

ER @ CEBAF – A Proposed High Energy, Multi-pass Energy Recovery Experiment at CEBAF

A high-energy, multiple-pass energy recovery (ER) experiment proposal, using CEBAF, has been proposed by a collaboration between Jefferson Lab and BNL, and provisionally approved by the Jefferson Lab Program Advisory Committee. This new capability of CEBAF extends the 2003, 1-pass, 1 GeV CEBAF-ER demonstration into a unprecedented range of energy and recirculation passes. Beam physics issues associated with this new regime of energy recovery include recirculating beam dynamics in the presence of disruptive synchrotron radiation, and control and scaling of beam breakup instabilities to a large-scale superconducting RF facility. Multiple-beam diagnostics also would need to be developed to support this capability. This talk provides an overview of the ER@CEBAF project, its context, and current design status including recent acquisition of pathlength chicane dipoles from Cornell.