
Observations of molecular hydrogen in space: perspectives with JWST and OST

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Abstract

Our progress on two fundamental questions in astrophysics, namely the formation of stars and galaxies, depends critically on our ability to observe molecular hydrogen. H₂ is a unique tracer of the cold universe because its emission is indicative of the energetic processes that feed and shape cold gas in galaxies, independently of metallicity. This talk will outline prospects on observing H₂ from the local to distant Universe with the JWST, which will allow us to observe the infrared rotational and ro-vibration lines of H₂ with a sensitivity and a spatial resolution 100 times greater than Spitzer and VLT. In the more distant future, the Origins Space Telescope may reveal, via H₂ emission/absorption, cold gas reservoirs within metal-free dark matter halos and star-forming regions at the earliest times.

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