

# Interest in SX simulations

- F. Velotti, P. Arrutia, T. Bass, Y. Dutheil, M. Fraser:  
CERN => Super Proton Synchrotron
- Main simulation work:
  - Loss reduction and spill quality => Decoupled
  - Interest in accurate phase-space description for TL tracking
- MapTrack is the main tool for me at the moment
  - Very fast and very accurate for the SPS when only 3-4 maps are used
  - Possibility to add custom made elements (crystal, septum...)
- Looking at porting all simulations to X-suite to exploit GPUs
  - Work ongoing to port pyCollimate to GPUs (in principle already compatible with X-suite but not optimised at all)
  - First investigation of Physics Informed Neural Network for tracking done for very simple cases
    - Work together with Francisco to explore possibilities and performance reach of different ML techniques