



Universität Hamburg

DER FORSCHUNG | DER LEHRE | DER BILDUNG

CHAMPP

CENTER IN HAMBURG FOR
ASTRO-, MATHEMATICAL AND
PARTICLE PHYSICS

LECTURE COURSE IN THE QUANTUM UNIVERSE RESEARCH SCHOOL

Summer Term 2022

Accelerator Physics II

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Course Description:

Particle accelerators play an essential role in material research, high energy, hadron and nuclear physics, and are meanwhile indispensable tools serving various industrial and medical applications. In the course of related demanding challenges in accelerator operation and development, accelerator physics emerged as a stand-alone field of applied physics. The course will be a continuation of Accelerator Physics I and address this expanding and interesting research field on an advanced level.

Lecture contents: synchrotron radiation, radiative damping and equilibrium, low emittance lattices, beam lifetime, colliders, luminosity optimization, phase space cooling, wigglers and undulators, free electron lasers.

Due to the ongoing Corona pandemic, it is not clear at the moment if the traditional 4 days scientific excursion to European accelerator labs like GSI, PSI and CERN can be offered this year. Updated information will be given in the lecture.

Prerequisites:

Knowledge in electrodynamics, attendance of the introductory course Accelerator Physics I would be beneficial but is not recommended.

Literature:

Will be discussed during the lecture.

Date and Place: Thu, 13:30 – 15:00, SemRm 4064, Bahrenfeld

Problem Classes: Thu, 15:15 – 16:45, CIP-Pool 1080, Bahrenfeld

Starting on: 7 April 2022
