

Astrophysics Seminar

Monday, March 23, 2015

Exoplanet Atmospheres at High Resolution

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Abstract:

High resolution spectroscopy ($R > 25,000$) allows the direct detection of molecular features in an exoplanet atmosphere. In this talk, I will discuss how this method is unlocking our understanding of the chemical composition of hot Jupiter atmospheres, and present detections of carbon monoxide and water in non-transiting planets. By providing a measurement of the C/O ratio, the technique may ultimately constraint both the formation mechanism and birth location of such planets in protoplanetary disks. I will also demonstrate how high resolution spectroscopy, when combined with high contrast imaging, can determine the rotation period of planets at large separations. In the era of the giant segmented mirror telescopes, the technique will be a viable biomarker detection method. I will conclude with a discussion of how current and planned instruments have the potential to develop the technique towards this goal, and the further study of faint companions.

3:15 pm

Refreshments
CAS Room 500

3:30 pm

Seminar
CAS Room 502

Next Week

- *Anna Frebel*
MIT
- Hunting the First
Generations of Stars and
Galaxies

