Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 05.12.2023 16:00

Hybrid Seminar:

Seminar Room 30b/459 & zoom Video Access

Symphony of Beams: Navigating through PETRA III's Stability Challenges

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Abstract

Situated around the vibrant DESY environment, the PETRA III synchrotron light source deals with real-world challenges from campus activities. The daily hustle of traffic, the symphonies of construction work and the rhythmic changes of Hamburg's weather result in movement of the tunnel floor. The thereby introduced fluctuations of electron beam quality directly imprint on the resolution and experimental potential of the facility's 24 beamlines.

With PETRA IV on the horizon, comprehensive studies have been conducted to dissect the interplay between external factors and their impact on electron and photon beam quality. The focus lies on two main objectives:
1.) Unraveling the underlying drivers of environmentally induced beam disturbances to guide design choices for PETRA IV within the existing tunnel infrastructure.
2.) Developing a strategy to mitigate anticipated disturbances arising from planned campuswide civil engineering projects throughout PETRA III's upcoming operational years. This seminar braids together the threads of recent stability studies at PETRA III, offering a comprehensive overview of ongoing research activities and presenting preliminary findings.

Please consider our zoom link

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