



APURBA ROY

Assistant Professor

Department of Mechanical Engineering
Assam Engineering College



DOB: March 18, 1994



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WORK EXPERIENCE

ASSAM ENGINEERING COLLEGE

- Assistant Professor, Mechanical Engineering
- February 2025 onwards

NOWGONG POLYTECHNIC

- Lecturer, Mechanical Engineering
- October 2024 – February 2025

MAHINDRA & MAHINDRA LIMITED, CHENNAI

- Manager, Mahindra Technical Academy
- August 2018 – June 2019

ACADEMIC QUALIFICATIONS

PHD, MECHANICAL ENGINEERING (THERMAL) (pursuing)

- Indian Institute of Technology Kharagpur
 - Title: Electromagnetic and electrokinetic modulated flow of viscoelastic electrolytes through rigid and compliant microchannels.
 - Supervisor: Dr. Purbarun Dhar
 - January 2021 onwards
 - CGPA: 9.25/10 (till date)

M.TECH, MECHANICAL ENGINEERING (FLUIDS AND THERMAL)

- Indian Institute of Technology Guwahati
 - Title: Streaming potential modulated peristalsis and capillary filling dynamics.
 - Supervisor: Dr. Pranab Kumar Mondal
 - July 2016 – June 2018
 - CGPA: 9.00/10

B.E., MECHANICAL ENGINEERING

- Assam Engineering College
 - August 2012 – May 2016
 - Percentage: 84.07% (1st Class with Honours)

SENIOR SCHOOL CERTIFICATE EXAMINATION

- **Maharishi Vidya Mandir Silpukhuri, Guwahati**
 - *Year:* 2012
 - *Board:* Central Board of Secondary Education (CBSE)
 - *Percentage:* 89.80%

HIGH SCHOOL LEAVING CERTIFICATE EXAMINATION

- **Happy Child High School, Guwahati**
 - *Year:* 2010
 - *Board:* Board of Secondary Education, Assam (SEBA)
 - *Percentage:* 89.17%

SCIENTIFIC PUBLICATIONS AND PRESENTATIONS

JOURNAL PUBLICATIONS

- **Roy A.** & Dhar P. (2024). *Capillary Orientation and Morphology Dictated Oscillatory Electro-magneto-imbibition of Viscoelastic Electrolytes*. **Langmuir**, 40(45), 23788-23805 [DOI: 10.1021/acs.langmuir.4c02762].
- **Roy A.** & Dhar P. (2024). *Fluid-structure-interactive elasto-and-thermo-hydrodynamics of electrokinetic binary fluid flows in compliant micro-confinements*. **Physics of Fluids**, 36(3) [DOI: 10.1063/5.0192681].
- Paul A., **Roy A.** & Dhar P. (2024). External Stefan and Internal Marangoni Thermo-Fluid Dynamics for Evaporating Capillary Bridges. **Langmuir**, 40(10) [DOI: 10.1021/acs.langmuir.3c03703].
- **Roy A.** & Dhar P. (2022). *Micro-imbibition electro-magneto-hydrodynamics of viscoelastic fluids with interactive streaming potential*. **Journal of Non-Newtonian Fluid Mechanics**, 104936 [DOI: 10.1016/j.jnnfm.2022.104936].
- Gaikwad H. S., **Roy A.** & Mondal P. K. (2020). *Autonomous filling of a viscoelastic fluid in a microfluidic channel: Effect of streaming potential*. **Journal of Non-Newtonian Fluid Mechanics**, 282, 104317 [DOI: 10.1016/j.jnnfm.2020.104317].
- Gaikwad H. S., **Roy A.**, Mondal P. K., Chimres N. & Wongwises S. (2019). *Irreversibility analysis in a slip aided electroosmotic flow through an asymmetrically heated microchannel: The effects of Joule heating and the conjugate heat transfer*. **Analytica Chimica Acta**, 1045, 85-97 [DOI: 10.1016/j.aca.2018.08.058].

PRE-PRINTS

- Bhaskaran A. M., Paul A., **Roy A.**, Samanta D., & Dhar P. (2025). *The fluid dynamics of liquid mushrooms*. **arXiv preprint** arXiv:2501.17051 [DOI: 10.48550/arXiv.2501.17051].

CONFERENCE PRESENTATIONS

(* indicates presenter)

- Bhaskaran A. M.*, Paul A., **Roy A.** & Dhar P. (2024). *Hydrodynamics of liquid lamellae during droplet-jet collisions*. **2nd International Conference on Fluid, Thermal and Energy Systems (ICFTES)**, NIT Calicut India [*Best presentation awarded*].

- **Roy A. ***, Paul A. & Dhar P. (2023). *Two-dimensional pulsatile electro-magneto-hydrodynamics flow in micropipe with electroosmotic effects*. **10th International and 50th National Conference on Fluid Mechanics and Fluid Power (FMFP)**, IIT Jodhpur, India.
- Paul A. *, **Roy A.** & Dhar P. (2023). *Substrate wettability influenced evaporative thermo-fluid-dynamics of capillary bridges*. **10th International and 50th National Conference on Fluid Mechanics and Fluid Power (FMFP)**, IIT Jodhpur, India.
- **Roy A. *** & Dhar P. (2022). *Elastohydrodynamics of electromagnetically actuated deformable microfluidic systems*. **9th International and 49th National Conference on Fluid Mechanics and Fluid Power (FMFP)**, IIT Roorkee, India.
- **Roy A. *** & Dhar P. (2021). *Streaming potential modulated electro-magneto-hydrodynamics of the capillary filling of magneto-viscoelastic fluids*. **26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference**, IIT Madras, India.

COURSES AND TRAINING ATTENDED

FACULTY DEVELOPMENT PROGRAMMES

- “*Outcome Based Education and Teaching Pedagogy*”, organized by **National Institute of Technical Teachers Training and Research Chandigarh, Ministry of Education, Government of India**, held at Assam Engineering College, Guwahati from 20/01/2025 to 24/01/2025.

ACHIEVEMENTS

- Received the **Prime Minister’s Research Fellowship (PMRF)** for PhD program in IIT Kharagpur (2022).
- Qualified **GATE (2016) (Mechanical Engineering)** with **All India Rank 722** and **Score 794**.

TECHNICAL SKILLS

- **Computer Algebra Systems:**
Mathematica, Sage
- **Programming Languages:**
C, C++, Python
- **CFD Simulation Packages:**
COMSOL Multiphysics, Ansys FLUENT