



Contribution ID: 86

Type: **parallel talk**

## Dark matter in 3D

*Monday 7 May 2012 16:45 (15 minutes)*

### **Abstract:**

I discuss the relevance of directional detection experiments in the post-discovery era and propose a method to extract the local dark matter phase space distribution from directional data. The first feature of this method is a parameterization of the dark matter distribution function in terms of integrals of motion, which can be analytically extended to infer properties of the global distribution if certain equilibrium conditions hold. The second feature of our method is a decomposition of the distribution function in moments of a model independent basis, with minimum reliance on ansatzes of what its functional form should be. This method is illustrated using the Via Lactea II N-body simulation as a model for the dark matter halo. We conclude that  $O(1000)$  events are necessary to measure deviations from the standard halo and the presence of anisotropies.

**Authors:** Ms ALVES, Daniele (Fermilab); Prof. WACKER, Jacob (SLAC)

**Presenter:** EL HEDRI, sonia (SLAC)

**Session Classification:** DM I