



HYPHI COLLOQUIUM

Date: 20 Dec 2024, Friday

Time: 14:30 Hrs (Tea/Coffee 15:45 Hrs)

Venue: TIFRH Auditorium

Title: Perspectives on Beam-Driven Plasma-Based Acceleration

Speaker: Prof. Chandrashekhar Joshi, University of California Los Angeles, U.S.A.

Abstract:

Particle accelerators have been engines of discovery in our understanding of the Universe and have applications in many areas of modern life from medicine to security. The most powerful ones are 10's of kilometers in length, determined by the strength of the accelerating electric field. It has been four decades since the concept of using a relativistic plasma wake for charged particle acceleration was first proposed. In relativistic plasma wakes the accelerating electric field can be orders of magnitude greater than in a conventional accelerator with the potential to reduce the size of the accelerating structure. The driver for producing such wakes can be in intense laser pulse or a high current charged-particle beam. During this time ingenious solutions for generating the ultra-high electric field over meter-scale distances, and generating and accelerating high quality electron and positron beams using such wakes have been realised. In this talk I will give a personal perspective on the progress of the field of plasma-based acceleration driven by ultrashort electron bunches and where it is headed.