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Impact of photometric redshifts on cluster detection using DC2 data

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The abundance of galaxy clusters is a powerful probe for cosmology, especially on large optical surveys where hundreds of thousands can be detected. It does require, however, an appropriate characterization of the observational effects on the detection of clusters and on their properties. In this work we evaluate the impact of photometric redshifts using the Wavelet Z Photometric (WaZP) cluster finder on the DC2 simulation. WaZP is a code developed for cluster detection on photometric surveys without the assumption of a red-sequence presence. As such, it allows us to probe cosmology until higher redshifts (>1) and 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 that produced an observed catalog from simulated images. We ran WaZP using redshifts with increasing levels of complexity, from true redshifts to photo-zs and present here how the selection function and cluster properties are affected. Each of those cases produced a cluster catalog that will be shared within the DESC collaboration for additional scientific analysis. The WaZP cluster finder is also being ported to a python version, which we expect to make public available soon.

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