

Simulation of Accumulation Process in the ITEP-TWAC Storage Ring, N.N. ALEXEEV,
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P.R. ZENKEVICH, ITEP - Fully striped heavy ion beam of a near relativistic energy and a super high intensity is supposed to be accumulated in the storage ring of ITEP-TWAC Facility that is under construction at ITEP on the base of existing accelerators. Nonliouville multiturn injection technique is elaborated to store in the accumulator ring as much as one thousand and more beam batches accelerated in the booster synchrotron with acceleration cycle frequency of 1 Hz. Computer simulation of the beam accumulation process has been done with taking into account effects of intrabeam scattering, ionization energy loss, multiple Coulomb scattering and electron capture. Evolution of the 6-D phase volume of the accumulating beam was observed and optimized as a function of injection batch number, accumulation time, recharge foil thickness, foil material and other multiturn injection system parameters. Results of simulation are presented and discussed.