

**Thursday, October 22, 2015**  
**ADVANCED CONCEPTS**  
**2:55 p.m. USRA Conference Center**

*Advanced lunar exploration/science concepts, including mission design and instrumentation, are presented.*

**Chairs: Brad Jolliff**  
**Clive Neal**

- 2:55 p.m. Zacny K. \* Nagihara S. Hedlund M. Fitzgerald Z.  
[Percussive and Pneumatic Heat Flow Probe Developments for Lunar Landers](#) [#2015]  
 We report results from development and testing of two approaches to heat flow probes deployment on the Moon: percussive and pneumatic.
- 3:10 p.m. Carroll K. A. \* Hatch D. Ghent R. Stanley S. Urbancic N. Williamson M. C.  
 Garry W. B. Talwani M.  
[Near-Term Lunar Surface Gravimetry Science Opportunities](#) [#2036]  
 Three near-term mission opportunities are discussed for lunar surface gravity surveys, employing a 1 milliGal repeatability planetary surface gravimeter (VEGA). For each mission, the scientific and/or resource exploration objectives are discussed.
- 3:25 p.m. Fouch M. J. \* Yu H. Dai L. Plescia J. B. Barnouin O. S. Garnero E. J. Schmerr N.  
 Strohhahn K. Liang M. West J. D.  
[Development of a Next-Generation Microseismometer System for a Lunar Geophysical Network Mission](#) [#2072]  
 We are developing a next-generation seismic system for deployment and operation in the lunar environment. Ongoing testing will bring the entire system to TRL 5, providing a low-risk seismic system for the Lunar Geophysical Network mission.
- 3:40 p.m. Jolliff B. L. \* Shearer C. K. Petro N. E. Papanastassiou D. A. Liu Y. Alkalai L.  
[Science Rationale for South Pole-Aitken Basin Locations for Sample Return](#) [#2077]  
 Analysis of samples from South Pole-Aitken Basin will change our understanding of the early evolution of the lunar crust, the bombardment history of the inner solar system, and the volcanic and magmatic history of the Moon.
- 3:55 p.m. Anderson F. S. \* Draper D. Christensen P. R. Olansen J. Devolites J. Harris W.  
 Whitaker T. J. Levine J.  
[Deciphering Solar System Chronology with Lunar In-situ Dating: The MARE Discovery Mission](#) [#2034]  
 We have proposed a discovery mission called the Moon Age and Regolith Explorer (MARE) that will land southwest of the Aristarchus Plateau, providing new measurements of age and petrology, addressing major questions of lunar and solar system chronology.
- 4:10 p.m. MacDowall R. J. \* Lazio T. J. W. Burns J. O.  
[Low Frequency Radio Astronomy from the Lunar Surface](#) [#2075]  
 A low frequency lunar radio observatory is a desirable scientific investment. The stable surface offers advantages for antenna array deployment to image radio emission using aperture synthesis. A far-side array avoids terrestrial radio interference.

**MEETING WRAP-UP**

*Discussion and summary of the meeting results.*

- 4:25 p.m. Neal, C. \*  
*Meeting Summary, Action Items, Findings*