



HELIOS

In-Situ Resource Utilization

Enabling humankind to
“Live off the land”



Helios In-Situ Resource Utilization



VISION

Helios will create an autonomous self sustained ISRU (In-Situ Resource Utilization) system to source metals and Oxygen in order to build infrastructure on site for extraterrestrial colonization



The Space industry has set the goal to establish a permanent base on the moon in the next 20 years.

New Space Resources technologies are being developed to enable this great endeavour.

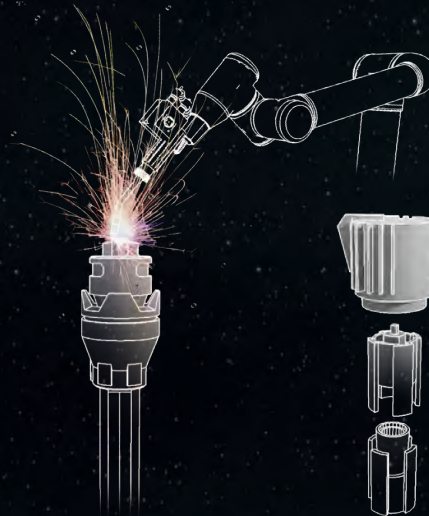
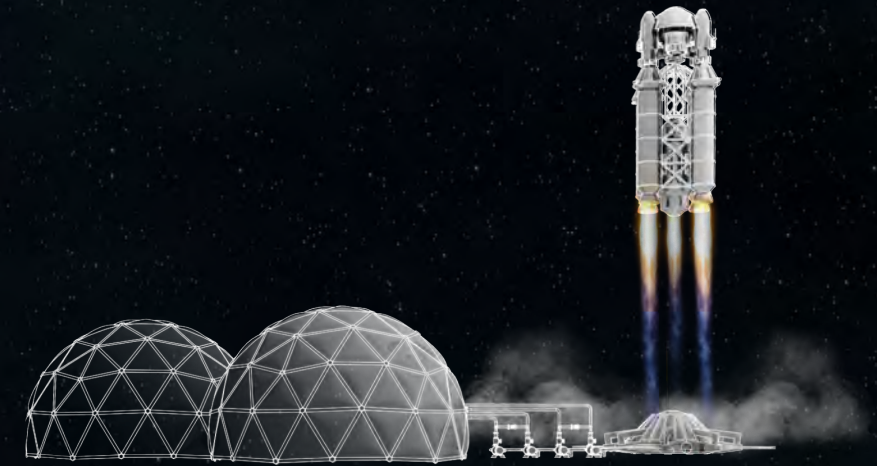


THE CHALLENGE

Sending materials from earth to the moon costs ~\$1M per 1 Kg, making the establishment of a permanent lunar base uneconomically viable.

THE SOLUTION

Extracting and utilizing raw materials from the lunar surface: Oxygen for propellant and life support and metals for construction. Doing so will enable a viable path to a lunar base.



