

Activities at GSI

GSI-INFN Meeting

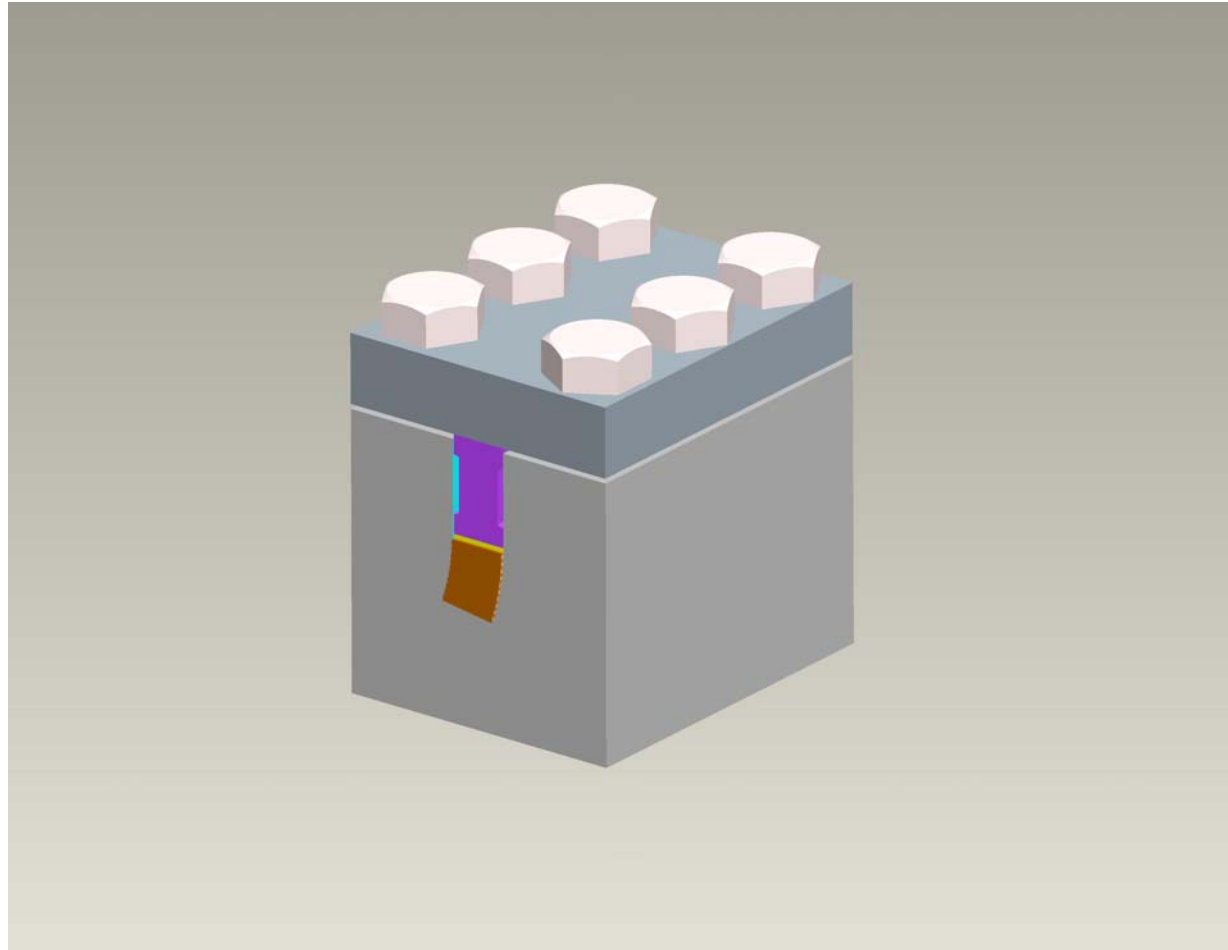
May 23, 2007

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Ra Measurements at BNL



- Prepare standard Ra measurement sample (rectangular cable stack) with Ra value to be used in IHEP-built 6 T straight model dipole magnet (Consult with Arjan Werveij, regarding maximum Ra value to use, based on CERN Minimum Quench Energy (MQE) test results)
Desirable value: 400 μm . Let's see if it can be used
- Prepare standard Ra measurement sample & measure Ra, to use for Twente AC loss sample
- Prepare Ra measurement samples for curved sample holder, to determine sample geometry and pressure effects on Ra.
Vary azimuthal pressure on sample & try to vary radial pressure (with shims)
- Use same (already measured at BNL) cable with EAS wire for all tests



Midplane block of the SIS 300 6 T straight dipole

6 T dipole model at IHEP -- Why build and test the 2 layer 6 T SIS 300 straight model dipole ?



- 1) Tooling design begun in Fall of 2006, before design change
- 2) Real data is needed about the behavior of fast-ramping $\cos \theta$ design accelerator magnets, to confirm design calculations and design improvements and understand fast-ramped field harmonics- See MN Wilson Report GSI 34
- 3) So far, only ONE fast-ramping $\cos \theta$ design accelerator dipole (BNL's 4 T GSI 001) has been built (2002) and tested (2003-2005) at BNL) and is now being retested at GSI.
- 4) Planned test of IHEP 6 T straight model dipole:mid 2008
- 5 Planned test of INFN 4.5 T curved half-length prototype dipole:
end of 2009

WIRE SAMPLES (Time dependent magnetization measurements)

- SIS 100 0.5 mm wire (as is, with RRR measurement)
- SIS 100 0.5 mm wire (with heat treatment, RRR measurement)
- SIS 300 EAS wire (with heat treatment, RRR measurement)
- SSC 0.808 mm CuMn interfilamentary matrix wire (with heat treatment, RRR measurement)
- INTAS wire

CABLE SAMPLES (AC loss measurement, up to 0.3 T magnetic field)

- SIS 300 Cable sample with EAS wire, no cable heat treatment, modified RHIC cure cycle GSI-II, Ra measured at BNL for similarly prepared Ra measurement sample– 2 nd cable AC loss measurement at Twente since 2002. Compare measured with calculated loss