

Memorandum of Agreement between the BNL Superconducting Magnet Division and the sPHENIX Project on the Superconducting Magnet Division Support for the sPHENIX Upgrade

A. Purpose

The purpose of this Memorandum of Agreement (MoA) is to establish an agreement between the BNL Superconducting Magnet Division (SMD) and the sPHENIX Project on the support that will be provided by the BNL SMD to the sPHENIX Project for the completion of the sPHENIX Upgrade. For the Purpose of this document the sPHENIX Upgrade is defined as the sPHENIX Major Item of Equipment (MIE) and the Building 1008 (B1008) Infrastructure and Facility Upgrade.

B. Responsibilities

The BNL SMD will provide personnel shown in Table 1 for the period of performance of the MoA. The responsibilities of the personnel are described in this document. The funding for the SMD labor working on both the MIE and Infrastructure and Facility Upgrade will come from redirected RHIC Operations funds. Any Material and Supplies (M&S) costs associated with the work described in this document will come from either the sPHENIX MIE accounts, or 1008 Infrastructure and Facility Upgrades accounts as appropriate. The labor charges or M&S charges associated with the work described in this MoA will receive the BNL extraordinary project rate.

Magnet Division Activity (FTEs)	FY19	FY20	FY21	FY22
TPC Engineering	0.75	0.75	0.1	0.00
SC-Magnet Engineering	0.1	0.0	0.05	0.05
SC-Magnet Technicians	0.35	0.0	0.3	0.1
TOTAL FTEs	1.2	0.75	0.45	0.15

Table 1: sPHENIX Upgrade FTEs/FY by Job Category for SMD personnel.

The sPHENIX Upgrade summary task responsibilities assigned to members of the Superconducting Magnet Division are in the list below. Note that some of the summary tasks listed have underlying activities that are the responsibility of other BNL Departments or Divisions. The MoA covers the support the sPHENIX Project will receive from the Superconducting Magnet Division according to the current plan. The level of support can be increased in the out-years as budgets allow and circumstances evolve. The details of the resources assigned to individual activities are described in the sPHENIX Resource Loaded Schedule. The summary tasks covered by the MoA are:

- Design Time Projection Chamber (TPC) v2 field cage prototype
- Design TPC Production field cage
- Design Gas Electron Multiplier (GEM) prototypes for v1a, v1b, v2 and preproduction GEM Modules (includes strong back, frame, pad planes, grids)
- Design Production GEM R1, R2 and R3 Modules (includes strong back, frame, pad planes, grids)
- Design TPC support structure and alignment system
- Develop TPC construction and assembly plan
- Develop TPC integration plan and documentation including cabling plan.
- Design TPC central membrane carriers, support brackets and installation tooling
- Design TPC transport fixtures
- Participate in design, safety and procurement readiness reviews. Prepare procurement documentation
- FEA in support of the TPC engineering
- Assist in TPC assembly and installation
- Mechanical disassembly and repair of SC-Magnet in B912, transport preparation of SC-Magnet to B1008, & reassembly and installation of SC-Magnet Value Box in B1008.
- Participation in cool down, initial power up and commissioning of the sPHENIX SC-Magnet in B1008.

C. General Provisions


Modifications to this MoA


Modifications within the scope of this MoA will be made by mutual consent of the parties and by issuance of a written modification, signed and dated by all parties, prior to any changes being performed. The MoA will be updated as whenever significant revisions to this document are required.

Period of Performance of this MoA

The MoA will become effective upon the date of signatures of all the parties. The MoA is terminated upon the completion of the sPHENIX Upgrade.

Approvals:


 _____ 11/20/2018
 Berndt Mueller, Associate Lab Director for BNL Nuclear and Particle Physics Date


 _____ 11/20/18
 Kathleen Amm, Head of the Superconducting Magnet Division Date


 _____ 11/20/18
 Edward O'Brien, sPHENIX Project Director Date