

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Departmental Colloquium Notice

Org. by:

School of Physical Sciences

Title:	Fifty Years of Experimental High Energy Physics
Speaker:	Prof. Sunanda Banerjee, INSA Senior Scientist, IACS, Kolkata
Date:	July 27, 2022 (Wednesday)
Time:	16:00 hours (IST)
Venue:	S.N. Bose Hall, Main Building, IACS, Kolkata
Abstract:	There have been a large number of important discoveries in the field of experimental high energy physics over the past fifty years. Some of the important milestones are (1) discovery of the neutral current to establish the first step of the electroweak theory; (2) evidence of charm and beauty through the search of quarkonia and multi-muon events in deep inelastic scattering; (3) discovery of the third generation through the discovery of the tau lepton; (4) evidence of Bjorken scale breaking to initiate Quantum Chromodynamics, the theory of strong interaction; (5) observation of parton (quark) showers in the formation of jets and discovery of gluons; (6) discovery of the W and Z bosons, the mediators of the weak interaction; (7) precision measurements of the properties of the W and the Z bosons to establish the correctness of radiative corrections and to predict of yet to be discovered particles like the top quark and the Higgs boson; (8) discovery of the top quark and the tauneutrino; (9) establishing neutrino oscillation and thereby massive neutrinos; (10) finding CP violation in the decays of hadrons from the third generation of quarks; (11) discovery of the Higgs boson. During this process, the field of experimental high energy physics also experienced revolutions in the detection techniques, triggering and data acquisition systems and finally the use of new analysis techniques like detector simulation and artificial intelligence. Some of these important discoveries will be highlighted in this colloquium.

All are cordially invited to attend the Departmental Colloquium.