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Update on Ce+BAF Positron Activities

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A baseline concept for a continuous wave (CW) polarized positron injector was developed for the Continuous Electron Beam Accelerator Facility (CEBAF) at Jefferson Lab (Ce+BAF) [1]. This concept is based on positron beam generation by a high current polarized electron beam (1 mA, 120 MeV, 90% polarization) irradiating a water-cooled, 4 mm thick rotating tungsten target or suitable alternative. An overview of the Ce+BAF concept and update about the positron injector development activities will be presented, including the polarized electron source concept, simulations of positron beam generation, positron capture, calculations of energy deposited by beams in the target, capture magnets and standing wave cavities, and shielding design.

[1] J. Grames et al., "Status of Ce+BAF: Polarized Positron Beam Capability at CEBAF 12 GeV", 14th International Particle Accelerator Conference (IPAC'23), Venice Italy, May 7-12, MOPL152.

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