

# **ACCELERATOR SEMINAR**

## **“RF Deflectors: Options for 12 GeV CEBAF”**

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The Continuous Electron Beam Accelerator Facility (CEBAF) at Jefferson Lab is in the process of an energy upgrade from 6 GeV to 12 GeV. The 1497 MHz continuous electron beam is composed of three interlaced variable intensity 499 MHz beams that can be independently directed from any of the five distinct passes to any of the three existing experimental halls A, B and C. Beam extraction in the existing setup is done with a system consisting of ten warm RF separator cavities; a series array of three on the 5th pass is capable of sending highest energy (6 GeV) beams to the three experimental halls simultaneously. The existing setup of the deflectors in the 5th pass, however, will not be adequate to extract the 11 GeV beam in the case of the proposed 12 GeV upgrade of the machine. To restore this capability, several options including the extension of existing CEBAF normal conducting structures or a potential 499 MHz TEM-type superconducting design are under investigation. Recent studies involving the interaction of full 3D electromagnetic fields with electron beam suggest that a combination of six existing normal conducting structures or a novel superconducting design meet the requirements. Results of three dimensional time domain simulations will be presented in the talk.

**Thursday, March 1, 2012**

**11:00 a.m.**

**CEBAF Center, Room L102/104**