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Pressure profiles of galaxy clusters using Planck and ACT

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The pressure of hot gas in groups and clusters is directly linked to the total mass of the halo and several other thermodynamical properties. We have investigated a sample of 31 clusters detected in both the Planck and ACT-MBAC surveys. We reconstructed the average pressure profile over our sample making use of both Planck coverage of large scales and the ACT higher spatial resolution. Our profile covers a radial range going from 0.04 to $2.5 \times R_{500}$. It improves upon previous pressure-profile reconstruction based on SZ measurements. It is compatible, as well as competitive, with constraints derived from joint X-ray and SZ analysis. This work demonstrates the possibilities offered by the combination of multiple SZ experiments with different spatial resolutions and spectral coverages, such as ACT and Planck.

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