

BUDGET REQUEST

Package 4

Radiation tests of LHC collimator materials for Phase 1 and 2

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FY 2005 – What Can Be Done

Focus on PHASE I LHC choices: **CC Composite/Graphite & Alternatives**

BNL is currently looking into 3-D weave structure – LHC is going forward with a 2-D CC structure.

There is a small window to receive/prepare/irradiate 2-D CC before the end of RHIC run

Continue the study of the already irradiated low-Z materials (CC, Graphite, AlBemet, Beryllium) for irradiation effects on thermal expansion, mechanical properties

Upgrade the system to study: Conductivity changes, resistivity changes

HOW Can it Be Done

Explore possibility of irradiation in the next couple of months of LHC 2-D CC/Graphite

Allocate BNL Hot Cell usage time to continue post-irradiation

Bring in a grad student for data analysis

Invest in upgrading the system

Utilize BNL allocated funds to cover cost/effort associated with above

FY 2006 – What Can Be Done

Focus on PHASE II LHC choices: **Cu & Alternatives**

- **Materials**
- **BNL facilities use**
 - **6-8 week irradiation**
 - **Hot Cell post-irradiation**
- **Grad student support (0.5 FTE)**
- **Labor (0.2 FTE)**

Use of FNAL new “irradiation” facility (CC/Graphite/Cu/etc.)

- FNAL infrastructure/logistical support
- Labor (0.25 FTE)

HOW Can it Be Done

Need to allocate funds to Task - \$225K (\$150K BNL; \$75K FNAL)

FY 2007

What Can Be Done

Focus on PHASE II LHC choices

Complete post-irradiation

Impact on design - Interface with LHC/SLAC

Grad student support (0.5 FTE)

Labor (0.25 FTE BNL, 0.25 FTE FNAL)

HOW Can it Be Done

Need to allocate funds to Task - \$175K (\$100K BNL; \$75K FNAL)

Overall Budget Plan

FY 2005: Phase I material irradiation

FY 2006: Irradiation/post irradiation of Phase II materials both at BNL & FNAL

FY 2007: Post irradiation analysis/interface with design

Budget estimates

FY	FNAL	BNL	Grand Total
2006	\$75K	\$150K	\$225K
2007	\$75K	\$100K	\$175K
Grand Total	\$150K	\$250K	\$400K