

On the fourth order Cattaneo equation of heat conduction

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Abstract

The well known heat equation with finite speed of propagation proposed by Cattaneo is obtained by a more general fourth order PDE when a certain (small) parameters is put equal to zero. It seems that this fourth order equation has been essentially overlooked in the literature, in particular when it is subject to non homogeneous boundary conditions. In this paper we examine its well posedness and the asymptotic behavior when certain coefficients tend to singular values.

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