Title:
Globular clusters of dwarf galaxies with Euclid Surveys

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Abstract:
The present-day globular cluster (GC) populations of dwarf galaxies carry information about the formation and evolution of these low-mass galaxies as the building blocks of the Universe. GCs of dwarf galaxies are mostly formed in-situ, and then evolved together with their host dwarf galaxies under the influence of similar internal and external astrophysical processes (e.g., stellar/supernova feedback, and environmental effects). Given the different mass and spatial distribution of GCs compared to stars and gas within galaxies (main observables of galaxies), GCs respond differently to various baryonic processes acting on their host galaxies. Therefore, GC observables of dwarf galaxies would lead us to identify baryonic processes that different populations of dwarf galaxies experience throughout their lifetime, through their evolution.

However, because dwarf galaxies typically host only a few GCs, studying their GC properties requires large samples of dwarf galaxies. Having such a sample requires observing the extragalactic universe beyond the Local Volume at distances between 10-100 Mpc. At such distances and given the typical size of GCs (about 2-3 pc), deep and high-resolution imaging data is needed to separate extragalactic GCs from foreground stars and background high-z galaxies. In this regard, until now, deep high-resolution observations using the HST have been invaluable for studying GCs in nearby systems within 100 Mpc; however, HST's small field of view limits its practicality for large samples. The ESA Euclid mission addresses these limitations by providing wide-field, high-resolution imaging capabilities. Expected to identify over 10,000 nearby dwarf galaxies during its survey, Euclid combines optical and near-infrared data to enable GC identification in the Local Universe.

In this talk, I present our effort within the Euclid consortium to identify extragalactic GCs, and study GCs around dwarf galaxies. For that, I will describe our past/current work using the Euclid's Early-Release Observations (EROs), and our plans for the future Euclid data releases, as well as photometric/spectroscopic follow-ups with VLTs, ELT, JWST and Roman. This talk is on behalf of the science working group "Local Universe" within the Euclid Collaboration.