Séminaire de physique des particules et de cosmologie

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Consistency relations of the large scale structure and how to break them

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Upcoming cosmological experiments intend to exploit the large scale structure of the Universe to get a better understanding of the observed cosmic acceleration. By measuring the power spectrum, one can constrain the equation of state of dark energy, and galaxy surveys promise great improvement over the current constraints. Galaxy surveys can also be used to gather cosmological information beyond cosmic acceleration. For example, one can derive consistency relations that can relate the bispectrum to the power spectrum for example. Those relations are very robust, as they rely on only two assumptions: the equivalence principle and the gaussianity of initial conditions. They are thus expected to hold within the standard cosmological model. On the other hand, their potential violation can be used to put bound on theories that predict deviations from one of those two assumptions, which is what I will explore in this talk.