

## Optical follow-up of galaxy cluster candidates detected by Planck satellite in the PSZ catalogue.

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### Abstract

The Legacy PLANCK all-sky Sunyaev-Zeldovich (SZ) galaxy cluster catalogues PSZ1 and PSZ2 (Planck Collaboration XXIX 2013; Planck Collaboration XXVII 2015) provide for the first time the possibility to detect galaxy clusters using the SZ effect signature in a full sky survey. However, in order to constrain cosmological parameters from these catalogues, the clusters must be characterized in their physical properties, mainly redshift and mass. Here, we describe our optical follow-up programme, which has been developed with the aim of validating SZ Planck sources with no known optical counterparts. Thanks to a 4-year observational programme, using the 4.2m WHT and 2.5m INT telescopes at the Observatorio Roque de los Muchachos (La Palma), we identify the optical counterparts of the SZ candidates and estimate their photo- $z$ 's. After this, we study spectroscopically a significant sample of the confirmed clusters. We perform multi-object spectroscopy (MOS) with the 3.5m TNG and 10.4m GTC telescopes, in order to retrieve redshifts, velocity dispersions and dynamical masses. This allows us to compare SZ masses with dynamical ones and calibrate the uncertainties in this scaling laws understanding possible biases. This poster presents the status of the imaging observations (more than 400 objects observed), the spectroscopic observations (more than 120 MOS masks), and the first scientific results of this programme. (See poster).