

# Platinum Jubilee IIT Kharagpur International conference on Mathematical Modelling, Applied Analysis and Applications of AI in Applied Mathematics

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**Conference Title:** Platinum Jubilee IIT Kharagpur International conference on Mathematical Modelling, Applied Analysis and Applications of AI in Applied Mathematics (ICMAM 2026)

**Dates:** December 8–11, 2026

**Location:** IIT Kharagpur

**Convenor:** Prof. S. Bhattacharyya, Dept. of Mathematics

**Co-Convenor:** Prof. H. S Mahato, Prof. N. Garg, Dept. of Mathematics

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**Organising Committee:** **Applied Mathematics Group** (Prof. S. Bhattacharyya, Prof. P.V.S.N. Murthy, Prof. R.K. Pandey, Prof K. Ghoshal, Prof. R. Gayen, Prof. T. Raja Sekhar, Prof. H. S. Mahato, Prof. N. Garg)

## Overview

The aim of this conference is to foster a global dialogue between the rigorous foundations of Differential Equations (PDEs) and the transformative power of Artificial Intelligence. By bringing together theorists, computational scientists, and industry practitioners, we aim to accelerate the development of 'Scientific AI'—creating mathematical models that are not only data-driven but also physically consistent and mathematically sound.

## Key Research Themes

We invite submissions of original research abstracts and papers in the following areas:

### A. Mathematical Modelling:

- **Fluid Mechanics:** Computational Fluid Dynamics, Bio Fluid Mechanics, solute and sediment transport, fluid - structure interactions, wave-energy converters.
- **Interdisciplinary Applications:** Mathematical biology, climate modeling, financial mathematics.
- **Optimization & Control:** Optimal control of PDEs, reinforcement learning in physical systems, and inverse problems.

Leading experts: Prof. Alexander Korobkin, Honorary Professor, School of Engineering, Mathematics and Physics, University of East Anglia, UK, Prof. Emiliano Renzi,

Department of Mathematics, Physics and Electrical Engineering, Northumbria University, UK), Prof. Mike Meylan, The University of Newcastle, Australia.

## B. Applied Analysis

- **Theory of PDEs & Analysis:** Nonlinear PDEs, stochastic analysis, variational methods, and regularity theory.
- **Numerical Analysis:** Analysis of Finite Volume and Finite Element Methods, continuous weak formulation, standard continuous Galerkin methods, Convergence analysis of AI-based solvers, hybrid traditional-AI numerical schemes, and uncertainty quantification.

Leading experts: Prof. Remi Abgrall, Institut für Mathematik & Computational Science Universität Zürich; Prof. Erik Burman, University College London, Department of Mathematics, 807b Gower Street, London, WC1E 6BT, UK); Prof. Laszlo Szekelyhidi Jr., TU Dresden; Prof. Ansgar Juengel, TU Vienna; Prof. A. Muntean, Karlstad University; Prof. Christophe Prange, Cergy University Paris; Prof. Agnid Banerjee, Arizona State University; Prof. Arnab Roy, Basque Center for Applied Mathematics.

## C. Scientific Machine Learning (SciML):

Theoretical Foundations of Physics-Informed Neural Networks (PINNs), stability, strong formulation, weak formulation, training methods, Deep Ritz methods, Vanilla DeepONets, Training DeepONets, and Neural Operators (FNOs, DeepONets)

Leading experts: Prof. George Karniadakis, Division of Applied Mathematics, Brown University, Box F, Providence, RI 02912, US)

## Submission Guidelines

- **Extended Abstracts during Call for papers:** (Max 500 words) due by **July 15, 2026**.
- **Full Paper Submission:** Due by **September 1, 2026**.
- **Notification of Acceptance:** **October 10, 2026**.
- **Early bird registration:** **October 1, 2026**.
- **Registration closes:** **November 15, 2026**

## Expert Invitation & Logistics Plan

Based on your specified requirements and the conference's actionable goals, here is the updated invitation and budget distribution plan:

### 1. Expert Delegation

- **International Experts (USA, UK, Europe, Australia):** Inviting at least **10** leading experts.

- **National Experts (India):** Inviting at least 15 domestic specialists across interdisciplinary domains.

