**MAP Statement of Work**

**FY12**

**Brookhaven National Laboratory**

**Total: $465K + $1374K (core)**

**SWF: $1639K**

Engineers: \_1\_ FTE

Technicians: \_\_\_ FTE

Scientists: \_4\_\_ FTE

Institution to provide

Post Docs: \_2\_ FTE

Students: \_2\_

**M&S: $200K**

**M&S Usage:**

1. MAP-related travel, computer equipment.

**Description of Work:**

MAP funds at BNL mainly provide support for target system design and analysis and for simulation efforts for both a Muon Collider and a Neutrino Factory. Funds are provided for two Stony Brook students, one working on liquid-target simulations and one on nozzle development, for a post-doc dedicated to studying energy deposition in the target area, and for supporting an NFMCC simulation fellow at BNL to work on cooling and acceleration simulations under the tutelage of R. Fernow and J. S. Berg. Funds are also provided to hire a consultant to look at design modifications of the magnet system that will be needed to accommodate the increased energy deposition in the target area, and for a person to look at target system engineering issues (thermal and hydraulic).

**Milestones [Description; deliverable; delivery date]:**

1. Simulate performance of new 12-bunch merging channel for muon collider; report, Q2.
2. Complete new design of post-merge Guggenheim cooling channel with matrix emittance exchange taking space charge calculations into account; report, Q2.
3. Simulate performance of new post-merge Guggenheim cooling channel using field maps; report, Q3.
4. Examine suitability of available magnet codes to model the field for the muon collider rapid cycling synchrotron; report, Q4.
5. Make an arc cell lattice design for 750 GeV hybrid fast ramping synchrotron; report, Q4.
6. Design an integrated superconducting coil / shielding configuration for the MC/NF target; IPAC12 paper, Q3.

Approvals [Name, Date]:

I. Ben-Zvi S. Geer

Institutional Representative MAP Director