

Review

A PANCHROMATIC COMPARATIVE VIEW OF EXOPLANET
ATMOSPHERES

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Hubble has played the definitive role in the characterisation of exoplanets and from the first planets available, we have learned that their atmospheres are incredibly diverse. With HST and JWST, a new era of atmospheric studies is opening up, where wide scale comparative planetology is now possible which can provide insight into the underlying physical process through comparative studies. Hubble's full spectroscopic capabilities are now being used to produce the first large-scale, simultaneous UVOIR comparative study of exoplanets with 20 planets ranging from super-Earth to Neptune and Jupiter sized planets. With full UV to infrared wavelength coverage, an entire planet's atmosphere can be probed simultaneously and with sufficient numbers of planets, it will be possible to statistically compare their features with physical parameters. The panchromatic treasury program aims at build a lasting HST legacy, providing the UV and blue-optical exoplanet spectra which will be unavailable to JWST, providing key insights into clouds and mass loss. I will present the latest findings from the ongoing Hubble Treasury program, revisit longstanding and controversial issues with new data, and discuss how JWST will transform the field of exoplanet characterisation.