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# The time slice simulation in the SPD straw tracker

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The Spin Physics Detector (SPD) at JINR NICA complex is currently under construction [1]. The straw tracker detector is aimed to reconstruct the primary and secondary particle tracks and to determine their momenta. For the stage of the SPD active operation it is necessary to develop
fast data processing algorithms for online data collection, event selection and primary vertices reconstruction. In the present work we simulate the response of SPD tracker in the trigger-free regime of data processing.

Using the GEANT4 software package [2] we have modeled a geometry of the SPD straw tracker, its sensitive volumes and their response. We store the collections of hits containing the characteristics of particle energy loss points. We obtained the time distributions of the simulated hits in sensitive volumes, taking into account the drift time of the electron avalanche [1], and find a significant overlap of the response times of straw tubes for particles produced in different bunch crossings from the same time slice. This fact points out to the problem of signal decoding for event reconstruction when collecting data in a real experiment.

We develop the algorithm for primary vertices reconstruction, based on the reconstructed particle tracks from the hits data. This one to be a prototype for the software of event reconstruction at the stage of online data selection.

Bibliography

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