Dust Storms and Condensate Clouds in Extrasolar Atmospheres

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Abstract

Observations of directly imaged and transiting exoplanets and brown dwarfs revealed the near-universal presence of condensate clouds in their atmospheres. These particulate clouds profoundly influence the spectra and energy transport in the atmospheres, thereby shaping the atmospheric pressure-temperature profiles.

In this talk. I will review results on the origins and properties of clouds in brown dwarfs and directly imaged exoplanets, obtained through high-precision, time-resolved observations with the Hubble, Spitzer, TESS, and James Webb Space Telescopes. I will identify the most important open questions, highlight exciting new results from the latest observations, and will explore emerging opportunities to advance our understanding extrasolar dust and aerosols.

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