Contribution ID: 4

A Hybrid, Asymmetric, Linear Higgs Factory based on Plasma Acceleration -the HALHF Concept

Thursday 1 February 2024 16:15 (1 hour)

Plasma-wakefield acceleration promises orders of magnitude higher gradients than can be achieved via conventional radio-frequency cavities. It is now starting to be used in real user facilities. However, its application to particle-physics colliders has always been complicated by the difficulty in accelerating positrons. I will introduce the basics of plasma wakefield acceleration and explain the difficulty with accelerating positrons. HALHF avoids this by using a conventional linac to accelerate positrons, resulting in an asymmetric-energy, hybrid linear facility which is much smaller, greener and cheaper than any conventional alternative Higgsfactory proposal. I will outline the HALHF layout and principles, possible upgrades to the Higgs factory and the R&D path to making it a reality.

Presenter: Prof. D'ARCY, Richard (University of Oxford)