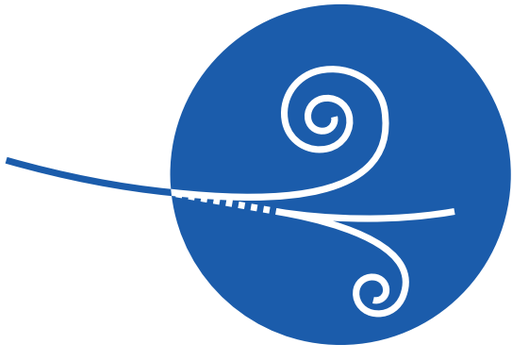

III. Physikalisches
Institut A

RWTH AACHEN UNIVERSITY

Experimental Techniques in Particle Physics (WS 2020/2021)

Exercise (Track reconstruction)

Prof. Alexander Schmidt

15.12.2020

- a file with tracker hit positions (x-y plane) is provided in Jupyter
- a skeleton that reads the file and the tree is provided as well

- the TTree contains two arrays `coordinate_x` and `coordinate_y`
  the length of these arrays is stored as `numberHits`
  (hint: it is a variable length array)

- plot the distribution of hits in the x- and y-coordinates

- plot the 2D distribution of hits in the x-y plane

- make a **conformal mapping** and plot the mapped hits in the u-v plane
  (on which plot can you distinguish the tracks better?)

- write an algorithm that finds straight lines in the u-v plane
  - how many tracks are there?
  - what are the track momenta?

comment:
we assume no hit inefficiency and no hit uncertainty