

J-PET detector system for studies of the electron-positron annihilations

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Collaboration

J-PET

Abstract content

J-PET detector has been recently constructed at the Jagiellonian University. It is optimized for the measurement of momentum and polarization of photons from the electron-positron annihilations. It is built out of strips of organic scintillator, forming a cylinder. Light signals from each strip are converted to electrical signals by photomultipliers placed at opposite ends of the strip. The signals are probed in the voltage domain with the accuracy of about 30 ps by a newly developed multithreshold digital electronics and the data are collected by the novel trigger-less and reconfigurable data acquisition system. The geometry and properties of the J-PET detector enable to design the positronium source such that the vector polarization of produced ortho-positronium can be determined. J-PET enables also determination of the polarization of registered photons. Poster will include the description of J-PET detector and its possibilities to determine polarization of ortho-positronium atoms and polarization of photons.

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