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The WaZP cluster finder on DC2 data + The ClEvaR package

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Galaxy clusters are the largest gravitationally bound structures of the universe with significant applications in astrophysics and cosmology. The *Wavelet Z Photometric* (WaZP) cluster finder is a code developed for cluster detection on photometric surveys that does not rely on red-sequence presence. As such, it can provide a unique perspective to study the red-sequence abundance and evolution on galaxy clusters. The *Data Challenge 2* (DC2) is a simulated sky survey, based on an underlying N-body dark matter simulation, that contains extragalactic and star "true"catalogs and simulated images with corresponding observed catalogs. We are running WaZP on DC2 on both the true and observed catalogs. This environment, where the dark matter halos are known, allows us to evaluate the performance of WaZP and its membership assignment, and the impact of observational effects on the detection. We also investigate the astrophysical properties of clusters such as the luminosity function and the red-sequence presence.

We also present Cluster Evaluation Resources (ClEvaR), a software developed for matching and evaluating cluster catalogs. ClEvaR was designed to be easily automated for multiple sets of catalogues and with a modular structure for integration with other DESC software.

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