ROTATIONAL RADIATING MODEL UNIVERSES COUPLED WITH ZERO MASS SCALAR FIELD

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Abstract

Investigations are made on rotational radiating universes coupled with a scalar field in spherically symmetric Einstein formalism, and some new interesting solutions are obtained. Their physical and geometrical properties are studied from various angles. The rotational perturbations of such models are examined in order to substantiate the possibility that the Universe is endowed with some rotation. The nature and role of the metric rotation as well as that of the matter rotation are studied, and the effects of radiation and scalar fields on them are discussed. The models here come out to be rotating as well as expanding ones which may be taken as good examples of real astrophysical objects in this Universe. The periods of physical validity and the restrictions on the radii of the models for real astrophysical situations are also obtained and studied.

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