

ACCELERATOR SEMINAR

“Superferric Magnets I Have Known”

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Superferric magnets are superconducting magnets in which a closely coupled steel flux return plays a strong role in reducing the amount of superconductor needed to produce the desired field strength and also in shaping the magnetic field distribution to yield homogeneity over a desired range of excitation.

I will discuss four examples of superferric magnets that illustrate the range of applications where they are useful:

- The 3 T superferric dipole that was developed for the SSC of long ago;
- The 2 T superferric dipole that was proposed for a very large hadron collider;
- Superferric dipole/quad combined-function magnets using MgB₂ superconductor for a strong-focusing cyclotron and for the beam transport gantry for proton beam therapy;
- A 4.5 T NbTi superferric C-dipole for a 100 TeV hadron collider.

Lastly, I show an example 3 T MgB₂ dipole that might be appropriate for the requirements of MEIC.

Monday, September 22, 2014

11:00 a.m.

CEBAF Center, Room F113

Coffee before seminar beginning at 10:45 a.m.