



Contribution ID: 5

Type: **not specified**

## **Towards the first gamma rays from Galaxy Clusters: Searches for Cosmic Rays and Dark Matter**

*Tuesday 22 September 2015 08:55 (25 minutes)*

Galaxy clusters are the most massive bound systems known in the universe and are believed to have formed through large scale structure formation. As such they host relativistic cosmic-ray (CR) populations and are gravitationally bound by large amounts of Dark Matter (DM). Both provide conditions in which high-energy gamma rays may be produced either via CR interactions with the intracluster medium or through the annihilation or decay of DM particles.

Prior to the launch of the Fermi satellite, predictions were optimistic that Galaxy clusters would be established as gamma-ray-bright objects by observations through its prime instrument, the Large Area Telescope (LAT). Yet, despite numerous efforts, even a single cluster detection is still pending. I will review the most recent methodological searches and investigate the implications that these non-detections yield, both for the extended mission of Fermi and future experiments at gamma-ray wavelengths.

**Author:** Mr ZIMMER, Stephan (OKC/ Stockholm University)

**Presenter:** Mr ZIMMER, Stephan (OKC/ Stockholm University)

**Session Classification:** Indirect Detection