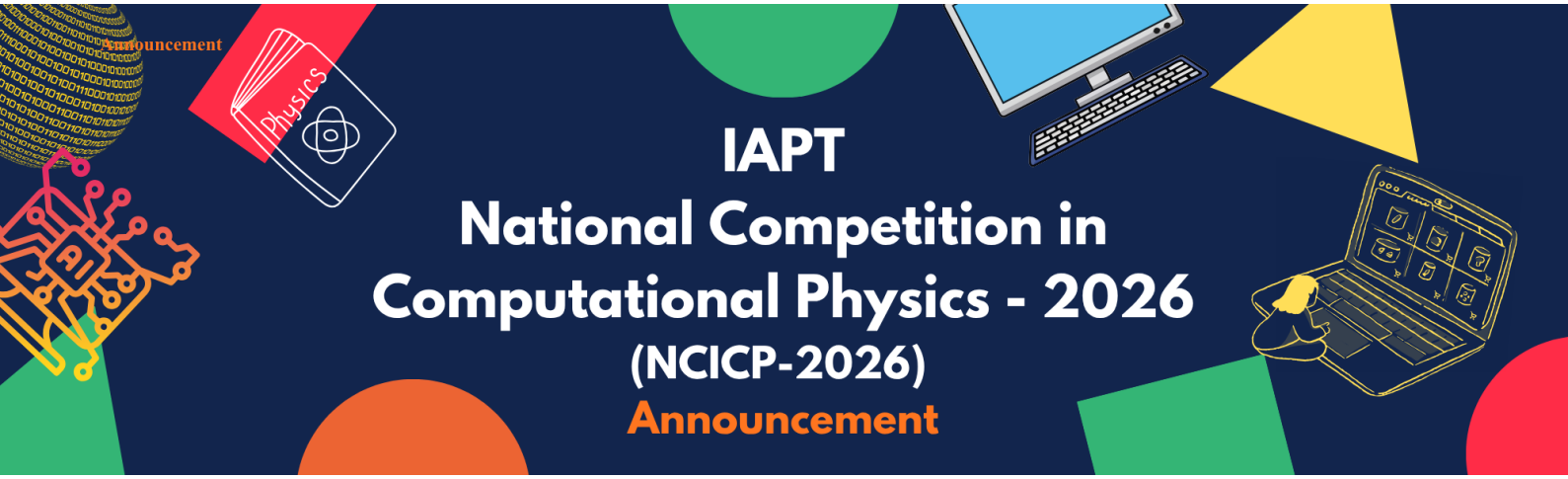

An Online Physics Simulations & Software-Based Physics Experiments Competition

Final Presentation by Winners Will be held in Annual IAPT Convention 2026 at Delhi in October (Dates will be announced Later)

A. Competition Theme

21st Century Computational Tools for Physics Exploration

B. Key Dates

- Event Registration Deadline (with submission of Title & One-Page Abstract) Date **May 31, 2026**
- Interaction with Experts (Online) **June 15 – 30, 2026**
- Final Submission **July 20 - 31, 2026**
- Final Presentation & Interaction for Evaluation (Online) **August 10 - 20, 2026**
- Project Demonstration by Award Winners & Special Invitees About NCICP-2026 Objectives During IAPT Convention 2026

C. The National Competition in Computational Physics (NCICP-2026) aims to:

☐ Promote computational thinking, simulation-based analysis, and AI-driven problem solving in physics.

☐ Encourage students and researchers to develop innovative solutions for real-world physics challenges.

☐ Foster deeper engagement with computational physics through hands-on simulations and software-based experiments.

□ Enhance modern scientific exploration by leveraging technology-driven methodologies. This competition serves as a platform for participants to explore cutting-edge computational techniques, drive innovation, and contribute to the future of physics research and education. Competition Categories.

