

Results on Lead Ion Accumulation in LEAR for the LHC, J. BOSSER, J. BROERE, C. CARLI, M. CHANEL, C. HILL, R. MACCAFERRI, S. MAURY, D. MOEHL, G. MOLINARI, S. ROSSI, E. TANKE, G. TRANQUILLE, M. VRETENAR, CERN- In order to prepare dense bunches of lead ions for the LHC, it is foreseen to accumulate the 4.2 MeV/u linac beam in a storage ring using electron cooling. A series of experiments has been successfully concluded in the low energy ring, LEAR, to test the techniques involved. In this paper, the influence of the residual gas on the beam lifetime, the combined stacking in longitudinal and transverse phase space, the dependence of the injection efficiency on the optical settings of the storage ring, and the study of the high intensity effects including beam induced degradation of the vacuum are reported. The results obtained are discussed and will be used to modify the LEAR machine for the LHC era.