

Space Technologies

By Christopher Welch and Alex Harris



A detailed illustration of a rocket launch. The rocket is white with a black nose cone and a red band around its middle. It is angled upwards from the bottom left towards the top right. A large, bright orange and yellow flame and smoke plume is visible at the base of the rocket. The background shows the Earth's horizon with a blue sky and white clouds, transitioning into the blackness of space with visible stars.

Exploratory Technologies

- FIND RESOURCES
- NEW HOME PLANET
- SUPPLEMENTARY TECHNOLOGY
- MEASURE FROM DIFFERENT PERSPECTIVES

BREEZE

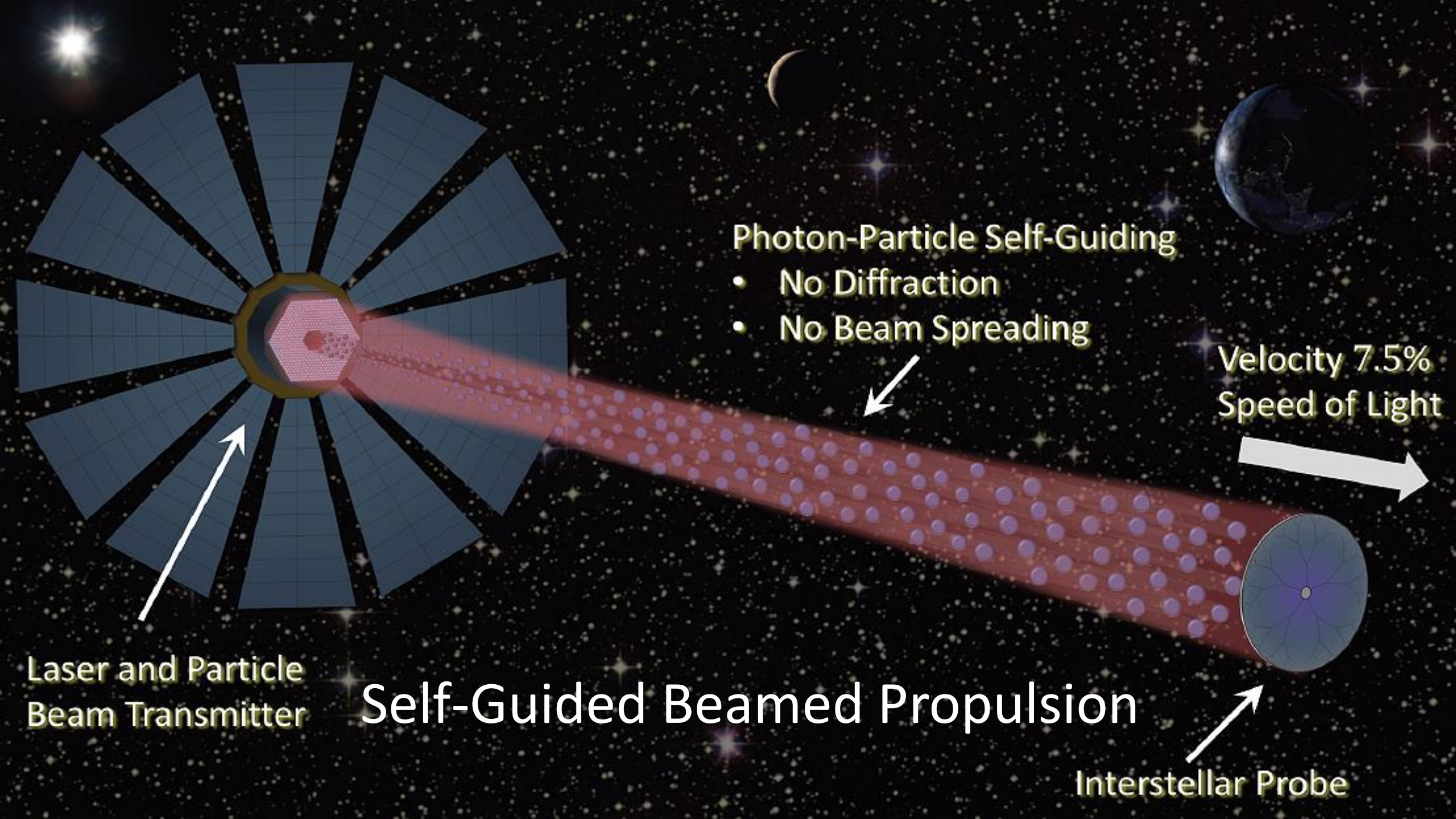




THE
MOST

SPEAR





Laser and Particle
Beam Transmitter

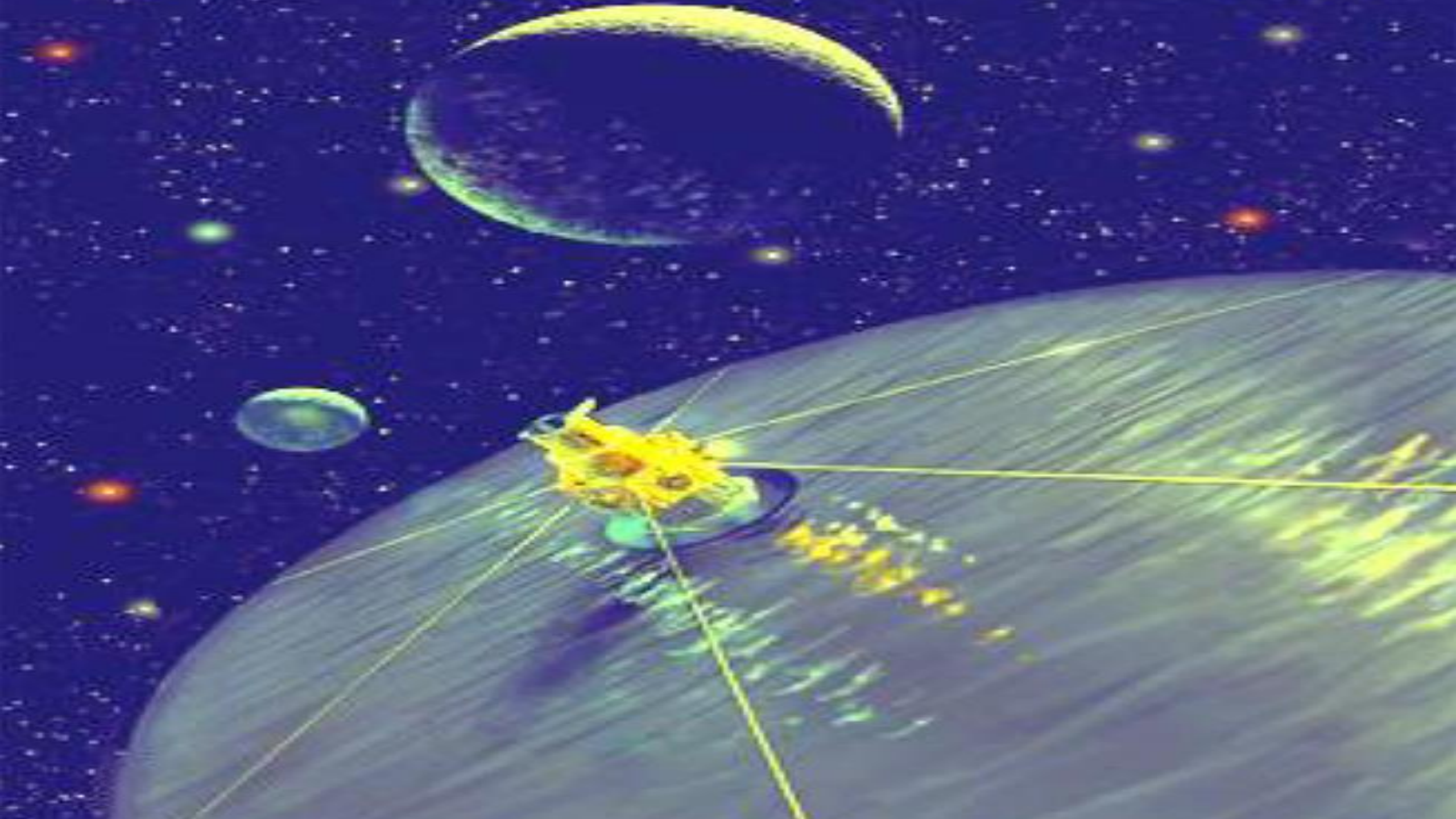
Self-Guided Beamed Propulsion

Interstellar Probe

Photon-Particle Self-Guiding

- No Diffraction
- No Beam Spreading

Velocity 7.5%
Speed of Light

