Minimal Representations, Controllability and Free Energies in a Heat Conductor with Memory

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Abstract: A rigid linear heat conductor with memory effects is considered. Some results about state-space representation, minimality and controllability of heat conductors with memory kernel of exponential type are presented. In such a context, the asymptotic behavior and the existence of a bounded absorbing set for solutions of the energy equation are studied by means of a suitable class of quadratic free energies.

Keywords: *Heat conduction; free energy; absorbing set.*

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