



Contribution ID: 1794 Contribution code: WEPM120

Type: **Poster Presentation**

## Evaluation of a high-power target design for positron production at CEBAF

*Wednesday, 10 May 2023 16:30 (2 hours)*

A source for polarized positron beams at the Continuous Electron Beam Accelerator Facility (CEBAF) at Jefferson Lab is being designed. The Polarized Electrons for Polarized Positrons (PEPPo) concept is used to produce polarized  $e^+e^-$ -pairs from the bremsstrahlung radiation of a longitudinally polarized electron beam interacting within a high-Z conversion target. The scheme under consideration includes a 4 mm thick tungsten target that absorbs 17 kW deposited by a 1 mA continuous-wave electron beam with an energy of 120 MeV. The concept of a rotating tungsten rim mounted on a water-cooled copper disk was explored. The results of ANSYS thermal and mechanical analyses are discussed together with FLUKA evaluations of the radiation damages.

### Funding Agency

This work was supported by the EU's Horizon 2020 Research and Innovation program, Grant Agreement No 824093; the U.S. DOE, Office of Science, Office of Nuclear Physics, contract DE-AC05-06OR23177.

### Footnotes

### I have read and accept the Privacy Policy Statement

Yes

**Primary author:** USHAKOV, Andriy (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

**Co-authors:** COVRIG, Silviu (Thomas Jefferson National Accelerator Facility); GRAMES, Joseph (Thomas Jefferson National Accelerator Facility); HABET, Sami (Thomas Jefferson National Accelerator Facility); LE GALLIARD, Christine (Université Paris-Saclay, CNRS/IN2P3, IJCLab); VOUTIER, Eric (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

**Presenter:** VOUTIER, Eric (Université Paris-Saclay, CNRS/IN2P3, IJCLab)

**Session Classification:** Wednesday Poster Session

**Track Classification:** MC7: Accelerator Technology and Sustainability: MC7.T20: Targetry and Dumps