Phragm\'{e}n-Lindel\"{o}f type alternative results for the solutions to generalized heat conduction equations

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Abstract

This paper investigates the spatial behavior of the solutions of the generalized heat conduction equations on a semi-infinite cylinder by means of a first order differential inequality. We consider three kinds of semi-infinite cylinders with boundary conditions of Dirichlet type. For each cylinder we prove the Phragmén-Lindelöf alternative for the solutions. In the case of decay we also present a method for obtaining explicit bounds for the total energy.

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