=210mm =148mm

Influence of Spontaneous Radiation Fields on the Relaxation of Charged Particles in a Periodic Field

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The diffusion in momentum space in the systems containing a large number of charged particles is considered by means of a derivation of the diffusion coefficients based on the dynamics of individual particles motion under action of the pair interaction forces from each of them. We investigate both the change of a mean-square momentum of particles at the initial stage of system evolution, in the case of the pre-Brownian motion of particles, and diffusion of particles in momentum space at the kinetic stage of system evolution, when motion of particles is completely random. The diffusion coefficients of charged particles in a relativistic beam moving in a static spatially periodic magnetic field are obtained taking into account the incoherent fields of spontaneous radiation.