3D printing
and welding



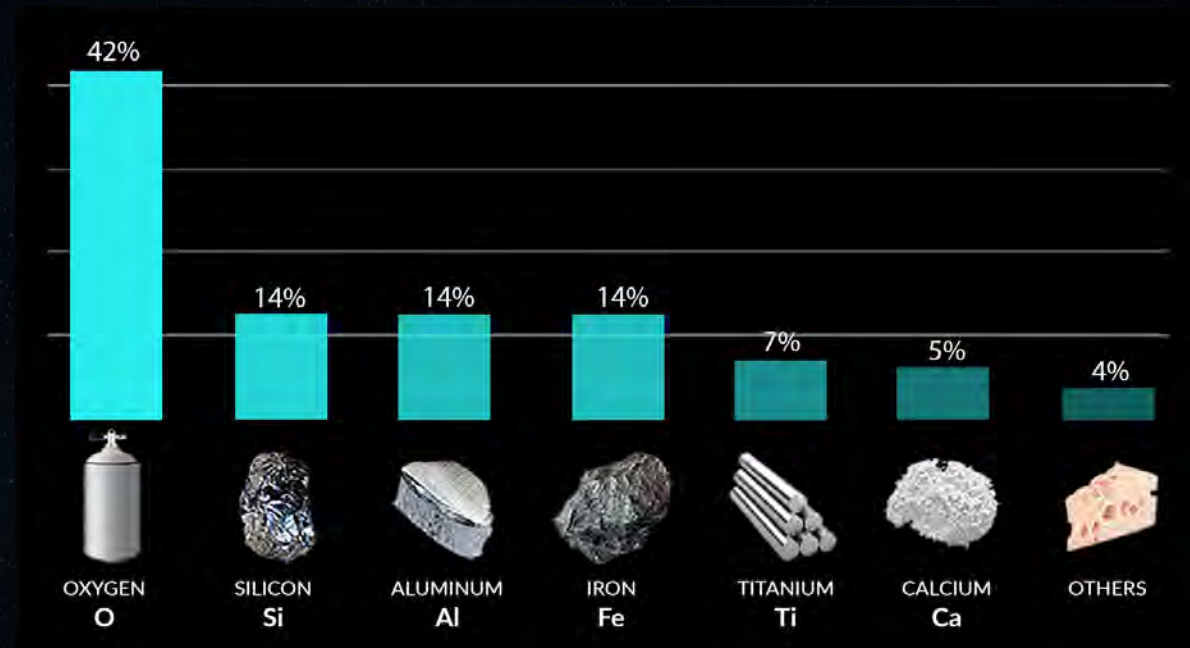
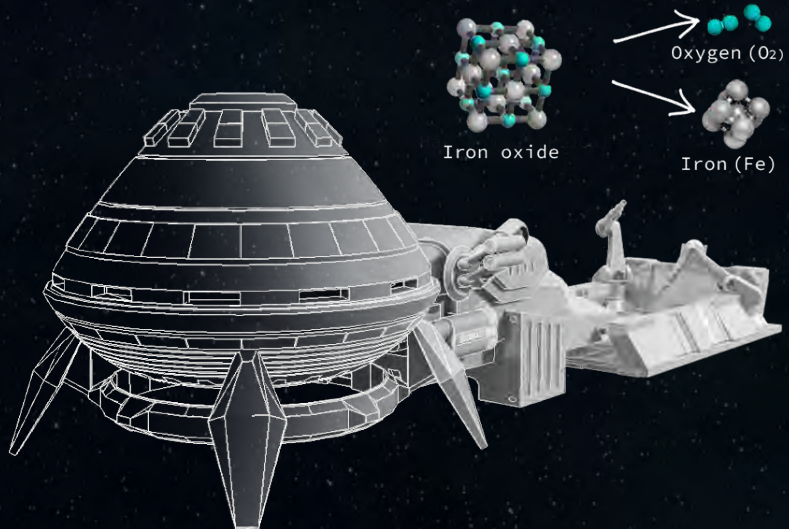
Using interlocking
parts



Casting into
amodular molds

THE SYSTEM

Molten Regolith Electrolysis
Collect the lunar soil, melt it in a crucible and electrolyze it to separate the Oxygen from the Iron, Silicon and other metals.



Mass percentage of various elements on the lunar surface
(High-Ti Mare areas)

EVENTS

- 19.07.18 – Helios project Ltd was registered in Israel.
- 07.03.19 – Helios was awarded a grant by Israel's Innovation Authority to reach proof of concept.
- 25.07.19 – Helios commenced a collaboration with Florida Space Institute and the Center for Lunar and Asteroid Surface Science (directed by Prof. Daniel Britt).
- 18.02.20 – Helios established a Florida based subsidiary to expand its collaboration with the US space industry.
- 20.02.20 – Helios filed a provisional patent on a novel approach to conduct MRE (molten regolith electrolysis).
- 05.03.20 – Helios established a new lab in Israel to develop and construct a small-scale prototype.
- 19.04.20 – Helios established a European consortium with Fraunhofer IKTS (Germany), Politecnico di Milano (Italy), Empa (Switzerland) and RISE (Sweden), to develop a holistic In-Situ Resource Utilization system.
- 20.08.20 – Helios successfully accomplished a series of experiments to prove the viability of its novel concept of electrodes, thus, moving forward with its patent to PCT.
- 01.12.20 – Helios was awarded a grant by Israel's Ministry of Energy to build a prototype to its terrestrial use.
- 06.12.20 – Helios filed a provisional patent on a novel method to produce silicon.
- 22.12.20 – Helios was awarded a grant by the Israeli Space Agency to develop a demonstrator payload to be sent to the Moon.

UPCOMING EVENTS

2021 Q2 – PoC publication

2021 Q2 – Terrestrial Use PoC

2021 Q3 – Field test demo

2022 Q2 – ISS demo

2023 Q2 – Lunar demo



Ad Astra!

