Preliminary Imagines for the Planning and Its Scientific Objectives of China’s Lunar Research Station

Preliminary imagines for the planning of China’s lunar research station on the Moon’s south pole by way of implementation of the 3–4 missions during the period of 2020–2030.

Lunar Compass can address key planetary science topics including planetary magnetism, space plasma physics, geology, space weathering, and the lunar water cycle.

This talk provides an overview of the Resource Prospector site analysis, process, data products, and tools used to select a site and mission planning.

Water-doped cryogenic lunar simulant Near-IR H₂O ice band depths exhibit exponential decay after percussive activity, enabling sublimation time-scale estimation.

L-DART is a proposed penetrator mission to measure volatiles, thermal, and geotechnical properties, and obtain images within lunar permanently shadowed regions.

Lunar Recycler / Bringing samples from the Moon / Again and again.

We are in the process of developing and testing prototypes for compact, low-cost in situ lunar geophysical or environmental measurement packages.

This work provides the background, the rationales, and the scientific objectives for the ispace Roving Spectrometer project, a lunar ISRU exploratory mission.
Sefton-Nash E. Carpenter J. D. Fisackerly R. Trautner R. ESA Lunar Exploration Team et al. POSTER LOCATION #641
PROSPECT: ESA’s Package for Resource Observation and In-Situ Prospecting for Exploration, Commercial Exploitation, and Transportation [#2740]
PROSPECT is a drill and sample analysis payload in development by ESA for international lunar exploration missions, including Russia’s Luna-27.

Barber S. J. Wright I. P. Abernethy F. Anand M. Dewar K. R. et al. POSTER LOCATION #642
ProSPA: Analysis of Lunar Polar Volatiles and ISRU Demonstration on the Moon [#2172]
ProSPA is a miniature chemical analysis laboratory to investigate lunar polar volatiles as part of the Roscosmos-ESA Luna-27 mission in 2022.

Wimmer-Schweingruber R. F. Zhang S. Hellweg C. E. Yu J. Guo J. et al. POSTER LOCATION #643
The Lunar Lander Neutron and Dosimetry (LND) Experiment on Chang’e4 [#1413]
Chang’e4 is scheduled to launch to the far side of the Moon in December 2018. LND will measure the radiation environment in preparation of human exploration.

Cohen B. A. Petro N. E. Lawrence S. J. Clegg S. M. Denevi B. W. et al. POSTER LOCATION #644
Curie: Constraining Solar System Bombardment Using In Situ Radiometric Dating [#1029]
The Curie mission would constrain solar system bombardment history by conducting in situ dating of samples of the impact melt of a major pre-Imbrium basin.

Tazi K. Warren T. J. Bowles N. POSTER LOCATION #645
A Goniometer Light Source Design for Evaluating Three-Dimensional Thermal Infrared Emission from Lunar and Asteroid Analogue Regolith Samples [#2013]
Improvements made to the Oxford Space Environment Goniometer in order to measure anisotropic re-radiation for airless body samples.

Teodoro L. Elphic R. Colaprete A. Roush T. Kleinhenz J. E. et al. POSTER LOCATION #646
Modeling of Volatiles Loss During Lunar Resource Prospector Mission Sample Acquisition [#1894]
We present the numerical results of large scale molecular simulations of water molecules during Resource Prospector sample acquisition.

Song W. Li F. Panning M. Kedar S. Weber R. et al. POSTER LOCATION #647
Planetary Subsurface Exploration with Smart Seismic Networks [#1629]
We design a smart seismic network that can enable future science mission for high-resolution planetary subsurface exploration.