

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)

## Quantum Scalar Corrections to the Gravitational Potentials on de Sitter Background

**Tomislav Prokopec**  
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Datum: ponedjeljak, 08. veljače 2016.  
Vrijeme : **14:00 sati c.t.**  
Mjesto: IRB, dvorana I krilo

### Abstract:

This talk is based on work with Anja Marunovic (arXiv:1101.5059 [gr-qc], arXiv:1209.4779 [hep-th]) and on recent work with S. Park and R. P. Woodard (arXiv:1510.03352). We employ the graviton self-energy induced by a massless, minimally coupled scalar on de Sitter background to compute the quantum corrections to the gravitational potentials of a static point particle with a mass  $M$ . The Schwinger-Keldysh formalism is used to derive real and causal effective field equations. When evaluated at the one-loop order, the gravitational potentials exhibit a secular decrease in the observed gravitational coupling  $G$ . This can also be interpreted as a (time dependent) anti-screening of the mass  $M$ .

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