Future Scope of Robotic Technologies for Mars Landing Exploration

（火星着陸探査 RG に求められるロボティクス技術とその将来像）

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ABSTRACT

In the last half century, seven rovers have been deployed on the Moon or the Mars and have explored the surface of the planetary bodies. In particular, the mars exploration rovers have been the primary and important tools to achieve scientific missions with pursing in-situ observation and analysis. This presentation first reviews the technological highlights of the previous mars rovers. The mission scope of a future mars exploration rover by a working group for the Japanese Mars exploration is also presented with lessons learned obtained during the rover design. Based on the above reviews and lessons learned, possible future scope for a Japanese rover is introduced with taking both engineering and scientific aspects into account. A basic idea for the scope introduced in this presentation is to cooperate a high-reliable classical rover with novel and challenging sub-rovers that realizes a three-dimensional exploration: a tether-guided small robot for cliff exploration or special apparatuses for subsurface exploration such as drill, coring, or auger.