

**A 300 T/m  $Nb_3Sn$  Quadrupole for the LHC Insertions**, G. AMBROSIO, G. BELLOMO and L. ROSSI, INFN-LASA and Physics Dept. of the University of Milan - The NbTi quadrupoles for the LHC insertions have a design gradient of 250 T/m at 1.8 K with a 70 mm aperture [1]. In the frame of the CERN-INFN collaboration for the LHC superconducting magnets we are exploring the use of the  $Nb_3Sn$  technology for second generation quadrupoles for the *low b* insertions of the LHC. A conceptual design of a  $Nb_3Sn$  quadrupole operating at 1.8 K with 300 T/m gradient and 70 mm aperture is presented. Cable performance, magnetic design, winding technique, mechanical structure and magnet protection are discussed in detail.