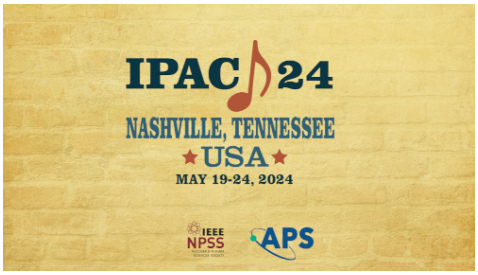

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Current status of the FFA@CEBAF energy upgrade

Monday, 20 May 2024 16:00 (2 hours)

An upgrade to the Continuous Electron Beam Accelerator Facility (CEBAF) at the Thomas Jefferson National Accelerator Facility (JLAB) to extend its energy reach from 12 GeV to 22 GeV is being explored. The upgrade pushes the boundaries of the current CEBAF facilities and will require several state-of-the-art beamline components. The first of which is nonscaling Fixed Field Alternating (FFA) Gradient recirculation arcs, using novel Halbach-style permanent magnets. These new arcs would replace the current highest-energy recirculating arcs and allow up to six new beam passes spanning approximately a factor of two in energy. Matching into these arcs will require the design of splitter bend systems proceeding the north and south linac sections. Matching from these arcs into the proceeding linac section will be achieved using a novel transition section. Additionally, several major changes to the existing CEBAF accelerator will be implemented including a 650 MeV recirculating injector, a new multi-pass linac optics design based on a triplet focusing lattice, and a newly designed spreader/recombiner bend systems to accommodate the higher energy requirement.

Footnotes

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Region represented

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Primary author: KHAN, Donish (Thomas Jefferson National Accelerator Facility)

Co-authors: BOGACZ, Alex (Thomas Jefferson National Accelerator Facility); COXE, Alexander (Jefferson Lab); SERYI, Andrei (Thomas Jefferson National Accelerator Facility); GAMAGE, Bamunuvita (Thomas Jefferson National Accelerator Facility); DOUGLAS, David (Thomas Jefferson National Accelerator Facility); TRBOJEVIC, Dejan (Brookhaven National Laboratory); TURNER, Dennis (Thomas Jefferson National Accelerator Facility); KRAFFT, Geoffrey (Thomas Jefferson National Accelerator Facility); HOFFSTAETTER, Georg (Cornell University (CLASSE)); BERG, J. (Brookhaven National Laboratory); PRICE, Katheryne (Thomas Jefferson National Accelerator Facility); DEITRICK, Kirsten (Thomas Jefferson National Accelerator Facility); KAZIMI, Reza

(Thomas Jefferson National Accelerator Facility); BODENSTEIN, Ryan (Thomas Jefferson National Accelerator Facility); BROOKS, Stephen (Brookhaven National Laboratory); Dr SATOGATA, Todd (Thomas Jefferson National Accelerator Facility); MOROZOV, Vasiliy (Oak Ridge National Laboratory); ROBLIN, Yves (Thomas Jefferson National Accelerator Facility)

Presenter: KHAN, Donish (Thomas Jefferson National Accelerator Facility)

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