

Poster Session (P)

Poster Lunch (1)

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PRELIMINARY DESIGN OF MANNED LUNAR EXPLORATION MISSION BASED ON HUMAN-ROBOT COMBINATION

Abstract

Human is good at autonomous judgment and handling of complicated situation, while robot is good at executing repeated, dangerous task and accurate operation. Human-Robot combination could promote effective of manned lunar exploration remarkably. The mission proposed in the paper can support short-term lunar exploration with 4 astronauts, which is undertaken by four steps. Lunar surface landing site construction done without human in the earlier steps, while segments docking, lunar surface project construction, and lunar reconnaissance is completed with astronauts on site. Modes of human-robot combination include earth ground remote control, lunar surface remote control inside cabin, and astronaut operation on site. Robots operated by human are unmanned lunar rover, unsealed manned lunar rover, lunar surface machine, and movable manned lunar lander, etc. The mission will be undertaken step by step from unmanned to manned, from frastructure construction to astronaut exploration, from large scope exploration to some key area reconnaissance, and power supply based nuclear could lay the foundation for middle and long-term lunar exploration mission in the future.