Institut Ruđer Bošković
ZAVOD ZA TEORIJSKU FIZIKU
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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

(Zajednički seminari Zavoda za teorijsku fiziku,
Zavoda za eksperimentalnu fiziku IRB-a i Fizičkog odsjeka PMF-a)

Analogue cosmology in relativistic fluids

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Abstract:

Due to the fact that certain aspects of general relativity are generic features of curved spacetime, various gravitational phenomena, such as apparent and event horizons and Hawking radiation, can be studied using analog models of gravity. In contrast to general relativity, where geometry of a spacetime is determined by the Einstein equations, in analog models geometry and evolution of analog spacetime are determined by the equations of fluid mechanics. In particular, we apply the formalism of analog gravity to the expanding hadronic fluid. The analog metric tensor depends locally on the soft pion dispersion relation and the four-velocity of the fluid. The analog expanding spacetime takes the form of an FRW universe, with the apparent and trapping horizons defined in the standard way.

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