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Un rivelatore a straw come tracciatore centrale per l'esperimento Panda

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Significant progresses in fundamental questions of hadronic and nuclear physics could be attained by the PANDA experiment, that will be installed at the international FAIR facility in the site of the GSI laboratory (Darmstadt, Germany). Taking advantage of the physics potential available using the highintensity, phase-space cooled antiproton beams provided by the highenergy storage ring HESR, PANDA will study charmonium and opencharm physics, as well as gluonic excitations and nucleon structure by means of $p\bar{p}$ and $p\bar{p}A$ annihilations.

The rich physics program of the experiment poses significant challenges on the PANDA detector, a fixed target detector consisting in two magnetic spectrometers: the Target Spectrometer and the Forward one. Concerning the Central Tracker, sensitive to the passage of charged particles and providing information about position, momentum and energy deposited, two options are currently under study: one of them foresees the usage of a straw tube tracker, that will be described here. In particular, the main results of the work devoted to the design of this tracker will be summarised; in addition, its performances in terms of geometrical acceptance, momentum resolution and reconstruction efficiency, obtained through the simulation of single track events and physics channels, will be described. Furthermore, experimental results (single tube spatial resolution and dE/dx resolution) obtained with a PANDAlike straw tube prototype will be shown.

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