Beam Physics

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March 5, 2019

1 Lecture 1

The first lecture will cover:

- Accelerators in a glance: what, where, why, how?
- Equations of motion
- Liouville's theorem: phase-space conservation
- Luminosity: how to increase it?
- What happens inside an RF cavity
- Beam instabilities that make our lives harder
- Accelerators in the future!

2 Lecture 2

The second lecture will focus on the applications of accelerators outside Particle Physics research.

3 Useful reading material

- Introduction to Accelerator Physics, B. Holzer: `https://indico.cern.ch/event/604666/contributions/2574072/attachments/1496100/2327839/Susanne_NTW_3_p.pdf`
- Transverse Beam Dynamics, A. Latina: `https://indico.cern.ch/event/779575/contributions/3244658/attachments/1778064/2898322/Lectures.pdf`
- Transverse Beam Dynamics reminder, H. Bartosik: `https://indico.cern.ch/event/779575/contributions/3244531/attachments/1782159/2905799/linearimperfections_2019.pdf`