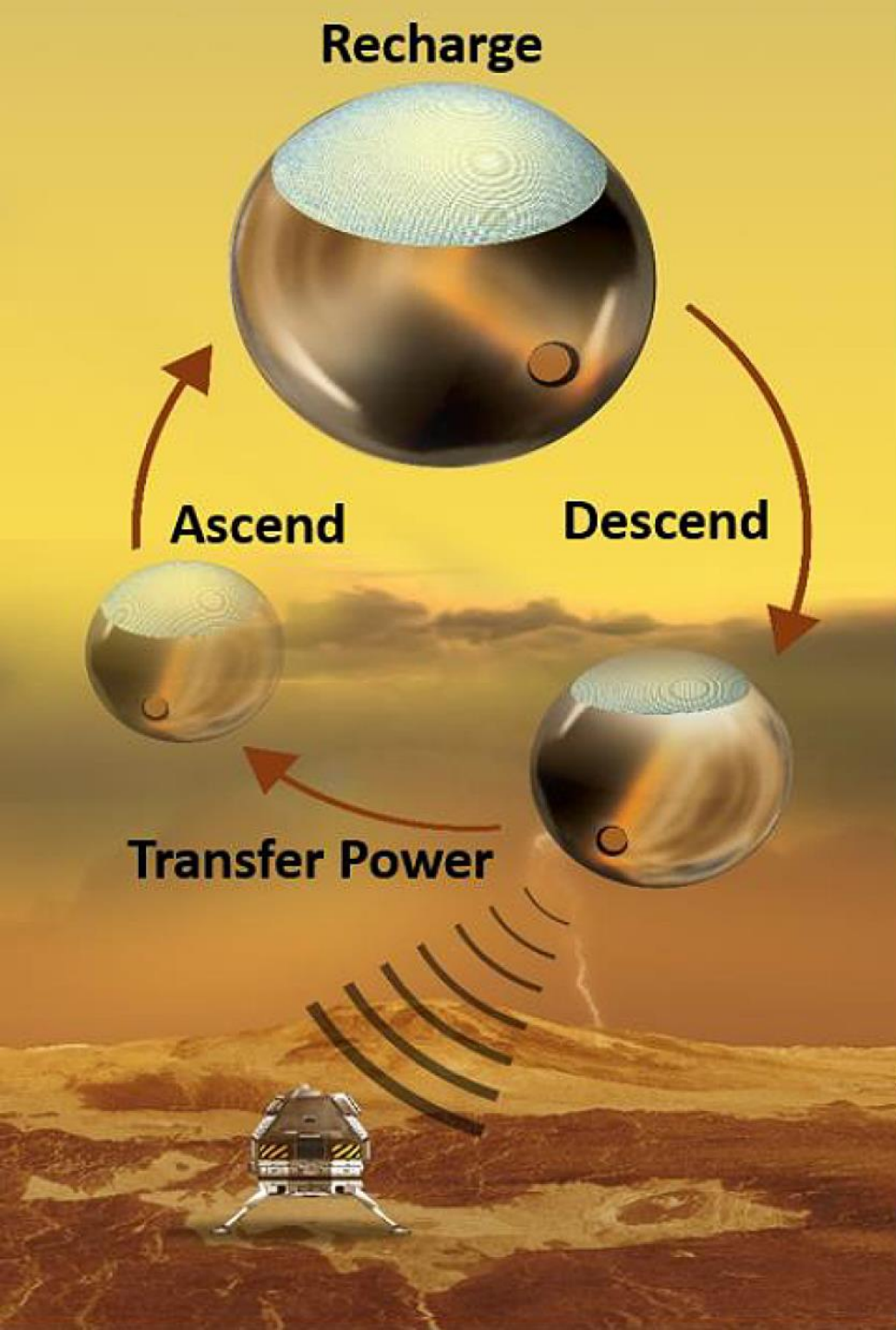




COLONIZATION TECHNOLOGIES

PROVIDING ENERGY / ADVANCED PPE

COLLECTING RESOURCES / PROTECTING A CIVILIZATION



Power Beaming for Long Life Venus Surface Missions

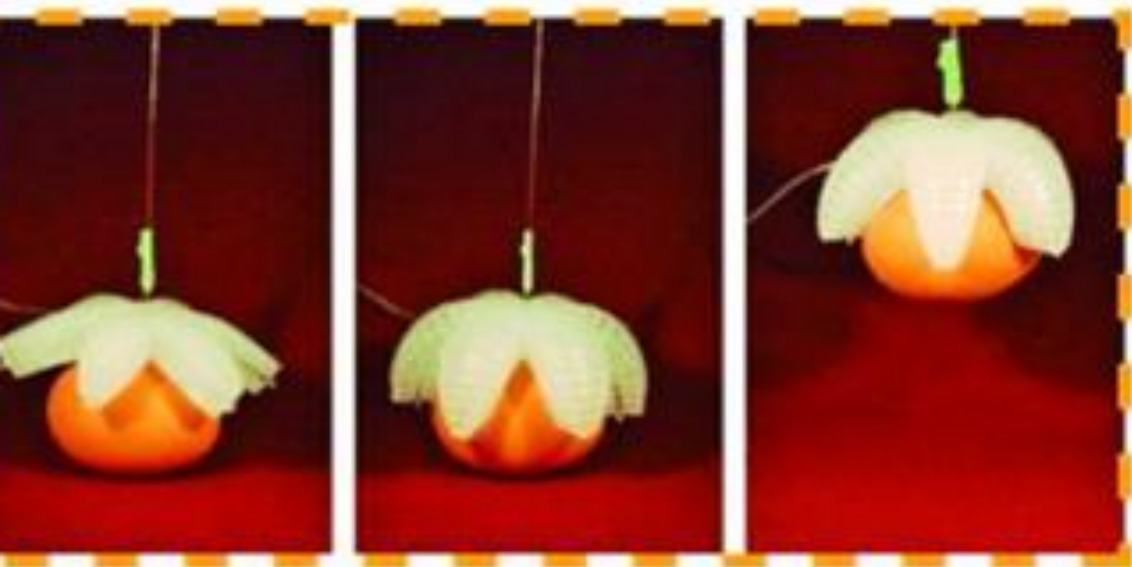
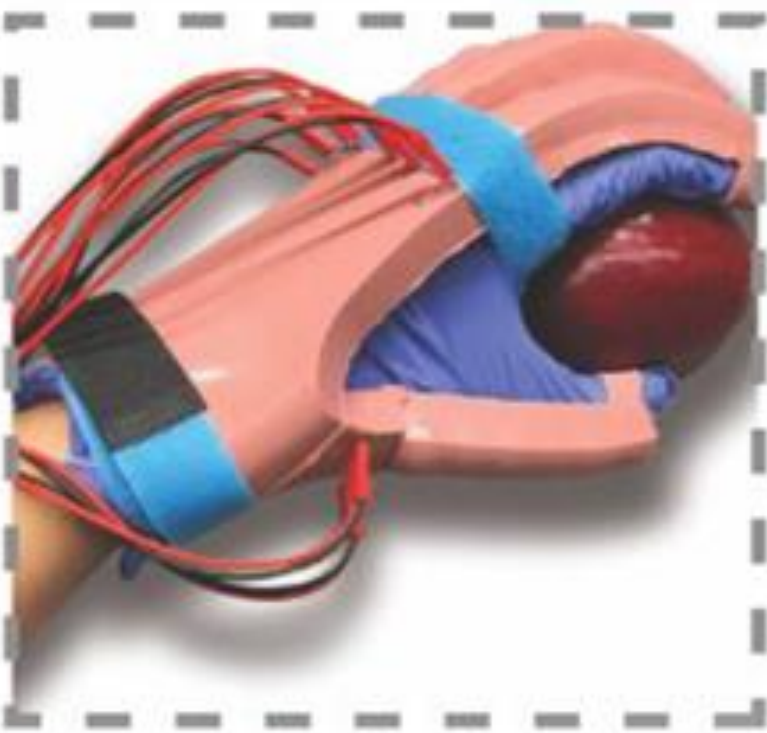


