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Review of physics program at J-PET

Thursday, June 22, 2023 3:00 PM (25 minutes)

The Jagiellonian Positron Emission Tomograph (J-PET) is a multipurpose detector for tests of discrete symmetries and quantum entanglement of photons originating from the decay of positronium atoms. The research is performed by measurement of angular correlations in the annihilations of the lightest leptonic bound system. The J-PET detector is the only device which enables determination of polarization of photons from positronium annihilation together with estimation of positronuium spin axis on the event-by-event basis. The novelty of the system is based on a usage of plastic scintillators as active detection material and trigger-less data acquisition system. The aim of two independent detection setups currently in use together with different annihilation chambers is to improve limits on C, CP and CPT symmetries and to search for the entanglement of photons originating from electron-positron annihilation. In the talk experimental techniques and new results of tests in the decays of positronium in a whole available phase-space at J-PET are presented.

Collaboration

J-PET

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