Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 13.08.2019

(16:00 in Room 459/30b)

Beam stability challenges for High Luminosity Large Hadron Collider

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Abstract

The High-Luminosity upgrade of the Large Hadron Collider (HL-LHC) will double its beam intensity for the needs of High Energy Physics frontier. This increase requires a reduction of the machine's impedance to ensure coherent stability of the beams until they are put in collision. In this talk I will discuss two key components of the upgrade: the collimation and the crab cavity systems, focusing on the limitations they provide, recent measurements and mitigation strategies. I will also present the first results of the proof-of-principle test of quantifying the strength of Landau damping, generated by LHC octupoles, using a feedback acting as a controllable source of beam coupling impedance.

W.Hillert (Univ. HH), I.Agapov (MPY) and M.Vogt (MFL).