

SPACE EXPLORATION SYMPOSIUM (A3)
Small Bodies Missions and Technologies (Part 1) (4A)

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KEYNOTE: TECHNOLOGY NEEDS FOR EXPLOITING ASTEROID RESOURCES

Abstract

There are numerous studies indicating potential value of Space Mineral Resources on Asteroids of various types. Before one can make a reasonable assessment of the risk-value proposition, prospecting must be accomplished. Presently, the primary means used are remote sensing, and there have been a few probes to asteroids and comets. Given the number of asteroids, sending probes seems to be very costly, however, remote sensing provides primarily topographic data, in-depth information requires a more intimate interaction. Once a rough assay is performed, sample returns may be required. Handling samples in zero or micro gravity conditions presents some challenges. Extraction of material similarly represents challenges in zero or micro g situations, as most excavation equipment is designed to work under gravity. The talk will present some concepts and thoughts for addressing these important issues.