

The Low Energy Positron Storage Ring for Positronium Generation*, I.N. MESHKOV, S.V. MIRONOV, A.O. SIDORIN, JINR - The design of the low energy positron storage ring is discussed. The positron beam circulates in longitudinal (quasitoroidal) magnetic field. The electron cooling of positrons is the essential peculiarity of this system. Electron drift inside special "septum" coils and toroidal sections is used for superposition and separation of the cooling electron beam and the circulating positron one. The positronium is generated by recombination of the positrons with electrons in the electron cooling section of the ring. With positronium flux in vacuum one can perform new original setting up of the experiments without the distortion caused by medium in the traditional methods of the positronium generation in a target. The creation of the low energy positron storage ring will give a possibility to design a high intensity antihydrogen atom generator. The general parameters of the low energy positron toroidal accumulator (LEPTA) are presented. The ring circumference is about 12 meters. Positron energy can be varied from 5 to 20 keV.

* Work supported by RFBR (Grant N 92-02-17211) and INTAS.