



**BITS Pilani**

Pilani | Dubai | Goa | Hyderabad | Mumbai  
Research & Innovation

**IOWA STATE  
UNIVERSITY**

**BITS Pilani – ISU Joint collaboration**  
**Advertisement for PhD candidate**

**Date: 6<sup>th</sup> March 2026**

**Application Deadline: 7<sup>th</sup> April 2026 | Joining: - Starting fall (August) 2026**

Applications are invited for **one** fully funded position of a PhD Scholar on a joint project, under the **BITS Pilani and Iowa State University**. The selected candidate will work with Prof. Ranjan Dey from Department of Chemistry, BITS Pilani Goa Campus, Prof. Sayan Das at the Department of Mechanical Engineering, BITS-Pilani, Hyderabad campus and Prof. Saikat Mukherjee from department of Mechanical Engineering, Iowa State University.

**Research Topic: Chemo-Hydrodynamic Oscillations Studies Coupled with Thermophysical and Thermoacoustical Properties : Simulations and experiments.**

**Scope of Work:**

The chemo-hydrodynamic oscillation is manifested in the form of propagation of fronts as a result chemical reactions of thin layer of fluid open to the atmosphere. The interplay between fluid flow, the reaction kinetics as well as the transport of species in the form of a front by means of both convection and diffusion govern the CH oscillations and needs to be studied. The project also combines experimental thermophysical measurements with modeling and correlation studies to establish an industrially relevant property database for selected solvents. Thermoacoustical parameter studies will also be carried out along with multifrequency ultrasonic velocity measurements to study the effect of frequency on the investigated systems and the corresponding thermophysical properties at varying temperature.

The primary objectives of the project include: tracking of the front propagation in the presence of Marangoni and natural convection, measurement of thermophysical properties and developing a property database, study of binary mixtures as well as modelling and correlation of experimental data using thermodynamic models. (Project Duration – 4 years)

**Supervisor Details: Prof. Ranjan Dey (BITS Pilani, Goa), Prof. Sayan Das (BITS Pilani, Hyderabad) and Prof. Saikat Mukherjee (ISU)**

**Place of Work:** Department of Chemistry, BITS-Pilani, Goa campus and Department of Mechanical Engineering, BITS-Pilani, Hyderabad campus – **First 2 years.**

Department of Mechanical Engineering, Iowa State University, Ames, USA – **Last 2 years.**

**Fellowship Amount:** The fellowship will provide a stipend of INR 4,44,000/- per annum for a span of 2 years while in India and 28,000 \$ per annum while in USA. The next two years the student will be funded by the supervisor as per the TA/RA norms of the institute. Please note that BITS Pilani will not bear the visa and travel cost to USA for the candidate.

**Eligibility Criteria:**

**Essential Qualification:** M.E./MTech/M.S. in Chemical Engineering or M.Sc. in Physics, Material Science, Chemistry having a First Class or equivalent grade and a minimum of 60% aggregate at both UG and PG levels. Candidates with a B.E./BTech/B.Sc. in relevant engineering or science disciplines are not eligible. Interested candidates from other disciplines but having relevant skillset and experiences can reach out to the Supervisors regarding application. Selected candidate has to clear a minimum cut-off in TOEFL/IELTS before moving to Iowa State University.

**Desirable Qualification: -**

- A background or prior experience in any of the following fields including fluid dynamics, transport phenomena with knowledge in performing numerical flow simulations as well as chemistry with expertise in experimental reaction kinetics. Prior familiarity with computational platforms like MATLAB, COMSOL or other FEA based solvers as well as performing experiments will be an added advantage.
- Candidates with a valid GATE, UGC/CSIR-NET, GRE score or any prior publication record.



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### How to apply:

Please apply with **CV and Cover letter** (showing alignment and justification with the roles/responsibilities/requirements) using the google form link as provided below: -

- Please fill this Google form: - <https://forms.gle/7qmfdzZN2wJqnzdt8>
- Last date of Application: - **7<sup>th</sup> April 2026**.
- Preliminary shortlisting will be based on resume and telephonic/audio-visual interview within a week of last date of application. For final interview, the candidate will be informed through e-mail for final interview (electronically). For any query regarding the application for position, please contact via email ([ranjandey@goa.bits-pilani.ac.in](mailto:ranjandey@goa.bits-pilani.ac.in), [sayan.das@hyderabad.bits-pilani.ac.in](mailto:sayan.das@hyderabad.bits-pilani.ac.in) or [saikatm@iastate.edu](mailto:saikatm@iastate.edu) ).

### Fellowship Overview and Research Experience

The BITS-Pilani – ISU Joint PhD Program supports PhD enrolment at BITS Pilani and Iowa State University to pursue cutting-edge research, drive technological innovation and enhance sustainability, and cross-domain solutions. PhD students will engage in an enriching research experience starting their journey under the guidance of supervisor(s) from BITS-Pilani during the initial two years while collaborating with the supervisor from ISU through detailed follow-up weekly meetings. The last two years the candidate will have the opportunity to work at ISU to ensure a dynamic blend of theoretical and applied research, preparing students for impactful contributions.

### Contact Details: -

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*Professor, Chemistry Department,*  
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