



# International School on Physics & Allied Disciplines

March 11 - 15, 2019



The National Centre for Physics (NCP), Islamabad, Pakistan and *The Abdus Salam International Centre for Theoretical Physics (AS-ICTP)*, Trieste, Italy are jointly organizing the International School on Physics & Allied Disciplines (ISPAD) in Islamabad, Pakistan from March 11 - 15, 2019. The ISPAD-2019 will be directed by H. R. Hoorani (NCP) and Joseph Niemela (AS-ICTP).

## Introduction

International Scientific Spring (ISS), initiated in 2009, has become a major annual scientific activity of NCP. Since 2012, AS-ICTP, Italy has become a partner of NCP for organizing this scientific event in Islamabad, Pakistan. It was re-named as a school in 2015 to reflect its emphasis on developing the potential of young participants. During the ISS-2018 it was agreed to rename the activity as **International School on Physics & Allied Disciplines (ISPAD)**. The idea of holding the ISPAD at NCP is to provide a platform for the local and the foreign participants to exchange scientific knowledge and to generate enthusiasm for science and innovation. Around 250 young Pakistani M.Phil./Ph.D. students, researchers, university faculty and many foreign invited speakers and participants will take part in the deliberations of ISPAD.

## Format

Each year, the topics (technical activities) of School are chosen keeping in view the present and future research interests of NCP, universities and national R&D institutions. The School will consist of plenary, parallel and poster sessions as well as tutorials and structured discussions relevant to various technical activities in the chosen topics. The plenary lectures contain mostly overviews of advances in the chosen areas for general audience while the lectures/talks in parallel sessions cover the recent research on the specific topics.

## Topics and Coordinators

### A. Nano Sciences & Technology

Synthesis and characterization techniques of nanomaterials; Graphenes, MXenes and their applications; Functional nanoscale structures in devices; Nanofabrication and lithography; Nanotechnology for clean energy and environment; Biomaterials and nanobiotechnology; Nanomedicine

Coordinators: Sara Qaisar, Muneeb Asim, Imran Shahzad

### B. High Energy Physics & Cosmology

Phenomenology of elementary particles, Flavor physics, B-meson physics, Neutrino physics, Inflation gravity waves, Black hole physics, Dark matter, Si detectors in particle physics

Coordinators: Ashfaq Ahmad, Rizwan Khalid, Mansoor ur Rehman, Wajid Ali Khan

### C. One Day "Workshop on Data Science and Machine Learning"

The LHC experiments have been producing the largest amount of complex data which has to be analyzed to search for new physics and probe the Standard Model even further. This is the first workshop at NCP which is dedicated to Data Science in High Energy Physics. The main goal of the workshop is to introduce the concepts and tools involved in the analyses of the big data in HEP. The workshop will provide an opportunity to bring together computer scientists and physicists to discuss intelligent solutions to large-scale computational problems in HEP. The workshop includes plenary presentations, tutorials and hands-on Machine Learning exercises as well as discussion and brainstorming session.

Coordinators: Ashfaq Ahmad, Saqib Haleem, Adeel ur Rehman

## Participation

Active graduate & post graduate students, post-doctoral researchers, faculty and research scientists who have also published research work in recognized international journals during the last three years will be encouraged to participate (oral or poster presentation). Local hospitality will be provided to the participants. As a rule, travel expenses of the participants should be borne by their home institutes. However, partial travel assistance may be provided to selected local participants residing outside Islamabad. A limited number of travel grants may also be provided to the foreign participants, especially those from the developing countries of the region.

## How to apply

The Online Registration Form can be accessed at: <http://www.ncp.edu.pk/ispad-2019.php>. The Application Form should be submitted by **November 30<sup>th</sup>, 2018 for foreign participants** and by **January 15, 2019 for local participants**. Selection will be made by the Technical Committee of ISPAD-2019. Foreign applicants are required to attach/provide scans of the first two relevant pages of their passports valid at least six months after the ISPAD-2019 event. These documents to be submitted to the activity secretariat by email before the deadline for registration. Selected applicants will be required to pay a registration fee PKR. 2500/- There is no registration fee for the invited speakers and foreign participants.

## Sponsors

- Commission on Science and Technology for Sustainable Development in the South (COMSATS)
- Pakistan Science Foundation (PSF)
- Pakistan Academy of Sciences (PAS)
- Organization of Islamic Cooperation's (OIC) Standing Committee on Scientific and Technological Cooperation (COMSTEC)

## For further information, Please Contact:

Activity Secretariat: [ispad@ncp.edu.pk](mailto:ispad@ncp.edu.pk)

## Collaborations & Academic Activities Department (CAAD)

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## Directors

Hafeez R. Hoorani (NCP, Pakistan)

Joseph Niemela (ICTP, Italy)

## International Advisory Committee

Alberto Tagliaferro (Italy)

Alain Dufresne (France)

Ting-kai Zhao (China)

## Key Speakers

Alain Dufresne (France)

Abdesslam Arhrib (Morocco)

Paris Sphicas (Greece)

Roger John Barlow (UK)

Ting-kai Zhao (China)

## Scientific Secretary

Dr. Ashfaq Ahmad

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**Application  
Deadline**

**Nov. 30, 2018**

For Foreign Participants

**Jan. 15, 2019**

For Local Participants