

The Particle Dynamics in the Low Energy Storage Rings with Longitudinal Magnetic Field*,
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JINR - The particle dynamics in the ring dedicated to low energy positrons and electrons is discussed. Storing and acceleration is considered. Such rings are of interest for two physics problem of fundamental character: antihydrogen and positronium generation and electron cooling of heavy particles in intermediate energy range (of the order of several GeV). The positron and electron energy lies in the range of several keV - several MeV. The use of a longitudinal magnetic field is very attractive way for beam focusing. In this case the stability of the beam can be provided with additional spiral coils. The acceleration of the beam is achieved by using induction acceleration. The stability of the particle motion is determined by two effects - drift displacement inside the toroidal bending magnet and focusing action of the spiral quadrupole coils. The upper limit of the beam intensity is determined by longitudinal instability due to very small momentum spread of the particles.

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