



## AVVISO DI SEMINARIO

Il giorno mercoledì 21 dicembre 2016 alle ore 11,00  
presso l'Area della Ricerca CNR di Pisa, Aula 33, piano Terra, Edificio "A"

*il Dr. **Fabio CINTI***

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*terrà un seminario sul tema:*

# **Ground state stability of quantum dipolar filaments in BECs**

Abstract.

Recent experiments on BECs with dipolar interactions have observed a clear stabilization of the gas (typically dysprosium or erbium) in a three-dimensional setup. Such remarkable results rekindled interest in systems characterized by anisotropic dipolar-interactions. Yet the microscopic mechanisms that cause these interesting quantum regimes is still under debate. Along these lines, we are undertaking an investigation of cluster phases made up of dipolar bosons. Upon increasing the strength of the dipolar interaction we find a wide region where filaments of several bosons are stabilized against short wavelength instabilities by quantum fluctuations. Most interestingly by computing the local superfluid fraction we conclude that coherence is preserved up to strong interactions. Quantum Monte Carlo simulations at finite temperature confirm the stability of such filaments against thermal fluctuations.