

ICTS Seminar

- Title : Quantum cosmology from Weyl anomalies
- Speaker : Maria Tresa Bautista Solans, International Centre for Theoretical Physics, Italy
- Date : Thursday, February 9, 2017
- Time : 3:30 pm
- Venue : Nambu Discussion Room (Right), ICTS Campus, Bangalore

Abstract : The covariant renormalization of composite operators leads to Weyl anomalies. As a consequence, in the effective action the operators acquire an anomalous dependence on the conformal factor of the metric. The questions I will address in this talk are whether this anomalous dependence can have interesting consequences for cosmology, and whether we can compute these systematically.

I will first present a two-dimensional gravitational model, where the anomaly for the cosmological constant can be computed explicitly using results from Liouville theory and leads to a non-local quantum effective action. The resulting quantum energy momentum tensor is non-local and leads to a deflating vacuum energy in a homogeneous and isotropic expanding universe. I will then generalize these results to four dimensions, and discuss how to systematically compute the non-local effective action and some of its possible cosmological implications.