The promise of Euclid to understand galaxy formation and evolution

Andrea Cimatti[1], on behalf of the Euclid Consortium

[1] *University of Bologna – Department of Physics and Astronomy*

Abstract

Euclid id is a Medium-class ESA mission selected in the context of Cosmic Vision 2015-2025, and with launch in 2020. Euclid is a survey mission based on a 1.2 m diameter telescope designed to address the key questions of modern cosmology, and in particular the dark energy equation of state (Laureijs et al. 2011). Euclid will survey 15,000 square degrees (the Wide Survey) with visible (broad red filter) and near-infrared (Y, J, H bands) imaging to mag(AB)=24.5 and 24.0 in the visible and near-IR respectively, and with near-infrared slitless spectroscopy in the spectral range of about 12 m. A deeper area of 40 square degrees (the Deep Survey) will be also observed in imaging and spectroscopy down to limiting fluxes fainter by about 2 magnitudes. This will provide high-quality images and near-IR photometry of about 2 billion galaxies, and spectroscopic redshifts and spectra for a few tens of million galaxies out to about z=2 (and beyond). Besides cosmology, Euclid will also provide an immense legacy dataset useful to address a wide range of modern astrophysical problems. This talk will focus on the expected role of Euclid in the field of galaxy formation and evolution.