



Contribution ID: 11

Type: **not specified**

## The search for cosmological annihilation signals with the Fermi LAT

*Tuesday 22 September 2015 10:30 (40 minutes)*

We search for evidence of dark matter (DM) annihilation in the isotropic gamma-ray background (IGRB) measured with 50 months of Fermi Large Area Telescope (LAT) observations. An improved theoretical description of the cosmological DM annihilation signal, based on two complementary techniques and assuming generic WIMP properties, renders more precise predictions compared to previous work. We consistently include both the Galactic and extragalactic signals under the same theoretical framework, and study the impact of the former on the IGRB spectrum derivation. We find no evidence for a DM signal and we set limits on the DM-induced isotropic gamma-ray signal. Our limits are competitive for DM particle masses up to tens of TeV and, indeed, are the strongest limits derived from Fermi-LAT data at TeV energies. We quantify uncertainties in detail and show the potential this type of search offers for testing the WIMP paradigm with a complementary and truly cosmological probe of DM particle signals.

**Author:** SÁNCHEZ-CONDE, Miguel (Oskar Klein Centre, Stockholm University)

**Presenter:** SÁNCHEZ-CONDE, Miguel (Oskar Klein Centre, Stockholm University)

**Session Classification:** Indirect Detection