ORIGIN OF HORIZON ENTROPY IN COSMOLOGY FROM THERMAL INTERACTION BETWEEN MATTER FIELD AND THE HORIZON

SEMINAR

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Abstract

We propose a possible microscopic origin of cosmic horizon entropy based on thermal interactions between the apparent horizon and the matter fluid (inside the horizon). In particular, we argue that the heat energy lost by the matter fluid through the divergence from the horizon is equal to the heat energy absorbed by the horizon. Based on this thermal interaction and by using the underlying statistical theory of matter fluid, we determine the entropy of cosmic horizon for Einstein gravity as well as for modified theories of gravity. It turns out that Einstein gravity supports the Bekenstein-Hawking (BH) like entropy, and remarkably, we get logarithmic correction (as leading order correction over the BH entropy) in horizon entropy for modified gravity theories.

Everyone is invited to attend