

Study of Quench Development in the String of UNK Superconducting Magnets,

A. ALEXANDROV, A. ANDRISCHIN, A. EROCHIN, V. GRIDASOV, E. KASHTANOV, N. KUKIN, K. MYZNIKOV, V. PLESKATCH, V. SYTCHEV, L. VASSILIEV, O. VESELOV, S. ZINCHENKO, IHEP, Protvino - The string consists of 4 UNK SC dipoles divided by a quench stopper into two quench protection units (QPU). Dipoles of each QPU are shunted by warm thyristor switches connected to the SC circuit through safety leads. Dipoles are cooled by a single-phase helium flow at temperature 4.6 K and pressure 1.8 bar. A set of temperature and pressure gauges along the helium flow as well as that of potential taps for registration of electrical signals is installed. The quenches were initiated by means of strip or spot heaters in different parts of the SC circuit. Quench propagation, energy dissipation and removal as well as temperature and pressure distribution and safety valve operation during the quench were studied. No quench propagation through the quench stopper was observed. The maximal helium pressure after quench turned out to be less than 10.5 bar.