Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 17.12.2019

(16:00 in Room 200/24)

Crystals as Innovative Components of Particle Accelerators: Applications and Future Perspectives

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Abstract

Coherent interactions of high–energy particle beams with bent crystals (typically silicon and germanium) constitutes a bridge connecting branches of physics spanning from high-energy, to accelerator and solid-state physics. In the last two decades, those phenomena demonstrated to be promising techniques to steer charged particle beams and are now arising as innovative sources of ultra–high energy radiation. Two of the elective applications are represented by manipulation of particle beams at ultra–high energy particle accelerators, such as the Large Hadron Collider of CERN (Geneva) and the realization of innovative X- and gamma–sources.

The seminar will review the most relevant and recent achievements in the development of crystals capable to steer particle beams of energies ranging from few MeV to 6.5 TeV, describing the technological challenges encountered in the design, manufacturing and characterizations of bent crystals. Moreover, it will be discussed how coherent interactions of high–energy particle beams with crystalline materials are worldwide spreading in particle accelerators for innovative applications.

NOTE THE UNUSUAL LOCATION

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