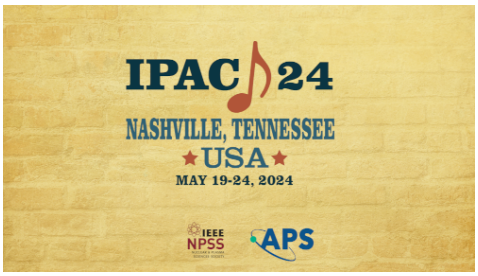

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Simulations of Positron Capture at Ce+BAF

Content

We present an initial capture concept for the continuous wave (CW) polarized positron beam at the Continuous Electron Beam Accelerator Facility (CEBAF) upgrade at Jefferson Lab. This two-step concept is based on (1) the generation of bremsstrahlung radiation by a longitudinally polarized electron beam (1 mA, 120 MeV, >90% polarization), passing through a tungsten target, and (2) the production of e^+e^--pairs by these bremsstrahlung photons in the same target. To provide highly-polarized positron beams (>60% polarization) or high-current positron beams (>1 μA) with low polarization for nuclear physics experiments, the positron source requires a flexible capture system with an adjustable energy selection band. The results of beam dynamics simulations and calculations of the power deposited in the positron capture section are presented.

Region represented

North America

Footnotes

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