Diffraction LightSails

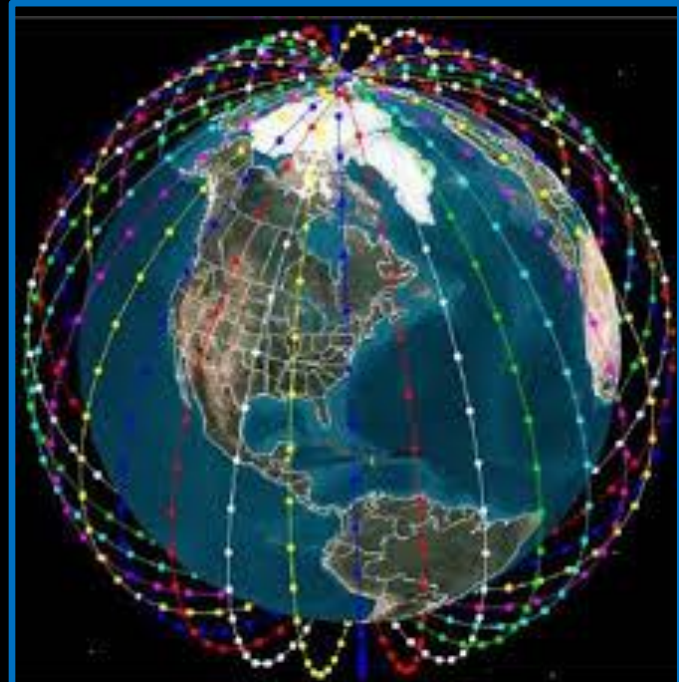


SmartSuit

for Mars
Missions



CHARON



^ Parabolic Arc of ^
Space Debris



1MT satellite
@950 km. alt.

