Announcement

NATIONAL COMPETITION IN COMPUTATIONAL PHYSICS - 2023
(PHYSICS SIMULATIONS & SOFTWARE-BASED PHYSICS EXPERIMENTS)
(NCICP – 2023)

The annual IAPT competition NCICP 2023 will be held online before the Annual IAPT Convention. The details of the venue and dates of the IAPT Convention-2023 will be announced in due course of time.

Important Dates (Notice a bit of change in procedure. See the point 4)

1	Submission of Title and One-Page Abstract	31-5-2023
2	Online Interaction between the Experts and the Participants	15-6-2023 to 21-6-2023
3	Final Submission	31-07-2023
4	Final Presentation (online) and Interaction for Evaluation	20-08-2023 to 31-08-2023
5	Demonstration of Projects by Awards winners, and Special invitees	During the IAPT Convention-2023

TENTATIVE RUBRIC FOR EVALUATION

Sl. No.	Metric	Weightage
1	Novelty & Innovativeness	20
2	Literature Survey	5
3	Presentation & Interaction	15
4	Software/Methodology	25
5	Analysis of Results	25
6	Discussion	10
7	Scope of Future work & Conclusions	10
8	Bibliography & Resources	10
9	Practical Usage & Overall Impression	20
10	Documentation	10

Preface

Now-a-days computers play a pivotal role in the teaching-learning process by carrying out physics simulations, virtual experiments, analysis of experimental results, acquisition of data, smartphone apps, and so on. Computers also find applications in numerical computations, data analysis, solving complex numerical problems in Physics, and iterative calculations. Through NCICP, IAPT provides a platform for physics/STEM students and teachers to show their proficiency in using appropriate software to develop innovative physics experiments/simulations through this national-level competition.

About the Competition

This competition will be held in two categories: (a) Student, and (b) Teacher.

A. STUDENT Category: The competition is open to UG/PG level students.

B. TEACHER Category: The teachers at the school and UG and PG levels are eligible to participate in the competition. The participant can even be an M.Phil. / Ph.D. awarded or pursuing M.Phil/Ph.D. or a scientist from regional/national laboratory or a science communicator in recognized institutions, etc. He / She needs not to be an IAPT member.

The work to be presented should be an original one.

The **best three presentations** in **each category** will be given cash awards of Rs. 7000/-, Rs. 5000/- & Rs. 4000/-, respectively, and a certificate. ***THE DECISION OF THE JUDGES WILL BE FINAL.***

Theme of the Competition

INNOVATION (i.e. new idea, new method, new device, new algorithm involving physics) is the main theme. The following kinds of Physics-based Simulations/Experiments are included in this competition:

1. Experiments with software-based modeling using Android phone / PC/ smartphone etc.

2. Experiments with transducer / sensor / actuator / PID interfaced with Microcontroller / Microprocessors / PC

3. Experiments using ARDUINO coupled with Android phone / PC / ExpEYES / Any other Interfacing device.

4. Solving physics problems by simulations or adopting numerical techniques (usingPsilab / Matlab / Mathematica, Spreadsheets, Fortran, C++, Python etc.)/any other software.

How to register

The detailed entry should be submitted via the Google Form:
https://forms.gle/u7zaPFxe3ebNvJ1F9

An individual / the team leader in case of a group (*Max. four members*) must submit the required information, including the One-page Abstract with Title in pdf format, within May 31, 2023.

What to do next

(i) **After the interaction meeting with participants, the team leader, in case of a group, or an individual must submit the <u>Final</u> pdf file within July 31, 2023, as is described in the following points, to the Google Classroom (Class Code to be sent to the individual mailbox after June 21, 2023) as an attachment.**

(ii) The file must be named as '*Category - First name of the team leader / an individual*'.pdf. Mention A or B carefully for the STUDENT and TEACHER categories, respectively. For Example: If you belong to the Teacher Category and your name is Prasant Arora, your file name will be B-Prasant.pdf.

(iii) It should contain a detailed write-up of their work (along with the computer program, if any), i.e. detailed theory with diagrams, procedure, observations, calculations, graphs, results, and references. In the case of physics simulations, the report should include a statement of the problem, formulation of the problem, flowchart, code/worksheet, test cases, and visualization of results using Gnuplot or such Open Source software. There is no limit on the number of pages. The participant(s) should write his/her (their) name(s), affiliation(s), and email(s) at the end of this file. Please mention the innovation you have incorporated with its importance regarding applications.

(iv) Please use Times New Roman (font size 12, spacing 1.5), and margins should be appropriate (1 inch on each side).

(v) **After the Annual Convention, the abstracts of the selected experiment will be published in IAPT monthly Bulletin (ISSN 2277-8950).**

Selected entries (Award winners and special invitees, if any) from each category will be invited for demonstration at the XXXVII IAPT convention. The dates and venue will be notified in due course of time. The convention will likely be held during the last week of October 2023. 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 top ten student participant entries (for categories A and B) may be given an amount of Rs 1000/- each towards expenditure incurred in setting up the experiment. The selected participant must come with his/her experimental setup for the final demonstration.

Your cooperation in abiding by the last date will be highly appreciated.

For any query:

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