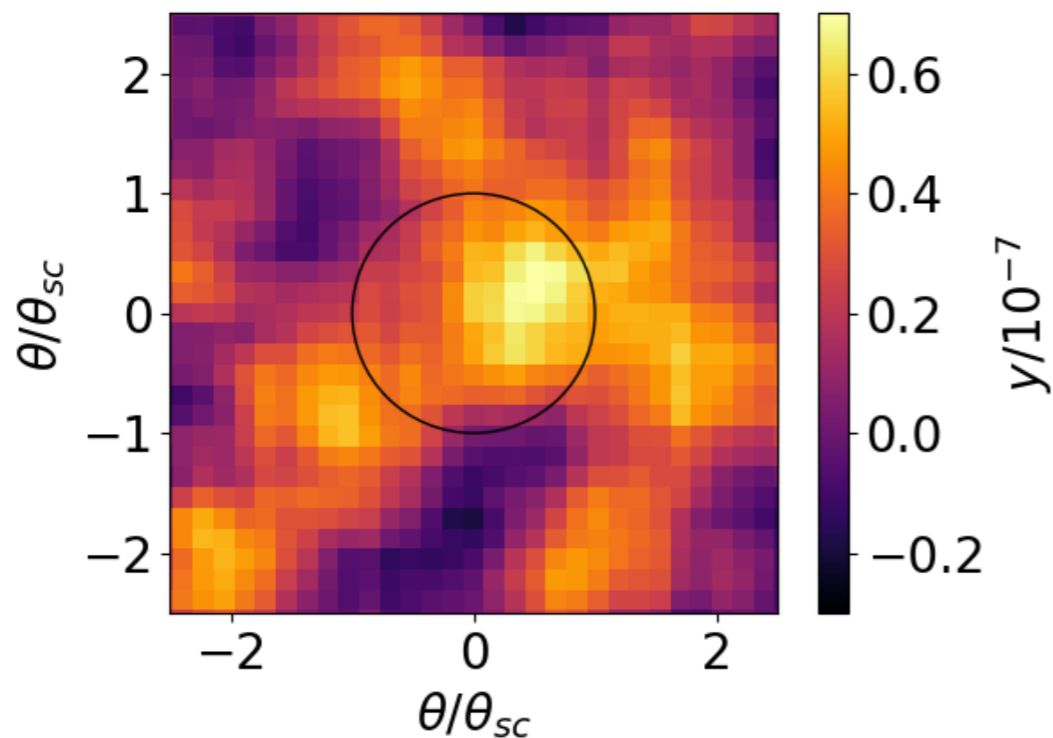


Detection of intercluster gas in superclusters using the thermal Sunyaev-Zel'dovich effect

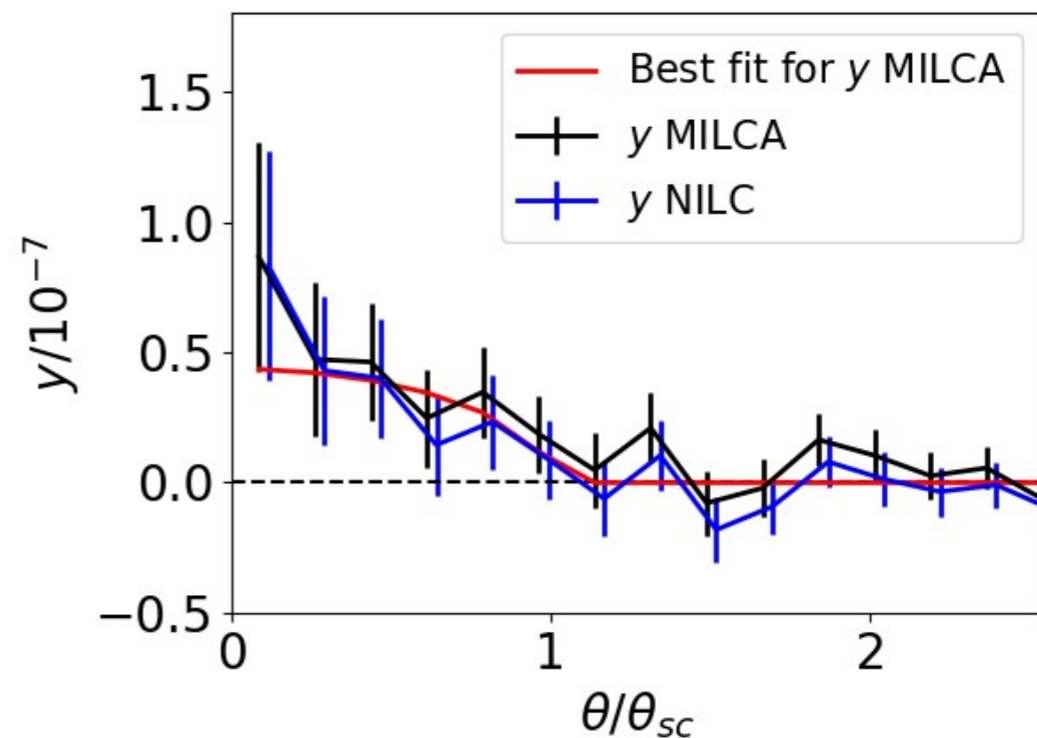
Authors: H. Tanimura, N. Aghanim, M. Douspis, A. Beelen, V. Bonjean

- 982 superclusters are identified from SDSS DR7 galaxies in Liivamägi et al. (2012).
- The galaxy clusters/groups from optical, X-ray and SZ surveys are all masked.
- 580 superclusters ($0.1 < z < 0.2$) are stacked in the Planck SZ maps.

Mean SZ map of 580 superclusters



SZ radial profile



- We find the SZ residual in the superclusters of $y = (3.3 \pm 1.4) \times 10^{-8}$ with 2.3σ .
- Our measurement may account for 11% of missing baryons as

$$\left(\frac{\Omega_{gas}}{\Omega_b} \right) \times \left(\frac{T_e}{8 \times 10^6 \text{ K}} \right) = 0.11 \pm 0.01 \pm 0.05$$