## PHYS 417, spring 2025 Introduction to Accelerator Physics

- Volker Ziemann, Jefferson Lab since Nov 1
  - used to teach similar course in Uppsala, Sweden
- Hands-on with MATLAB
  - Description of beams
    - Relativistic kinematics
  - Guiding with magnets
    - Write your own code to follow beams
  - Describing magnets and RF
    - with PDE toolbox
  - Other accelerator related goodies



## Two examples



## Wanna know more?

- Beam optics primer from CERN Accelerator School
  - https://arxiv.org/abs/1907.10987
- All slides from 2021 course at UU
  - https://cern.ch/ziemann/teaching/ht21
- Software for 2<sup>nd</sup> edition of the book
  - https://github.com/volkziem/HandsOnAccelerators2nd