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Past, present & future of rogue planet direct detection with Euclid

Tuesday, December 16, 2025 2:00 PM (20 minutes)

Starting with the Euclid Early Observations program and continuing with the Quick data release 1 and moving into the Data Release 1, our Independent Legacy Science team is focusing on the study of ultracool dwarfs in nearby star-forming regions, young open clusters and the field. Our first results showcase the power of Euclid to detect rogue planets directly via high spatial resolution imaging, deep optical and near infrared photometry and slitless low-resolution near-infrared spectroscopy. In this presentation the results obtained so far from the analysis of Euclid data will be summarized, the status of ongoing work will be shown and the future plans will be discussed with special attention to the direct detection and characterization of rogue worlds, comparisons with state-of-the-art models, ground-based follow-up observations and estimates of the binary fraction and the substellar Initial Mass Function down to planetary masses.

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