

Stability of Nb₃Sn Low- β Quadrupole as a Function of the Power Released by Radiation, F. BROGGI, L. ROSSI^{*}, LASA-INFN Sezione di Milano - Nb₃Sn coils can significantly improve the performances of the low- β quadrupoles of the Hadron Colliders. In this paper we report the results of a study aimed to evaluate the average and the peak power deposition on the Nb₃Sn coils of a quadrupole for the second generation of the low- β insertion for the LHC. The power release into the coils by radiation escaping from the interaction point has been investigated, by means of FLUKA code, as a function of different gradient-aperture combinations (the basic values being 300 T/m-70 mm). Consequently the superconducting stability of the impregnated coils has been evaluated both at 4.2 and 1.9 K operation of the magnet.

* Università di Milano and LASA-INFN Sezione di Milano.