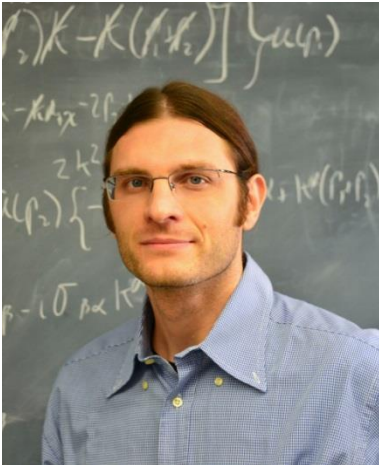


Looking Toward 2025: Preparing the CMS Hadronic Calorimeter for the High-Luminosity LHC Runs



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Friday, April 17, 2015

OPS 140

4:00-5:00pm

Light refreshments will be provided

The CMS detector, installed on the Large Hadron Collider (LHC) at CERN, has collected proton-proton collision data at a center-of-mass energy of 8TeV in the 2011-2012 period, and it is ready for the 13TeV run starting in 2015. However, the LHC is planned to provide collisions at higher and higher rates, and possibly center-of-mass energy, for the next twenty years. Will the ageing CMS detector be able to cope with the increased level of radiation? Not surprisingly, the answer is no, without a significant overhaul. I will focus on the upgrade of the CMS hadronic endcap calorimeter, and present a summary of the studies that are being performed to identify a radiation-tolerant material that could withstand the hostile environment in which it will operate. In particular, I will discuss the usage of plastic and liquid scintillators, and techniques to increase their radiation tolerance. Finally, I will present an alternative way to looking at final states with electro-weak bosons (in particular, WW final states) that can be used to infer limits on new physics scenarios.