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Precision Timing Detectors

Wednesday, 30 August 2023 11:00 (1 hour)

Abstract: Timing detectors are an indispensable tool in collider experiments. The advent of new precision timing detectors will enhance resolution to a few tens of picoseconds. Beyond aiding precise physics measurements and new physics searches, these detectors will play a pivotal role in addressing the reconstruction challenges posed by future high-luminosity detectors. In this lecture, we will delve into the requirements for these detectors. We will examine the obstacles we've overcome and the advancements we've achieved in electronics. Finally, we will discuss the synchronization of these detectors when they are implemented on a large scale, as in the Phase II CMS and ATLAS experiments.

Lecturer: Ozgur Sahin is a tenured scientist at CEA Paris Saclay. He received his PhD from DESY and Hamburg University. He has been actively engaged in the LHC experiments since 2010 and is currently leading the development of the DAQ system of the new MIP (Minimum Ionizing Particle) timing detector (MTD) for the Phase II (i.e. the High Luminosity Phase of the LHC) CMS (Compact Muon Solenoid) experiment. In addition to precision timing detectors, his research interests also extend to the applications of modern machine learning algorithms in data filtering and the field of Higgs Physics (Text informed by Lecturer).

Presenter: Dr SAHIN, Mehmet Ozgur (Université Paris-Saclay (FR))

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