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Probing the independence within the dark sector in the fluid approximation

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The standard model of cosmology is based on two unknown dark components that are generally assumed to be non-interacting. Relaxing this assumption opens a class of interacting models that have recently seen renewed interest in light of cosmological tensions. In this talk, we discuss some of these models and present an analysis of recent datasets investigating whether there is evidence for an interaction between these components of cold dark matter and dark energy. In particular, this analysis leaves the interaction mechanism generic and reconstructs in a model-independent way the interaction history at low-redshifts using a variation of the principal component analysis commonly used. We further discuss what constraints on interaction might be achieved from upcoming LSST and DESI surveys.

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