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Jalandhar
Jalandhar Punjab, India-144011

Subject: Summary of the TEQIP-III sponsored online short-term course entitled “**Advances in High Energy Physics**” dated 18th to 22nd September 2020.

The e- short term course was inaugurated by Dr. L. K. Awasthi, Director, Dr. B. R. Ambedkar National Institute of Technology, Jalandhar on 18th Sept 2020. He encouraged the participants and the organizers for attending and conducting the workshop. The participants were welcomed by Dr. Harleen Dahiya, Head, Department of Physics. The Keynote speaker Padam Shri Prof. Rohini Godbole also enlightened the participants by her motivational words. Dr. Arvind and Dr Suneel were also present to co-ordinate the session. The total number of registered participants is 1410.

All the Lectures were delivered on a wide range of topics covering many diverse areas of High Energy Physics research like the Standard Model, QCD, Elementary Particle Detection Techniques, Measurement of the kinematics of particles using Trackers and Calorimeters, Astro-particle Physics, and Dark Matter and Dark Energy.

The Day 1 (by Prof. Rohini Godbole (IISc) & Prof. Sudhir Vempati (IISc)) of e-STC was devoted to the area as the frameworks of QFT, Neutrino oscillation, the connection between Conservation laws & Symmetries of the system, and Various tests for the Standard Model & BSM.

The Day 2 (by Prof. Kajari Mazumdar (TIFR) & Prof. Subhendra Mohanty (PRL)) lectures were dedicated to the particle discoveries in Hadron Collisions, 21-cm Hydrogen Line observation in Astroparticle Physics, and the Cosmic Microwave Background.

The Day 3 (Prof. Suchandra Dutta (SINP) & Prof. Satyaki Bhattacharya (SINP)) lectures were committed to the area of Modern Tracking Detectors in Experimental High Energy Physics, Calorimetry, and Experimental development towards the final observation of Higgs Boson in LHC.

The 4th Day (Prof. Alam Jan-e (VECC Kolkata) & Prof. Raghunath Sahoo (IIT Indore)) lectures were delivered on Physics of QCD Phase Diagrams, Quark–gluon plasma, and an overview of various next-generation colliders.

The Day 5 (Prof. Shashi Dhiman (HPU Shimla) & Prof. Harvinder Jassal (IISER Mohali)) lectures focused on the physics of neutron stars, dark matter, and dark energy. An overview of understanding of dark matter, and other mysteries of the universe was presented.

Links to all the lectures: <https://www.youtube.com/watch?v=F4y2swAG63s&list=PLf5giOsvRo51Z-cyFjJs51qGpQ9ST8FkX>

Website: <https://sites.google.com/nitj.ac.in/ahep-2020/>

Dr Harleen Dahiya
Convener

Dr. Arvind Kumar
Coordinator

Dr. Suneel Dutt
Coordinator