

Opportunities with positron beams at Jefferson Lab

Wednesday, June 7, 2023 5:45 PM (25 minutes)

The exploration of the full physics potential of the CEBAF 12 GeV would uniquely benefit from polarized and unpolarized positron beams with quality and modes of operation similar to those of the polarized electron beam. The Jefferson Lab (JLab) Positron Working Group, formed in 2018 and now with over 250 members from 75 institutions, continues to build out a case to support this cause, and has explored an experimental program with high duty-cycle positron beams [Acc21]. Concurrently, the Ce^+ BAF Working Group has developed the concept of a new positron injector [Hab22, Gra23] to support this physics program. This presentation will discuss the impact of positron beams on the hadronic physics program of JLab and will review the current status of the related accelerator R\&D.

[Acc21] (Jefferson Lab Positron Working Group) A. Accardi et al. Eur. Phys. J. A 57 (2021) 8.

[Hab22] S. Habet et al. JACoW IPAC2022 (2022) 457.

[Gra23] (Ce^+ BAF Working Group) J. Grames et al. JACoW IPAC2023 (2023) MOPL152.

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Session Classification: New facilities

Track Classification: New facilities