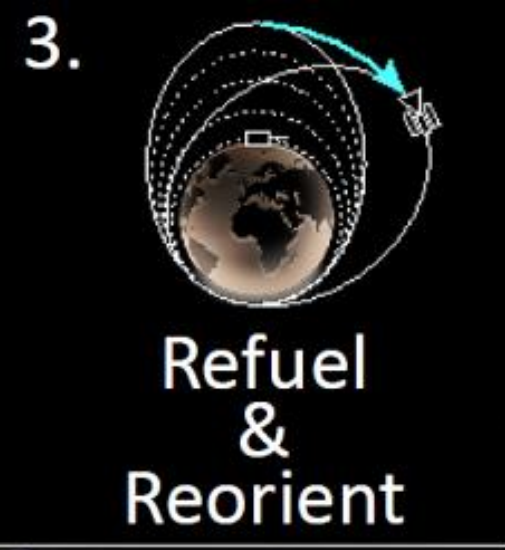
EP
thruster

compressor

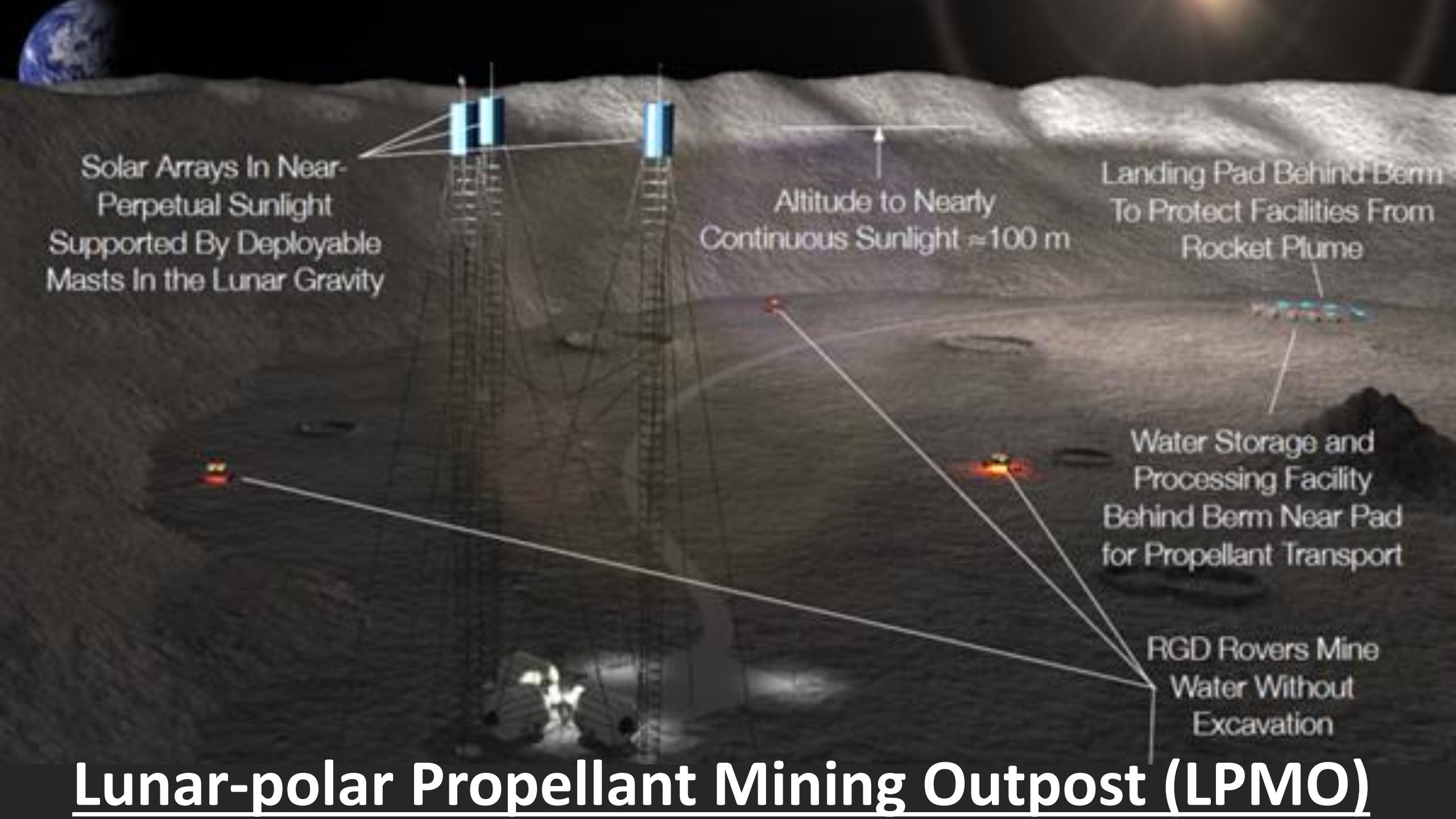
Solar
Panels
(5 kW)

storage
tank

tapered
"honeycomb"
scoop
($R = 1.8\text{m}$)



Crosscutting High Apogee Refueling Orbital Navigator



Solar Arrays In Near-Perpetual Sunlight
Supported By Deployable
Masts In the Lunar Gravity

Altitude to Nearly
Continuous Sunlight ≈ 100 m

Landing Pad Behind Berm
To Protect Facilities From
Rocket Plume

Water Storage and
Processing Facility
Behind Berm Near Pad
for Propellant Transport

RGD Rovers Mine
Water Without
Excavation

Lunar-polar Propellant Mining Outpost (LPMO)



Thermal Mining of Ices on Cold Solar System Bodies



From Space Stations to Colonies on other Planets....

Both Pictures are Concept Art from NASA

