Kinetics of isotropic expansion of an optically transparent plasma at the compton stage

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Abstract

An exact solution is obtained to the nonrelativistic Focker-Planck equation for electrons at the Compton stage of expansion. The electrons have a Maxwellian distribution whose temperature differs from the radiation temperature. A qualitative analysis is made of the correction to the equilibrium relativistic distribution, and it is shown that elastic collisions of ultrarelativistic and nonrelativistic particles in isotropic expansion do not result in the non-relativistic-particle spectrum. © 1983 Plenum Publishing Corporation.