scattering, Gas Adsorption, Helium Pycnometry

EXTRA-CURRICULAR ACTIVITIES

Joaquín Rodríguez-López (JRL) Research Group

Fall 2018 - current

- Instructor for JRL Group [Electrochemical Bootcamp](#) - a 3-day intensive set of experiments and demos aimed at introducing newcomers to advanced electrochemistry
- Assisted in experimental demonstrations for hispanic students within the Urbana Middle School system as part of “[Cena y Ciencias](#)” (Supper and Science) program
- Displayed simple experiments on battery science during [Beckman Open House](#)

American Concrete Institute – Student Chapter (ACI-UIUC)

Fall 2015 - Summer 2018

- Conducted [OriginPro workshops](#), mentored undergraduates for student competition in ACI Convention, and organized outreach events in Engineering Open House

Third Dimension Aeromodelling Club – NITT

2012 - 2015

- [Vice President](#) in senior year; Responsible for leading, organizing and implementing club activities such as RC aircraft fabrication for 40 members