

IAF SPACE EXPLORATION SYMPOSIUM (A3)  
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A NOVEL TOOL FOR FACILITATING MINERAL HARDNESS ASSESSMENT ON LUNAR SURFACE  
EVA

**Abstract**

Geology figured prominently in the Apollo surface EVAs. With the international community's current plans to return to the Moon to establish permanent surface operations, it is reasonable to expect that geological EVAs will expand and evolve based on the work accomplished during the Apollo era. While the principles of geological sampling on Lunar EVA remain relatively unchanged compared to Earth, the logistics and ergonomics of geologic tool use figure prominently in tool design. Tools must be adapted to both the Lunar environment, as well as for use by a subject in an EVA suit. In this presentation, we describe a novel Mohs hardness tool designed for use in an EVA suit while on a lunar surface EVA, as well as design considerations, testing, and future considerations.