

ACCELERATOR SEMINAR

“Designing, Prototyping and Testing of Superconducting RF-Dipole Deflecting/Crabbing Cavities”

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Deflecting/crabbing cavities serve a variety of purposes in different accelerator applications. Primarily in separating a single beam into multiple beams and in rotating bunches for head on collisions at the interaction point in particle colliders. Recently, new geometries for superconducting crabbing and deflecting cavities have been developed that have significantly improved properties over the standard TM_{110} type cavities. Compact superconducting deflecting/crabbing cavities are under development due to strict dimensional constraints and requirements in higher field gradients with low surface losses. Geometries that operate in TEM-like or TE-like modes support low operating frequencies, thus making the designs favorable for many of the deflecting/crabbing cavity applications. The superconducting rf-dipole design evolved from the parallel-bar design is such a geometry that has been considered for a number of deflecting and crabbing applications. Currently the rf-dipole cavity is under consideration as an rf separator for the Jefferson Lab 12 GeV upgrade and as a crabbing structure for a possible LHC luminosity upgrade. The detailed design analysis of the rf-dipole cavity will be presented with current developments on the fabrication and testing.

**Thursday, May 2, 2013
11:00 a.m.
CEBAF Center, Room L102**