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TITLE: A UV–NIR spectral atlas of compact planetary nebulae for wavelength calibration of the Euclid Mission

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ABSTRACT:

The Euclid mission will conduct an extragalactic survey over 15 000 deg² of the extragalactic sky. The spectroscopic channel of the Near-Infrared Spectrometer and Photometer (NISF) will obtain spectroscopic redshifts for 3×10^7 galaxies for the experiments on galaxy clustering, baryonic acoustic oscillations, and redshift space distortion. The wavelength calibration must be accurate within 5 Angstrom to avoid systematics in the redshifts and downstream cosmological parameters. To this end, we use the emission lines in the spectra of compact planetary nebulae (PNe), which were selected from a PN database, to update the ground-based dispersion laws. To ensure completeness of the PN sample, we developed a novel technique to identify compact and strong line emitters in Gaia spectroscopic data using the Gaia spectra shape coefficients. In this talk, I will discuss the use of Gaia data to find potential PN and present our line atlas of 20 PNe (19 with VLT/X-SHOOTER spectra from 0.3-2.5 micron and one with Gemini-GMOS/GNIRS spectra from 0.80-1.90 micron). The wavelength atlas and the related 1D and 2D spectra have been made publicly available.