

**XVIII Workshop on Neutrino Telescopes
Palazzo Franchetti – Istituto Veneto
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Poster Session Submission of Abstract

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Title of the Poster: Neutrino Physics with ESA's Euclid mission

Abstract:

Euclid mission will survey more than 35% of the entire sky (15000 degree²) in less than ~6 years and capturing a 3D picture of the distribution of dark and baryonic matter of the Universe. This will allow the measurement of its acceleration to a percent level accuracy and probe the dark matter distribution via weak gravitational-lensing effects on galaxies. Complementary galaxy clustering probe using spectroscopic measurements will determine tiny local deviations of the redshift $0.9 < z < 2$ of galaxies from the general cosmic expansion alone. Combined probes will reveal signatures of the physical processes responsible for the expansion and the hierarchical formation of structures and galaxies in the presence of dark matter. Euclid's sensitive to subtle features produced by neutrinos and thereby will help to constrain the sum of neutrino masses, and could help answering questions on neutrino mass hierarchy.

Summary:

Neutrinos move large distances in the early Universe resulting in a tiny suppression of structure formation, but over a large range of scales. Euclid will measure the effect on the matter power spectrum and reach precisions of $\Delta m_\nu < 0.03$ eV.

Euclid is instrumented with a common view wide-fields visible imager, and a near-infrared (0.9 - 2 μ m) spectro-photometer NISP for redshift measurements, with a resolution of 0.3 arc s px. Combined data will be used to derive an estimate of redshift for the two billion galaxies used for weak gravitational-lensing patterns from intrinsic alignments of galaxies.

Key words: neutrino mass, near-infrared spectro-photometer

Topic: cosmology

Kindly follow the instructions above and send the abstract (.pdf file) to <mailto:salente@pd.infn.it> by February 22nd 2019. Response will be sent to the submitter's e-mail address indicated above, by March 1st. Posters will be exhibited all week long at the workshop site. Discussion will take place on Thursday March 21st, during the Poster Party. At least one author must be available for "question-answer" time. Best 3 posters will be awarded on Friday 22nd, during the closing plenary session of the workshop.