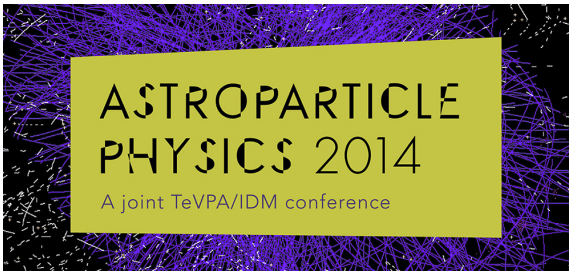


Contribution ID: **42** Type: **Presentation**

# Invited Talk: The local dark matter density: new constraints on the Milky Way's dark disc and the local shape of the Milky Way halo

*Tuesday, June 24, 2014 9:30 AM (30 minutes)*

I review current efforts to measure the mean density of dark matter near the Sun. This encodes valuable dynamical information about our Galaxy and is also of great importance for direct detection dark matter experiments. I briefly discuss theoretical expectations in our current cosmology; the theory behind mass modelling of the Galaxy; and I show how combining local and global measures probes the shape of the Milky Way dark matter halo and the possible presence of a 'dark disc'. I collate the latest measurements and show that, once the baryonic surface density contribution is normalised across different groups, there is remarkably good agreement. The very latest measures based on ~10,000 stars from the Sloan Digital Sky Survey leave little room for significant halo flattening at the Solar position, suggesting that the Galaxy has a rather weak dark matter disc, with a correspondingly quiescent merger history. This is further supported by the apparent lack of accreted stars that should accompany any significant dark disc.

**Presenter:** Prof. READ, Justin

**Session Classification:** Plenary Talks