Public Lecture

TATA INSTITUTE OF FUNDAMENTAL RESEARCH

From Quarks to the Cosmos

Date, Time : Friday 10 February, 2023 at 5:00 pm

Venue : Homi Bhabha Auditorium, TIFR

Major advances are being made in understanding the nature of matter, energy, space, and time and in understanding the universe as a whole. This talk will give a brief review of recent progress in both particle physics and cosmology and the major outstanding questions which we optimistically anticipate will be answered by 2070.

Speaker: Ian Shipsey FRS

HOD Physics, and Henry Moseley Centenary Professor of Experimental Physics, University of Oxford

Prof. Shipsey works in large international science collaborations. These collaborations seek to understand how the universe was born, how it will evolve and how it will end using particle accelerators and telescopes. He is particularly interested in the Higgs boson, dark energy, dark matter and quarks. At present his main interest is the CERN's Large Hadron Collider (LHC) and Vera C. Rubin observatory starting in 2024. He is well known for his seminal studies of how quarks change from one type to another. After assisting US DOE create the Quantum Information Science Enabled Discovery (QuantISED) program in 2018, he was instrumental in creating the UK's similar Quantum Technologies for Fundamental Physics program. He is currently building Britain's largest quantum sensor (AION) in Oxford that will search for ultra-light dark matter and gravitational waves at frequencies different to those detected to date. A few key positions Ian has held include:

- **Chairperson of Collaboration Board of the CMS Experiment at CERN (2013 - 2014)**
- **Member of the Board of Directors of the Large Synoptic Survey Telescope Corporation (2009-12 & 2017-2025)**
- **Co-coordinator of the LHC Physics Center at Fermilab (2009-2012)**
- **Co-spokesperson of the CLEO experiment at Cornell University (2001-2004).**
- **Chairperson of the APS Division of Particles and Fields (DPF) (2011-2014).**

Talk is open to all. Kindly bring original photo id proof to enter TIFR premises.

Contact – pro@tifr.res.in, Phone: 22782500

Buses will be available to pickup students at 4:00pm from CSTM (next to `Kutumb Sakhi Stall' & Churchgate station (Maskati Court Building, Near GST Bhavan) and drop after lecture