

## Dr. Rajesh Pavan Pothukuchi (Curriculum Vitae)

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TEACHING EXPERIENCE	<p><b>Assistant Professor, Department of Chemical Engineering, IIT Kharagpur, West Bengal, India,</b> Jan 2026 - Present</p> <p><b>Assistant Professor Research, SASTRA University, Thanjavur, Tamil Nadu, India,</b> July 2025 - December 2025</p>
POSTDOCTORAL EXPERIENCE	<p><b>Indian Institute of Science, IISc Bangalore,</b> June 2023 - May 2025 CV Raman Postdoctoral Fellow.</p>
RESEARCH EXPERIENCE	<p><b>Guest Scientist, FAU Erlangen-Nürnberg, Germany,</b> Sep 2024 - Oct 2024 Guest Scientist as a part of DAAD Indo-German Grant</p>
EDUCATION	<p><b>Indian Institute of Technology, IIT Gandhinagar, Gandhinagar,</b> July 2017 - September 2022 Ph.D., Chemical Engineering.</p> <ul style="list-style-type: none"><li>• Dissertation Topic: "Building Stimuli-Responsive Nanoparticle Assemblies Using Charge Correlations"</li><li>• Advisor: Dr. Mithun Radhakrishna</li></ul> <p><b>National Institute of Technology, Durgapur, India</b> 2014 - 2016 M.Tech., Corrosion Science and Technology, May 2016.(Gold Medal)</p> <ul style="list-style-type: none"><li>• Dissertation Topic: "Polyurethane-Polypyrrole blends as Anti-corrosive Coatings "</li><li>• Advisor(s):<ol style="list-style-type: none"><li>1. Dr. Chepuri R.K Rao, CSIR-IICT, Hyderabad, India.</li><li>2. Dr. Tanmoy Kumar Saha, NIT Durgapur, India.</li></ol></li></ul>
RESEARCH INTERESTS	<p>Nanoparticle self-assembly, biomolecular experiments, soft matter, polymer coacervates, atomic nucleation of metallic nanomaterials, crystallization and phase transitions in minerals, nanocrystal studies using Density Functional Theory (DFT) and Ab initio Molecular Dynamics (AIMD).</p>
JOURNAL PUBLICATIONS	<p><b>Rajesh Pavan Pothukuchi,</b> Vinod Kumar Prajapat, and Mithun Radhakrishna. "Charge-driven self-assembly of polyelectrolyte-grafted nanoparticles in solutions." <i>Langmuir</i> 37, no. 41 (2021): 12007-12015.<a href="#">Access here*</a></p> <p><b>Rajesh Pavan Pothukuchi,</b> and Mithun Radhakrishna*. "Understanding the stimuli-responsive behavior of polyion grafted nanoparticles in the presence of salt and polyelectrolytes", <i>Soft Matter</i>, 2022.<a href="#">Access here*</a></p> <p><b>Rajesh Pavan Pothukuchi,</b> Singh, Udisha, Bhatia, Dhiraj* and Mithun Radhakrishna*. "Controlled 3D assembly and stimuli-responsive behavior of DNA and peptide-functionalized gold nanoparticles in solutions", <i>Phys. Chem. Chem. Phys.</i>, 2022.<a href="#">Access here*</a></p> <p><b>Rajesh Pavan Pothukuchi,</b> and Mithun Radhakrishna*. "Understanding asymmetry effects at low grafting density on the self-assembly of polyion grafted nanoparticles", <i>Phys. Chem. Chem. Phys.</i>, 2022. <a href="#">Access here*</a></p>

**Rajesh Pavan Pothukuchi**, Sanjeev Kumar, and Sudeep Punnathanam\*; "Mechanistic details of the organizer-assisted nucleation of gold nanoparticles by the Turkevich method, Department of Chemical Engineering, Indian Institute of Science, Bangalore, 560012, India" (J. Phys. Chem. C 2024, 128, 41, 17642–17650) [Access here\\*](#)

**Pothukuchi, Rajesh Pavan\***, and Mithun Radhakrishna. "Role of polymer graft stiffness in electrostatic-driven self-assembly of nanoparticles in solutions." Phys. Chem. Chem. Phys., 2024. [Access here\\*](#)

**Rajesh Pavan Pothukuchi** and Sudeep Punnathanam\*; "Prediction of Solubility of Calcium Carbonate (CaCO<sub>3</sub>) Polymorphs Using Simulations, Department of Chemical Engineering, Indian Institute of Science, Bangalore, 560012, India (Manuscript under review)

Diksha Kadre, Vipin Kumar, **Rajesh Pavan Pothukuchi\***, and Sudeep Punnathanam\*; "Classifying Crystalline Phases in Complex Systems: A Machine Learning Approach with Order Parameters, Department of Chemical Engineering, Indian Institute of Science, Bangalore, 560012, India (Manuscript under review)

Building hierarchical structures through charge-driven self-assembly of polymer-grafted nanoparticles in solutions, Rajesh Pavan Pothukuchi\*, Mithun Radhakrishna, Discipline of Chemical Engineering, Indian Institute of Technology, Gandhinagar, India; **Contributed Speaker Session Talk at the ACS Fall 2021 National Meeting & Exposition, Atlanta, GA, US, August 22-26, 2021.**

Charge-driven self-assembly of polyelectrolyte-grafted nanoparticles; Rajesh Pavan Pothukuchi\*, Mithun Radhakrishna, Discipline of Chemical Engineering, Indian Institute of Technology, Gandhinagar, India; **Complex Fluids annual conference (COMPFLU 2021)** organized by ACS Publications & IIT Gandhinagar.

Building stimuli-responsive nanoparticle assemblies in polymer matrix and solutions, Rajesh Pavan Pothukuchi\*, Mithun Radhakrishna, Discipline of Chemical Engineering, Indian Institute of Technology, Gandhinagar, India; **Contributed Speaker Session Talk at the APS March Meeting, American Physical Society, Chicago, IL, US, March 14-18, 2022.**

Understanding stimuli-responsive nanoparticle assemblies in polymer matrix and solutions, Rajesh Pavan Pothukuchi\*, Mithun Radhakrishna, Discipline of Chemical Engineering, Indian Institute of Technology, Gandhinagar, India; **Poster presented at in the APS March Meeting, American Physical Society, Chicago, IL, US, March 14-18, 2022.**

CV Raman Postdoctoral Fellowship, Indian Institute of Science, Bangalore, India.

Best poster award from ACS at Complex Fluids annual conference (COMPFLU 2021)

Received MHRD National fellowship, Government of India, for doctoral studies.

Fellowship for Master's dissertation, CSIR-IICT lab, India.

Gold Medal (M.Tech in Corrosion Science and Technology, B.Tech in Chemical Engineering)

CONFERENCE  
PUBLICATIONS

AWARDS AND  
RECOGNITION

PROFILES

REFERENCES

**Dr. Sudeep Punnathanam**

Professor, Department of Chemical Engineering

Indian Institute of Science, Bangalore, India, *Email:* sudeep@iisc.ac.in

**Dr. Mithun Radhakrishna**

Associate Professor, Department of Chemical Engineering

Indian Institute of Technology, Gandhinagar, India, *Email:* mithunr@iitgn.ac.in

**Dr. Dhiraj Bhatia**

Associate Professor, Department of Biological Engineering

Indian Institute of Technology, Gandhinagar, India, *Email:* dhiraj.bhatia@iitgn.ac.in