

Theory Seminar

Monday, October 25, 2010 2:10 PM 831 Pupin Hall

Lumps and bumps in the early universe

I will discuss the emergence of large, localized, pseudo-stable configurations (oscillons) from inflaton fragmentation at the end of inflation. Remarkably, the emergent oscillons take up >50 per cent of the energy density of the inflaton. First, I will give an overview of oscillons, provide some analytic solutions and discuss their stability. Then, I will discuss the conditions necessary for their emergence and provide estimates for their cosmological number density. I will show results from detailed 3+1-dimensional numerical simulations and compare them to the analytic estimates. Finally, I discuss possible observational consequences of oscillons in the early universe.



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