

University of Ljubljana,
Faculty of Mathematics and Physics

An introduction to Accelerator Physics & Nonlinear Dynamics

May 27 - 31, 2013

Storage rings (such as LHC at CERN, RHIC at BNL, and synchrotron light rings around the world) are near-Hamiltonian systems that are often well described by the linear matrix theory that is used in their optical design. Just beyond the linear world, they display a rich variety of dynamical behaviour that is well described by iterated nonlinear difference equations (maps). This five-lecture series is meant as an introduction to the linear and near-linear Accelerator Physics of storage rings, and is targeted at doctoral and master students.

Topics include:

- Transverse linear motion and optics design
- Synchrotron radiation and damping
- Approximate solutions of difference maps
- Resonant, diffusive, and chaotic motion
- Nonlinear dynamics: practical uses and fundamental limits
- Halo growth and beam loss in linear accelerators

Lecturer:

Prof. Steve Peggs, BNL and ESS



Some limited funds are available
for students subsistence.

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www-f9.ijs.si/~krizan/sola/peggs-course/program.htm

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