Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 23.06.2015

(16:00 in Room 459/30b)

Ring-Based Synchrotron Light Sources: A Deterministic Approach

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Abstract

The mathematical framework of Hamiltonian dynamics, perturbed by classical radiation and quantum fluctuations, and related numerical and analytical methods provide the basis for realistic modeling of modern ring–based synchrotron light sources and for predictable results. Applications include: conceptual design, simulation of the accelerator for e.g. testing and validation of controls algorithms (a.k.a. "Virtual Accelerator"), and on–line models for model based control of commissioning and operations. By using signal processing and turn–by–turn BPM data it is also possible to calibrate and validate the nonlinear model for such a system, hence, "closing–the–loop".

J.Roßbach (Univ. HH) and M.Vogt (MFL).