



The Department of Physics at the University of Cyprus  
is organizing a seminar on

**Thursday, 19 of May 2016, time 4:00 p.m.**

Room B228, Building 13, New Campus

Speaker:

**Dr. Daniel Thomas  
University of Cyprus**

**“Under Pressure: Constraining extensions of Cold Dark Matter”**

The Cold Dark Matter (CDM) model, wherein the dark matter is treated as a pressureless perfect fluid, provides a good fit to galactic and cosmological data. With the advent of precision cosmology, it should be asked whether this simplest model needs to be extended, and whether doing so could improve our understanding of the properties of dark matter. One way to extend CDM is the Generalised Dark Matter (GDM) model, in which dark matter is an imperfect fluid with pressure and shear viscosity that has 3 new parameters: an equation of state sound speed and viscosity.

I will briefly present the GDM model and examine the effects of these parameters on cosmological observables, particularly the CMB. This will be followed by an examination of some models that can be related to the GDM parameterisation, including warm dark matter, axions and the EFTofLSS. I will then show the constraints that we have obtained on these parameters using current cosmological data and discuss some degeneracies. I will close with some future directions.=

For more information please contact:  
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