D. Participant Categories, Subthemes and Scope

NCICP-2026 will have three (03) categories:

1 . Undergraduate (UG)
2 . Postgraduate (PG) & Research Scholars
3 . Educators

Category 1: Undergraduate (UG) – *Foundations of Computational Physics*

1. Oscillatory systems,
2. Orbital dynamics (planets/satellites),
3. Interactions of matter and electromagnetic radiation,
4. Time evolution of waves (classical and quantum),
5. Applications of random numbers in physics

Category 2: Postgraduate (PG) & Researchers – *Advanced Computational Physics*

1. Nonlinear dynamics
2. Simulation of molecular dynamics
3. Statistical mechanics - the Monte Carlo algorithm
4. Quantum Mechanics: Eigenvalue determination and transition probability
5. Execution/control and data acquisition for a physics experiment

Category 3: Educators – *Computational Physics in Teaching & Learning*

1. Open source computational lesson plan challenges
2. Virtual lab and simulation development in home learning
3. Computational physics for interdisciplinary home projects
4. Data driven physics education for real world problems
5. Use of Video, audio and image analysis in experiments for physics teaching

E. Evaluation Criteria

Participants will be assessed based on the following metrics:

1. Literature Survey
2. Methodology & Implementation
3. Analysis of Results & Interpretation
4. Discussion & Critical Insights
5. Conclusions & Impact
6. Novelty & Innovativeness
7. Breadth & Depth of Study in the topic chosen
8. Scope for Future Work
9. Bibliography & Quality of Resources
10. Presentation & Engagement in Interaction
11. Documentation

F. Submission of Report and Presentation (No page limit)

- The file must be named as: '1/2/3-First name of the team leader (for Group) / single participant'.pdf. Here, 1/2/3 is to be used to mention the category. At the end, please append: _G (for Group) / _S (for Single).
- Please use Times New Roman (font size 12, spacing 1.5), and margins should be appropriate (1 inch on each side). Please orient the text in the following manner:

1. Abstract
2. Participant/ Participants Name with affiliation and e-mail address
3. Competition category
4. Statement of the problem (Must be within the themes and subthemes suggested for the competition
5. Literature Survey and Formulation of the Problem
6. Software/Methodology & Implementation and testing of the code
7. Analysis of Results & Interpretation
8. Discussion & Critical Insights
9. Conclusions & Impact along with Novelty & Innovativeness including challenges faced in arriving at and execution of the computational solution
10. Scope for Future Work

11. Acknowledgements
12. Bibliography & Quality of Resources
13. Appendices and supplementary information
14. Presentation (max. 12-15 slides) & Engagement in Interaction
15. Documentation, Competition Categories & Challenges, participants are required to submit a mandatory report under the above headings. A plagiarism check will be conducted on the submitted report.

How to register & how to participate and where to submit an Entry for competition:

1. The detailed entry should be submitted via the Google Form: https://forms.gle/p4A1XsVaEYsQr3Gt5
2. The participant belonging to a particular category must submit a project on any one of the mentioned topics.
3. An individual / the team leader in case of a group (Max. three members) must submit the required information, including the One-page Abstract with Title in pdf format, within May 31, 2026.
4. After the interaction meeting with participants, the team leader, in case of a group, or an individual must submit the Final pdf file within July 31, 2026, as is described in the above points, to the Google Classroom (Class Code to be sent to the individual mailbox after July 15, 2026) as an attachment.

Additional Information:

- Selected entries (Award winners and special invitees, if any) from each category will be invited for demonstration at the upcoming IAPT convention. The dates and venue will be notified in due course of time. The convention will likely be held during October 2026.
- The invited participants will be paid railway fare from the workplace to the convention place as per IAPT rules. In the case of joint authors, only one of the participants is eligible to receive TA (as per IAPT rules). The selected participant must come with his/her experimental setup/laptop for the final demonstration. Your cooperation in abiding by the last date is solicited and will be highly appreciated.
- All work presented must be original. The top three presentations in each category will receive prizes and certificates. All participants will receive an e-certificate. Judges' decisions will be final. ***Besides this top 5 submissions in each category will get an opportunity to be part of e-publication of IAPT, based on this competition in the form of a book.***

For any query, contact:

Dr. Pradipta Panchadhyayee, Coordinator, NCICP-2026
Associate Professor,
Department of Physics (UG & PG), Prabhat Kumar College, Contai;
PO: Karkuli DSO, Dist.: Purba Medinipur, WB, 721404
Mail id: ppcontai@gmail.com
WhatsApp:(+91) 9476161100