

Institut Ruđer Bošković  
ZAVOD ZA TEORIJSKU FIZIKU  
Bijenička c. 54  
ZAGREB, HRVATSKA

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SEMINAR ZAVODA ZA TEORIJSKU FIZIKU

(Zajednički seminari Zavoda za teorijsku fiziku,  
Zavoda za eksperimentalnu fiziku IRB-a i Fizičkog odsjeka PMF-a)

**Late-time quantum backreaction of a non-minimally  
coupled massless scalar**

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Datum: ponedjeljak, 22. prosinca 2014.

Vrijeme : **12:00 sati c.t.**

Mjesto: IRB, dvorana I krilo

**Abstract:**

Quantum fluctuations of the field contribute to its energy-momentum tensor. This contribution (backreaction) should source the Einstein equations. For fields living on time-dependent backgrounds, such as FLRW, this contribution to the energy-momentum tensor can exhibit secular behavior - its magnitude can grow in time. Given enough time, in certain cases, it can grow large enough to considerably alter the classical dynamics of the expansion of the Universe. I will present a model of a non-minimally coupled scalar field whose inflationary quantum fluctuations are evolved throughout the history of the Universe, from inflation to radiation and matter dominated eras. The energy-momentum tensor of these fluctuations is calculated in each era. For certain range of non-minimal coupling the backreaction remains small throughout the history and in late matter era exhibits interesting transient phenomena where it grows large and could affect the expansion considerably, similar to the effect of Dark Energy.

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