
EAPS Planetary Lunch Colloquium Series (PICS)

Dr. Caroline Morley

Sagan Fellow

Harvard-Smithsonian Center for Astrophysics

Tuesday, March 14th

12:30pm

54-517

Seeing Through the Clouds: The Atmospheres of Super Earths and Sub Neptunes

Vast resources have been dedicated to characterizing the handful of planets with radii between Earth's and Neptune's that are accessible to current telescopes. Observations of their transmission spectra have been inconclusive and do not constrain the atmospheric composition. Of the small planets studied to date, all have radii in the near-IR consistent with being constant in wavelength, likely showing that these small planets are consistently enshrouded in thick hazes and clouds.

I will explore the types of clouds and hazes that can completely obscure transmission spectra. I will then show the effect that these thick clouds have on the thermal emission and reflected light spectra of small exoplanets. I present a path forward for understanding this class of small planets: by understanding the thermal emission and reflectivity of small planets, we can potentially break the degeneracies and better constrain the atmospheric compositions.



For more information, contact John Biersteker (jo22395@mit.edu)