

Title: The dust content of galaxy clusters

Authors: Carlos M. Gutierrez & Martin Lopez-Corredoira

Instituto de Astrofísica de Canarias, SPAIN

Little is known so far from the observational point of view, about the presence of dust in galaxy clusters. Previous attempts to detect such dust in the intracluster media had been conducted directly by the detection of its infrared emission, or indirectly by estimating the attenuation of the light of objects situated in the background of clusters. We have developed a new technique to detect and measure the main properties of dust in clusters and applied it to the most complete sample of galaxy clusters obtained from SDSS. Our method is largely free of systematics, and represents an improvement on the estimation of dust content of at least an order of magnitude with respect to previous searches. This has allowed for the first time an unambiguous detection of dust in clusters of galaxies. In this contribution, we present the method and discuss the inferred properties of such dust, and in particular the spatial distribution through the cluster. We estimate which fraction of the dust is associated to individual galaxies and to the intracluster media respectively, and analyze the implications of our findings on models of formation and evolution of clusters.