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Very Light Cosmological Scalar Fields from a Tiny Cosmological Constant

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We propose a new mechanism to generate the mass of a scalar field in an expanding universe. The mass of this field

turns out to be generated by the cosmological constant and can be naturally small if protected by a conformal symmetry which is however broken in the gravitational sector. The mass is comparable today to the Hubble time.

This scalar field could thus impact our universe today and for example be at the origin of a time variation of the

couplings and masses of the parameters of the standard model. A time variation of the parameters of the standard

model would allow to test grand unified theories.

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