

Monday, April 24, 2017

EXOPLANETS: BIOSIGNATURES:

THE SCIENCE OF EXOPLANET BIOSIGNATURES USING SPACE AND GROUND-BASED TELESCOPES II

1:30 p.m. Arizona Ballroom D

Chairs: Ravi Kopparapu
Edward Schwieterman

- 1:30 p.m. Petkowski J. J. Bains W. A. * Seager S.
[*Toward a List of Molecules as Potential Biosignature Gases for the Search for Life on Exoplanets: Thermodynamic Profiling Potential False Positives*](#) [#3428]
We report on the thermodynamic modelling of a database of all 14,000 potential biosignature gases, to predict which could be geochemical false positives.
- 1:45 p.m. Arney G. N. * Domagal-Goldman S. D. Meadows V. S.
[*Organic Haze as a Biosignature in the Presence of Biogenic Sulfur Gases*](#) [#3186]
Biological sulfur gases can drive the formation of organic haze on Earthlike planets at lower CH₄/CO₂ levels than CH₄ photochemistry alone would predict.
- 2:00 p.m. Rugheimer S. * Kaltenegger L.
[*Remote Detectability of Oxygen Through Geological Time Around FGKM Stars*](#) [#3411]
We discuss the detectability of oxygen and the influence of clouds at different geological epochs for Earth-like planets orbiting other stars.
- 2:15 p.m. Fisher T. M. * Walker S. I. Line M. R. Lyons J. Ruiz C.
[*The Topology of Atmospheric Chemical Reaction Networks: A Potential New Biosignature for Exoplanets*](#) [#3557]
A network-theoretical investigation into the interactions between atmospheric gases as a possible indicator of the presence of a global biosphere.
- 2:30 p.m. Lisse C. M. * Sitko M. L. Marengo M. Kane S. R. Desch S. J.
[*NIRDS IRTF/SpeX Survey Characterization of Stellar Abundances and Fluxes in Nearby Sun-Like Systems*](#) [#3352]
We have used the NASA/IRTF SpeX instrument to characterize the astrobiologically active flux and abundances in 50+ AFGK star systems.
- 2:45 p.m. Apai D. * Rackham B. V. Lopez-Morales M. Jordan A. Espinoza N. Osip D. Bixel A. Rodler F. Lewis N. K. Fortney J.
[*ACCESS: The Largest Exoplanet Transmission Spectroscopy Survey and the Characterization of Habitable Zone Super-Earths in the TESS Era*](#) [#3355]
We will describe our ACCESS exoplanet transmission spectroscopy survey and how it will characterize habitable zone planets discovered by the TESS mission.
- 3:00 p.m. Grunsfeld J. * Clampin M. Mountain M. Stark C.
[*Next Generation Telescopes for Terrestrial Exoplanet Characterization and the Search for Biosignatures*](#) [#3351]
We discuss the characteristics of future ground and space based telescopes needed to detect habitable environments and biosignatures on nearby exoplanets.
- 3:15 p.m. Fischer D. A. * Peterson B. M. Roberge A. Domagal-Goldman S.
[*LUVOR: Surveying the Cosmos and Characterizing Exoplanets*](#) [#3490]
A large UV-Optical-IR surveyor would enable searches for signs of habitability and life on nearby exoplanets and will be evaluated by the 2020 Decadal Survey.

3:30 p.m. Turnbull M. C. * Kane S. Merrelli A. L'Ecuyer T.
[WFIRST Exoplanet Coronagraph and Starshade: Prospects for Detecting and Constraining the Properties of Nearby Habitable Worlds](#) [#3743]
Status update on the WFIRST Exoplanet Coronagraph/Starshade mission, and its expected capability for discovering and characterizing nearby exo-Earths.

3:45 p.m. *Coffee Break*