

ON EXISTENCE AND STABILITY FOR HEAT CONDUCTING REISSNER-MINDLIN PLATES

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ABSTRACT. We consider an initial boundary value problem for a nonlinear Reissner-Mindlin plate with second sound in a bounded domain. The elastic behavior is described by a hypoelastic law whereas the thermal part is modelled through the linearized Cattaneo's law of heat conduction.

A short deduction of the model starting from the equations of thermoelasticity in three dimensions will be given. Existence and exponential stability of the associated C_0 -semigroup of contractions for the linearized problem will be proved. A local existence theorem for a class of nonlinearities including the geometric one will be discussed. Global solvability and exponential stability in the nonlinear situation will also be addressed.