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Name: Takashi Matsushima

Affiliation: University of Tsukuba

email: tmatsu@kz.tsukuba.ac.jp

Title: Micro geomechanics of Lunar soil

Abstract:

In recent years, lunar exploration has been gradually classified as higher priority among other space exploration programs in various countries. In particular, manned or unmanned landing exploration on the moon requires evaluating physical and mechanical properties of lunar surface soils in advance. Although their grain properties are roughly available from NASA database on Apollo project and the related works, our knowledge on their mechanical properties is quite limited. In such circumstances, micro geomechanics approach which relates soil grain properties to bulk mechanical properties plays a very important role. We have explored so far the microscopic observation of Apollo retrieved samples, image-based numerical simulation using Discrete Element Method, and some micromechanical tests of lunar soil simulant, FJS-1 [1-4]. In this presentation, we integrate our current knowledge to derive new insights and future perspective on the lunar soil micromechanics.

References:

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