

Gas on the Virgo Cluster from WMAP and ROSAT Observations

Jose M. Diego and Yago Ascasibar

Abstract WMAP observations at mm wavelengths are sensitive to the Sunyaev–Zel’dovich (SZ) effect in galaxy clusters. Among all the objects in the sky, the Virgo cluster is expected to provide the largest integrated signal. Based on models compatible with the X-ray emission observed in the ROSAT All Sky Survey, we predict an approximately two-sigma detection of the SZ effect from Virgo in the WMAP 3-year data. Our analysis reveals a 3-sigma signal on scales of 5° , although the frequency dependence deviates from the theoretical expectation for the SZ effect. The main sources of uncertainty are instrumental noise, and, most importantly, possible contamination from point sources and diffuse back/foregrounds.

J.M. Diego
IFCA, Universidad de Cantabria-CSIC, 39005 Santander, Spain
e-mail: jdiego@ifca.unican.es

Y. Ascasibar
Astrophysikalisches Institut Potsdam, Germany & Universidad Autonoma de Madrid, Spain
e-mail: yago.ascasibar@uam.es