Contribution ID: **1** Type: **Oral**

Three years of thermodynamics of scalar-tensor gravity

Tuesday 18 June 2024 16:00 (30 minutes)

The first-order thermodynamics of scalar-tensor gravity is an analogy between scalar-tensor gravity (including viable Horndeski) and dissipative fluids. Assuming the gradient of the gravitational scalar field to be timelike and future-oriented, it contributes to the field equations like a dissipative fluid which, surprisingly, obeys Eckart's version of the Fourier law. Then, the convergence of modified gravity to General Relativity is analogous to the approach of this effective fluid to thermal equilibrium, but the situation is complicated by extra terms in the relevant equations. This formalism provides a notion of "temperature of gravity" and an explicit equation describing the approach to GR, or the departure thereof. Three years into this study, we draw a bird's eye view of this analogy and of its limitations and prospects.

Author: FARAONI, Valerio

Presenter: FARAONI, Valerio

Session Classification: Session 1.4