

Nb3Sn Magnets for MUON Collider*, M. GREEN,
R. GUPTA, R. SCANLAN, LBNL; R. PALMER, BNL

- We present various design options for muon collider dipole and quadrupole magnets using the Nb3Sn technology. The cosine theta option would be based on the successfully tested D20 magnet and the racetrack coil option would be based on the coil design under development for the "common coil" 2-in-1 dipole magnet [1]. The design for muon collider magnets is influenced by the presence of a significant radiation-induced heating of the coils, particularly at the midplane. To deal with this issue, we present a racetrack coil 14 tesla dipole design in which a large gap is introduced at the coil midplane. Moreover, the blocks closer to midplane will have the turns returned on the same side of the aperture but away from the magnet center to clear the beam passage at the ends. This design requires much more superconductor than that in the conventional design. However, for a small number of magnets that are needed for the lower energy muon collider, this should not be a significant cost factor.

* This work was supported by US Department of Energy under contract No. DE-AC03-76F0098.

[1] R. Scanlan, et al., this conference.