

WST - the Wide-field Spectroscopic Telescope: surveying the Universe in the 2040's and beyond



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Probing the limits of spectroscopy in the low-surface brightness Universe with LEWIS

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Ultra-diffuse galaxies (UDGs) are extremely faint ($\mu_{0,g} \geq 24$ mag/arcsec²) and diffuse ($R_e \geq 1.5$ kpc) systems whose nature is unknown. Literature is now plenty of imaging data on UDGs whereas spectroscopic follow-up of large samples of UDGs remains rare. The “Looking into the faintEst With MUSE”(LEWIS) project will make a decisive impact on the field since it will study for the first time the stellar kinematics, stellar populations and globular clusters properties of a nearly complete sample of 30 UDGs in the Hydra I cluster of galaxies. In this talk, I will present recent results we obtained with LEWIS data, testing the MUSE’s performance under extreme conditions and setting its capabilities and limitations of doing spectroscopy in the low-surface brightness regime. I will show how the upcoming state-of-the-art facilities such as the Wide Space Telescope can open a new perspective on future studies of UDGs.

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