

A look beyond Λ CDM theory, phenomenology and observations

Sunday 11 September 2022 16:00 (10 minutes)

The standard Lambda Cold Dark Matter (Λ CDM) model of cosmology provides a good fit to a wide range of astrophysical and cosmological observations that have probed nearly all the epochs and scales of the Universe. However, in the recent years various tensions and anomalies are seriously questioning the validity of this baseline scenario, motivating both the need to test its underlying assumptions and the opportunity to probe new physics with increasing accuracy. In this talk I will focus on both possibilities and analyze different extensions to Λ CDM that involve a rich phenomenology beyond our current paradigm of the Universe. I will test both the agreement of observations in extended cosmological models and their consistency with the underlying theoretical assumptions, discussing different hints for new physics and pointing out some interesting challenges for the (near) future.

Presenter: Dr GIARÈ, William (Galileo Galilei Institute for theoretical physics)