Contribution ID: **70**   Type: **Talk/seminar**

Multi-component DHOST analysis in galaxy clusters

Thursday 9 September 2021 10:00 (20 minutes)

Screening mechanisms in Extended Theories of Gravity (ETGs) are essential to make theories able to pass Solar System constraints and, at the same time, possibly driving the accelerated expansion of the Universe at large scales (thus behaving as dark energy). In our work, we have considered an ETG belonging to the family of Degenerate High-Order Scalar-Tensor theories (DHOST) and characterized by a partial breaking of such a screening mechanism. We test this theory on galaxy cluster scales, using strong and weak lensing data, X-ray observations, and a multi-component approach. We investigate the consistency of this model with data in two different scenarios: as a dark energy candidate; and, through the breaking of the screening mechanism, we assume and test the possibility it might even mimic dark matter. Final results show that the DHOST model, when acting as dark energy-only model, might be statistically preferred (by Bayesian evidence) in most of the cases with respect to General Relativity. Instead, when the DHOST is assumed to mimic also dark matter, it is generally disfavored.

Author: LAUDATO, Enrico (Szczecin University, Institute of Physics- Doctoral School)

Co-authors: SALZANO, Vincenzo (University of Szczecin);   UMETSU, Keiichi (Academia Sinica)

Presenters: LAUDATO, Enrico (Szczecin University, Institute of Physics- Doctoral School);   SALZANO, Vincenzo (University of Szczecin)

Session Classification: Ph.D. Students Workshop