



Contribution ID: 178

Type: **not specified**

Corpuscular Considerations on Cosmological Observables and Eternal Inflation

Thursday 10 September 2015 14:00 (20 minutes)

In my talk, I will first introduce the corpuscular framework, recently proposed by Gia Dvali and Cesar Gomez, in which space-time is described in terms of graviton Bose-Einstein condensates.

Then I will present our recent quantitative investigations on this model regarding its cosmological implications, and will show how the cosmic microwave background power spectrum and the tensor-to-scalar ratio are affected.

The last part of my talk reviews the paradigm of eternal inflation in the light of the corpuscular picture of space-time. Incorporating the inflaton fluctuations including quantum depletion (which is intrinsic to the graviton Bose-Einstein condensate description), I will show that the fraction of the space-time which has an increasing potential is always below the eternal-inflation threshold. This proves that for monomial potentials eternal inflaton is excluded. This is likely to hold for other inflation models as well.

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Session Classification: Inflation and phase transitions