

19th IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)Systems and Infrastructures to Implement Sustainable Space Development and Settlement - Technologies
(2B)

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MOONPORT: A COST-EFFECTIVE TRANSPORT SOLUTION FOR CISLUNAR SPACE

Abstract

Expanding constellations of satellites, plans for human exploration of the Moon and Mars, and more ambitious space exploration missions around the solar system require new approaches. Participants of the International Space University's 34th Space Studies Program (SSP21), produced a Team Project Report focused on orbit mobility and manipulation of spacecraft. Spacecraft manoeuvrability and manipulation requires progress in multiple areas including space policy, economics and law; spacecraft engineering; space business; and space science. Advancements in these areas will enable technological infrastructures for missions beyond low Earth orbit, increased public interest, more timely interplanetary missions, improvement of economic drivers, and rapid scaling of scientific discoveries in pursuit of human solar system settlement. Current frameworks for manoeuvring and manipulating objects in space rely on electrical and chemical propulsion methods which are largely outdated. Advanced concepts that exist are limited by risk averse political and legal structures that confine research and development. These concepts are also funded by limited resources, largely dependent on public interest and governmental support with few to no consumers of the systems individually. The students of the 34th space studies program present their work on addressing these issues and many others.