THE EXACT MACROSCOPIC APPROACH TO EXTENDED THERMODYNAMICS WITH MANY MOMENTS

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1 Abstract

Extended thermodynamics is a very important theory: for example, it predicts hyperbolicity, finite speeds of propagation waves as well as continuous dependence on initial data. Therefore, it constitutes a significative improvement of ordinary thermodynamics. Here its methods are applied to the case of an arbitrary, but fixed, number of moments. The kinetic approach has already been developed in literature; then, the macroscopic approach is here considered and the constitutive functions appearing in the balance equations are determined up to whatever order with respect to thermodynamical equilibrium. The results of the kinetic approach are a particular case of the present ones.