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## Characterising galaxy clusters' completeness function in Planck with hydrodynamical simulations

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Galaxy cluster number counts are an important probe to constrain cosmological parameters. One of the main ingredients of the analysis, along with accurate estimates of the clusters' masses, is the selection function, and in particular the completeness, associated to the cluster sample one is considering. Incorrectly characterising this function can lead to biases in the cosmological constraints.

We study here the completeness of the Planck cluster catalog, whose clusters are detected at mm-wavelengths via the Sunyaev-Zel'dovich effect by the Planck satellite. We estimate the completeness in the case in which the cluster model assumed in the detection method differs from the shapes and pressure profiles of true galaxy clusters, using mock cluster images from hydrodynamical simulations. We find that the shape of the cluster pressure profile has a significant effect on the completeness, while cluster morphologies have generally a small impact.

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