

Wednesday, February 28, 2018
ASTROPHYSICS:
LOW FREQUENCY TELESCOPE AND SURFACE TELEROBOTICS
10:00 a.m. Aspen Meeting Room

Chair: Jennifer Heldmann

- 10:00 a.m. Burns J. O. * Fong T. Kring D. A. Hopkins J. B.
[*Space Science and Exploration on the Lunar Farside Facilitated by Surface Telerobotics from the Deep Space Gateway*](#) [#3004]
We discuss how surface telerobotics from the Deep Space Gateway can be used to collect geological samples from the Moon's far-side and deploy a low frequency radio telescope to study the unexplored Cosmic Dawn epoch of the early universe.
- 10:15 a.m. MacDowall R. J. * Farrell W. M. Burns J. O.
[*Importance of a Low Radio Frequency Interference Environment for the DSG*](#) [#3165]
The Deep Space Gateway (DSG) can serve radio astronomy in a variety of ways. Thus, it is important that DSG electronics, transmitters, and the instruments located on the DSG avoid contaminating the radio-quiet environment of the lunar far-side.
- 10:30 a.m. Monsalve R. A. * Burns J. O. Tauscher K. Rapetti D.
[*Telerobotic Deployment and Operation of a Lunar Farside Low Radio Frequency Cosmology Telescope from the Deep Space Gateway*](#) [#3109]
The Deep Space Gateway represents a unique opportunity to enable cosmological observations of the redshifted 21-cm line from the Lunar Farside, which emitted hydrogen gas during the formation of the first galaxies in the universe.
- 10:45 a.m. Rapetti D. * Tauscher K. Burns J. O. Switzer E. Mirocha J. Furlanetto S. Monsalve R.
[*Hydrogen Cosmology from the Deep Space Gateway: Data Analysis Pipeline for Low-Frequency Radio Telescopes*](#) [#3087]
The Deep Space Gateway will provide a unique opportunity for low-frequency radio telescopes shielded by the Moon to study the unexplored Cosmic Dawn, which our novel pipeline is able to constrain by extracting the spectrum of a neutral hydrogen line.
- 11:00 a.m. Bowman J. D. * Hallinan G. W. MacDowall R. J. Burns J. O.
[*Lunar Farside Radio Array Pathfinder Enabled by the Deep Space Gateway*](#) [#3129]
Two pressing questions in astrophysics and heliophysics can be addressed by a radio array on the lunar farside enabled by the Deep Space Gateway: 1) what is the habitability of exoplanets? and 2) how are energetic particles accelerated in solar bursts?
- 11:15 a.m. DISCUSSION