



Contribution ID: 214

Type: **Poster**

## **Quynh Lah Nguyen (Notre Dame): Constraints on Interacting Dark Matter from small scale structure**

*Wednesday 21 February 2018 18:41 (1 minute)*

The core-cusp problem remains as one of the unresolved challenges between observation and simulations in the standard  $\Lambda$ CDM model for the formation of galaxies. Basically, the problem is that  $\Lambda$ CDM simulations predict that the center of galactic dark matter halos contain a steep power-law mass density profile. However, observations of dwarf galaxies in the Local Group reveal a density profile consistent with a nearly flat distribution of dark matter near the center. A number of solutions to this dilemma have been proposed. We discuss the possibility that the dark matter particles themselves self-interact and scatter. The scattering of dark matter particles then can smooth out their profile in high-density regions. We also summarize a theoretical model as to how self-interacting dark matter may arise. We implement this form in simulations of self-interacting dark matter in models for galaxy formation and evolution. Constraints on this form of self-interacting dark matter will be summarized.

**Author:** LAN NGUYEN, Quynh

**Presenter:** LAN NGUYEN, Quynh

**Session Classification:** Poster Session