Fast track simulation for SPD

- Full track simulation using Geant4 is precise, but time consuming

- To train networks and to study the performance of machine learning tools for the pattern recognition, less precise but much faster simulation is needed

- A simple python script has been developed

- 35 equidistant coaxial tracker layers between R=270 and R=580 mm.

- Helical tracks originate from the primary vertex (vtx x,y — gaussian with sigma=10 mm, z — uniform between -300 and 300 mm). Track multiplicity is flat in the range [1,10].

- Track Pt is uniform between 0.1 and 1 GeV/c. Angular distribution is isotropic. Track charge is equiprobable.

- Space hits are produced at the intersection of tracks with tracker layers. Hit position is smeared by a gaussian with sigma=0.1 mm. No hits are produced with Z>2386 mm or Z< -2386 mm. Tracker inefficiency is not simulated.

- Up to 100 uniformly distributed random noise hits can be admixed to the simulated hits