

Kinetic theory of the generation of magnetic fields in the radiation-dominated stage of expansion of the universe

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Abstract

The system of linearized Einstein and Maxwell equations and a kinetic equation with model collision integral for the cosmological plasma are used to calculate the magnetic field generated by solenoidal perturbations in the radiation-dominated stage of expansion of the universe. The magnetic field is generated by two effects - the Harrison effect and a new effect due to kinetic processes. The second effect contributes to the magnetic field if solenoidal gravitational perturbations exist from the very beginning of the radiation-dominated stage. © 1992 Plenum Publishing Corporation.

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