

SPACE EXPLORATION SYMPOSIUM (A3)  
Moon Exploration – Part 2 (2B)

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INTRODUCTION OF INTERNATIONAL SPACE EXPLORATION RESEARCH INSTITUTE  
ACTIVITIES IN KOREA**Abstract**

Space agencies including NASA, JAXA, CSA has a vision for lunar surface exploration. Korea is also on the initiate stage of lunar exploration, planning programs in 2020s starting with lunar orbiter, lander, and missions with sample returns. To prepare the expected Korean missions and to participate international collaboration on lunar surface exploration, Hanyang University recently established International Space Exploration Research Institute (ISERI). Participating organizations are Honeybee Robotics of U.S.A., Korea Aerospace Research Institute, Research Institute of Industrial Science and Technology, Korea Institute of Industrial Technology, and Gyeonggi Provincial Government. The institute is sponsored by the Ministry of Education, Science, and Technology to establish Global Research and Development Center. Also, ISERI is planning to co-research with Pacific International Space Center for Exploration Systems (PISCES) for lunar development.

One of the key issues for a successful long term unmanned/manned mission is using on-the-spot resources as there is a limit on cost and volume sending resource from Earth to Moon. In-Situ Resource Utilization (ISRU) is a core component of space exploration which establishes, evaluate and assess the in situ resources available on the Moon and Mars and the technologies needed to utilize and exploit these resources. Therefore the overall goal of the institute is to design and build a small, light multitasking robot system (Extra-Terrestrial Demonstration System; ETDS) to perform, in-situ experiments which will be compared with the terrestrial analog testing results to build a simulation model for required techniques.

ISERI is recently focusing on Extreme Terrain Exploration Rover, Planetary Drilling and Anchoring System, Waterless Lunar Concrete, Korea Lunar Simulant KOHLS-1, and etc. Furthermore, ISERI has its eye set on future research fields which includes studies regarding automated construction system for lunar development and construction. Following activities and details will be present on the upcoming 2013 IAC.