

Advanced Probes for Surface and Subsurface Exploration

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In Japan new lunar or planetary exploration missions including landers and rovers are earnestly under study. Those missions will follow up a lunar global remote sensing mission, KAGUYA. One of main missions for lunar robotics exploration in post SELENE missions is to demonstrate the technologies for lunar or planetary surface exploration and human activities on the moon in the near future. They will cover pin-point landing technology, reliable landing scheme with obstacle avoidance, safe landing mechanism on rough terrain, exploration rover, tele-science and tele-operation technology, automated construction etc. The working group was also established in 2008 in Japan to study Japanese Mars exploration. In the preliminary study, two orbiters and some landers cooperatively explore Mars. Some explorers, such as surface exploration rovers, wide area exploration by airplanes, subsurface exploration by mole type robots are also under study.

The rover R&D group in Japan developed innovative experimental robots for surface and subsurface exploration. In this workshop, a newly developed robot for digging surface is introduced. And also a novel robot with screw mechanism is shown for surface and subsurface exploration.