Joint DESY and University of Hamburg Accelerator Physics Seminar

Thursday, July 16-th, 2009

(12:30 in Room 459/30b)

Spurious Dispersion Effects at FLASH
(PhD defense)

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Abstract

The performance of the Free–Electron Laser (FEL) process imposes stringent demands on the transverse trajectory and size of the electron beam. Since transverse dispersion changes off–energy particle trajectories and increases the effective beam size, dispersion must be controlled. This talk treats the concept of dispersion in linacs, and analyses the impact of dispersion on the electron beam and on the FEL process. It presents generation mechanisms for spurious dispersion, quantifying its importance for FLASH (Free–electron Laser in Hamburg) and the XFEL (European X-ray Free-Electron Laser). A method for measuring and correcting dispersion and its implementation in FLASH is described. Experiments of dispersion effects on the transverse beam quality and on the FEL performance are presented.

NOTE THE UNUSUAL DATE AND TIME

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