

## **Abstract:**

For the first time after it was established as the standard paradigm in cosmology, the Lambda-CDM model is facing some persisting tensions with observations of the large-scale structure. Although not being yet a compelling evidence against the standard scenario, the mismatch between the best-fit value of some cosmological parameters as inferred from the CMB by the latest Planck results, and their observed value derived from low-redshift probes, may be even more challenging for a wide range of alternative theories of Dark Energy and Modified Gravity. In fact, the observed discrepancy shows the opposite trend of what most of such alternative theories predict.

In this talk I will present the theoretical predictions of a specific cosmological model based on the idea of a non-vanishing cross section between Dark Matter particles and the underlying Dark Energy field, and show that this model — as opposite to standard Dark Energy and Modified Gravity theories — may alleviate the tension and possibly reconcile CMB observations with the other complementary low-redshift probes.