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HIGH ENERGY PHYSICS COLLOQUIA

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THERMODYNAMICS OF LOCAL CAUSAL HORIZON

Abstract

By imposing the Clausius equation on a small patch of a local causal horizon (LCH) one can obtain the Einstein equation and interpret it as an equation of state. In the past decades the equation of state derivation has been extended to theories beyond general relativity (for theories of gravity without derivatives of curvature in the action) assuming the entropy that one associates with the LCH to have a Noethersque form. In this talk I will discuss about a modification to the Noethersque entropy so that one can further extend the derivation to higher derivative theories. Also a method will be discussed such that the derivation is further extended to non minimally coupled theories. Finally some remarks and comment about current status of the equation of state approach will be made.

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