## 2. Budget Allocation Summary

Category	Budget Allocation	Purpose
International Experts	₹16,00,000	Airfare (Economy/Business-plus), honorariums, and visa processing for 10+ speakers.
Indian Experts	₹3,00,000	Domestic travel (Air/Rail), honorariums, and local transfers for 15+ speakers.
Hospitality & Venue	₹8,00,000	Catering (Breakfast, Lunch, Gala Dinner), high-quality lodging for guests, and venue branding.
Awards & Recognition	₹1,00,000	Best Talk and Best Poster awards for research scholars.

The overall budget is expected to be ₹ 35, 00, 000 which includes the charges for lecture halls, audio visual cells, GST and other incidental expenses. We will provide the detailed budget once we finalise the overall expenditure.

## ICMAM 2026: Official Conference Schedule

**Location:** IIT Kharagpur

**Theme:** Bridging PDEs and Scientific AI

### Day 1: Tuesday, December 8, 2026

- **09:00 – 10:30: Opening Ceremony & Platinum Jubilee Celebration.** Inaugural address by the Director of IIT Kharagpur.
- **10:30 – 11:30: Keynote Address 1.** Expert from the **USA** on Physics-Informed Neural Networks (PINNs).
- **11:30 – 13:00: Technical Session A: Nonlinear PDEs.** 3 Invited talks by Indian experts.
- **13:00 – 14:00: Networking Lunch.** Catering provided at the venue.
- **14:00 – 16:00: Technical Session B: Scientific Machine Learning (SciML).** Featuring experts from **Europe and the UK**.
- **16:00 – 17:30: Evening Tea & Poster Session I.** Focusing on Mathematical Biology and Fluid Dynamics.

### Day 2: Wednesday, December 9, 2026

- **09:00 – 10:00: Keynote Address 2.** Expert from **Europe** on Neural Operators (FNOs).
- **10:00 – 12:30: Technical Session C: Numerical Analysis.** Hybrid traditional-AI schemes and convergence analysis.
- **12:30 – 13:30: Lunch Break.**
- **13:30 – 15:30: Technical Session D: Stochastic Analysis & Uncertainty Quantification.** Combined panel of International and Indian experts.
- **15:30 – 17:30: Poster Session II & Industry Dialogue.** Interaction between computational scientists and industry practitioners.

### Day 3: Thursday, December 10, 2026

- **09:00 – 10:00: Keynote Address 3.** Expert from **Australia** on Optimal Control of PDEs.
- **10:00 – 12:30: Technical Session E: Interdisciplinary Applications.** Focus on Climate Modeling and Financial Mathematics.
- **12:30 – 13:30: Lunch Break.**
- **13:30 – 16:00: Technical Session F: Optimization & Reinforcement Learning.** Featuring research in physical systems and inverse problems.
- **19:00 – 21:30: Gala Dinner.** Dedicated networking event for all 25+ invited experts and delegates.

### Day 4: Friday, December 11, 2026

- **09:00 – 11:00: Special Session: The Future of 'Scientific AI'.** Panel discussion on physically consistent data-driven models.
- **11:00 – 12:30: Valedictory Session & Award Ceremony.**
  - **Best Talk Award** for research scholars.
  - **Best Poster Presentation Award.**
  - **Recognition of Eminent Speakers.**
- **12:30 – 13:30: Closing Lunch.**

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## Budget Strategy & Hospitality Management

With a total hospitality and lodging budget of **₹5 Lakh**, we will manage the delegation as follows:

- **Accommodation:** Invited experts (10 International + 15 Indian) will be housed at the **IIT Kharagpur Guest House/Technology Guest House**, ensuring lodging within campus proximity.
- **Catering:** The budget covers daily breakfast, networking lunches, high tea during poster sessions, and the Day 3 Gala Dinner.
- **Logistics:** Local transport within Kharagpur will be arranged for all invited guests.

### **Actionable Next Steps**

1. **Keynote Speakers:** Identifying 8 – 10 "stars" in the field (e.g., experts in PINNs or Fields Medalists in Analysis) will give the conference immediate credibility.
2. **Invited Speakers:** Identifying 12 – 15 invited speakers across different domains.
3. Planning schedule for sessions, poster session, if there is any.
4. Prepare a conference webpage.
5. Awarding eminent speakers, best talk and best poster ppt amongst research scholars.
6. **Publication Partners:** Will the proceedings be published by a major entity like Springer (LNM), IEEE, or SIAM?