Joint DESY and University of Hamburg Accelerator Physics Seminar

Friday, May 29-th, 2009

(14:00 in Room 459/30b)

Machine Protection for FLASH and the European XFEL

(PhD defense)

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Abstract

The Free–Electron Laser in Hamburg (FLASH) and the European X–Ray Free–Electron Laser (XFEL) are based on superconducting linear accelerators that can transport electron beams of high average power. These beams hold a serious potential to damage accelerator components. Hence, several passive and active machine protection measures are needed to ensure safe operation of the accelerators.

The talk includes a discussion of dark current transport through the FLASH linac, investigations of the radiation dose deposition in the FLASH undulators for various beam loss scenarios, and an overview of the active machine protection system (MPS) of the accelerator. Setup procedures and calibration algorithms for MPS subsystems and components are introduced. Finally, an architecture for a fully programmable machine protection system for the European XFEL is presented.

NOTE THE UNUSUAL DATE AND TIME

D.P.Barber (MPY), J.Roßbach (Univ. HH) and M.Vogt (MPY).