



Contribution ID: 80

Type: **not specified**

The 300th-NIKA2 LPSZ twin samples: synthetic clusters to support real observations

Thursday, 1 July 2021 09:30 (20 minutes)

Twin samples of synthetic clusters of galaxies with properties close to the targets of the NIKA2 Large program Sunyaev-Zeldovich effect (LPSZ) have been generated from the 300th simulations database. This Large SZ Program is observing a selection of galaxy clusters at intermediate and high redshift ($0.5 < z < 0.9$), covering one order of magnitude in mass, with the NIKA2 camera at 30-m IRAM radiotelescope. These are SZ-selected clusters from the Planck and Atacama Cosmology Telescope (ACT) catalogs, where the selection is based on their integrated Compton parameter values, Y_{500} .

The Three Hundred hydrodynamical simulations provide us hundreds of clusters satisfying these redshift, mass, and Y_{500} requirements. This catalog exploited a large sample of simulated galaxy clusters with their environment modelled using a range of simulation packages and physics modules. In addition to the standard post-processing analysis, mock observational maps are available mimicking X-ray, optical, gravitational lensing, radio, and SZ observations.

The primary goal of employing the twin samples is to compare different cluster mass proxies from synthetic X-ray emission, Sunayev-Zel'dovich effect and optical maps (by galaxy members velocity dispersion and lensing k-maps). We can then verify the impact that a limited sample of only 50 objects, could have on the final results. Scaling laws will be cross-correlated to reduce the scatter on the inferred mass and the mass bias will be related to various physical parameters.

Primary author: Ms PALIWAL, Aishwarya (Sapienza Università di Roma)

Co-authors: Dr ARTIS, Emmanuel (LPSC); CUI, Weiguang; DE PETRIS, Marco (ROMA1); DÉSSERT, François-Xavier (IPAG, Univ. Grenoble Alpes, CNRS); FERRAGAMO, Antonio (Sapienza Università di Roma); KÉRUZORÉ, Florian (LPSC, Grenoble, France); Dr MACIAS-PEREZ, Juan (LPSC); MAYET, Frédéric (LPSC Grenoble); MUÑOZ ECHEVERRÍA, Miren (LPSC); PEROTTO, Laurence (LPSC - CNRS - Univ. grenoble-Alpes); RASIA, Elena; RUPPIN, Florian (MIT); Prof. YEPES, Gustavo (UAM); GIANFAGNA, Giulia

Presenter: Ms PALIWAL, Aishwarya (Sapienza Università di Roma)