

Electron Cooling of Pb⁵⁴⁺ Ions in the Low Energy Ion Ring (LEIR), J. BOSSER, C. CARLI, M. CHANEL, R. MACCAFERRI, S. MAURY, D. MOHL, G. MOLINARI, G. TRANQUILLE, CERN - For the preparation of dense bunches of lead ions for the LHC, electron cooling will be essential for accumulation in a storage ring at 4.2 MeV/u. Tests have been carried out on the LEAR ring (renamed LEIR for Low Energy Ion Ring) in order to determine the optimum parameters for a future state-of-the-art electron cooling device which would be able to cool Linac pulses of lead ions in less than 100 ms. The experiments focused on the generation of a stable high intensity electron beam that is needed to free space in both longitudinal and transverse phase space for incoming pulses. Investigations on the ion beam lifetime in the presence of the electron beam and on the dependency of the cooling times on the optical settings of the storage ring will also be discussed. This paper concentrates on the cooling aspects with the multiturn injection, vacuum, and high intensity aspects discussed in a companion paper at this conference.