Winter School in Astronomy, Astrophysics and Cosmology

(WSAAC 2019)

7-13 January, 2019

(Sponsored by Inter University Centre for Astronomy & Astrophysics (IUCAA) and Gauhati University))

The Winter School in Astronomy, Astrophysics & Cosmology 2019 (WSAAC 2019) aims at introducing exceptionally motivated postgraduate students of Physics and Astronomy and first year PhD students in this field with the concepts and current frontiers in theoretical and observational aspects of astrophysics and cosmology.

Our understanding of the universe does not depend only on the growth of observing facilities, but also on the number of people utilizing the facilities scientifically, say for constructing testable theories. In addition to a good number of existing national and international observing facilities, post 2020 era will see operation of Extremely Large Telescopes (ELTs) and new Gravitational Wave Observatories. Unprecedented precision in the upcoming missions keeps promise for discovering previously unanticipated phenomena in the universe.

With these facilities we anticipate addressing several fundamental questions in astronomy – what new astrophysics can be derived from gravitational waves? Is general relativity correct near black holes? What are dark matter and dark energy? How did the first stars and galaxies form after the Big Bang? What is the complex dynamics of interstellar gases leading to formation of stars and thousands of life bearing planets?

This winter school will consist of a series of lectures on the above mentioned problems, to be delivered by professional astrophysicists and cosmologists and also demonstration sessions with the help of SDSS Sky Server, AAVSO, IRAF etc.

Topics to be covered:

(a) Theoretical astrophysics & cosmology: Stars, astrophysical general relativity and black holes, gravitational waves. The large scale structure and CMB physics. Explosive phenomena – supernovae, GRBs and Quasars.

(b) Observational astronomy: Telescopes and Detectors; Photometry, Spectroscopy and Polarimetry; Multi-Wavelength Astronomy.

(c) Data reduction: Optical/IR data using IRAF. SDSS data handling.

Disciplines & Speakers:

Cosmology, Large Scale Structure, Gravity and Quasars

D J Saikia, IUCAA, Pune

Prasad Basu, Cotton University

Sanjeev Kalita, Gauhati University

Stars and explosive phenomena

G. Srinivasan, RRI, Bangaluru

Brijesh Kumar, ARIES, Nainital

Maheswar Gopinathan, IIA, Bangaluru

Sukanta Deb, Cotton University

Observational astronomy & astronomical instrumentation

Ram Sagar, IIA Bangaluru, Former Director, ARIES, Nainital

Asoke K. Sen, Assam University

Padmakar Singh Parihar, IIA, Bangaluru

Biman J. Medhi, Gauhati University

Who are eligible to apply? MSc final year students of Physics and Astronomy from Indian Universities and PhD first year students (Astrophysics/Cosmology) are eligible for participating.

There is **no** registration fee for participants.

Host organisation:
Department of Physics
Gauhati University
Guwahati,
Assam, India

Coordinators
Sanjeev Kalita (GU)
Biman J Medhi (GU)
Ranjeev Misra (IUCAA)

Chief Patron: Dr. Mridul Hazarika, Honourable Vice Chancellor, Gauhati University.

Scientific Advisory Committee (SAC):

- Prof. Madhurjya P. Bora; Head, Department of Physics, Gauhati University
- Prof. H L Duorah, Gauhati University
- Dr. (Mrs.) Kalpana Duorah, Gauhati University
- Prof. D J Saikia, IUCAA, Pune.
- Prof. A K Sen, Assam University.
- Prof. Kalyanee Barua, Gauhati University.
- Dr. Sukanta Deb, Cotton University.
- Dr. Biman J. Medhi, Gauhati University.
- Dr. Sanjeev Kalita, Gauhati University.

Local Organising Committee (LOC):
Madhurjya P. Bora, Chairman, HOD, Department of Physics, GU
Biman J. Medhi (Convener)
Sanjeev Kalita (Convener)
Hirak Jyoti Goswami, Physics, GU.
Bimal K. Sarma, Physics, GU.
Subhankar Roy, Physics, GU.
P C Kalita, Physics, GU
J C Goswami, Physics, GU
D. Barua, Physics, GU.
M. Das, Physics, GU
M. Ray, Physics, GU.

Last date of registration: 26th December, 2018

How to apply? Participants should apply through email by sending their latest curriculum vitae to the following email address. MSc students must submit a no objection certificate from the Head of the respective departments and recommendation letter from any faculty member and also provide details of any project/dissertation carried out during BSc/MSc course in the field of astronomy/cosmology. PhD students must submit a recommendation letter from their supervisors.

Contact email: wsaac19@gmail.com