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The public codes ASOHF and vortex for the post-processing of cosmological simulations

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Abstract

ASOHF spherical overdensity halo finder (Planelles & Quilis 2010; Vallés-Pérez, Planelles & Quilis 2022) has been recently overhauled in order to boost its computational efficiency, its capabilities of dealing with substructure, and the possibility to look for stellar haloes or galaxies. VORTEX (Vallés-Pérez, Planelles & Quilis 2021a,b; Vallés-Pérez et al. 2024) is a code implementing novel algorithms to perform Helmholtz-Hodge and Reynolds decompositions of the velocity field of three-dimensional data. Both these algorithms, which were initially envisioned for AMR simulation data, are now public tools which can be used either on fix-grid, AMR, particle-based, or moving-mesh data. In this contribution, we present the main features of these codes and show results from their application to MASCLET and OpenGADGET simulations.

My poster in zenodo.org can be found here