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# Mapping the Dark Universe: Prospects for Dark Matter Science with Euclid

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The Euclid space telescope, launched by the European Space Agency, is set to transform our understanding of the dark sector by delivering high-precision measurements of weak gravitational lensing and galaxy clustering across 15,000 square degrees of the sky. This unprecedented data set will enable detailed mapping of the large-scale structure of the Universe and provide powerful tools to probe the nature of dark matter beyond the standard cold dark matter paradigm. Euclid's sensitivity to the matter distribution over cosmic time opens up the possibility to test models involving warm dark matter, ultra-light scalar fields, self-interacting dark matter, and other non-standard scenarios. In this talk, I will present an overview of the scientific potential of Euclid for dark matter research, focusing on the observational strategies and theoretical frameworks being developed ahead of the mission's first data release. I will highlight how Euclid's photometric and spectroscopic capabilities can be combined with other probes, including cosmic microwave background data, strong lensing, and stellar stream studies, to constrain the clustering, interactions, and microphysical properties of dark matter.

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