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Running vacuum energy in the expanding Universe: from inflation to our dark energy era

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An accelerated universe should naturally have a vacuum energy density determined by its dynamical curvature. The so-called cosmological constant is most likely a temporary description of a cosmic variable that has been drastically evolving from the early inflationary era to the present. In this talk, I will discuss a unified picture (in fact a class of models) of the expansion history of our Universe implementing such an idea. The main stages, from inflation and its ("graceful") exit into a standard radiation regime, as well as the matter and dark energy epochs, are accounted for. Furthermore, for a generic Grand Unified Theory associated to the inflationary phase, the amount of entropy generated from primeval vacuum decay within this class of models can explain the huge value measured today.

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