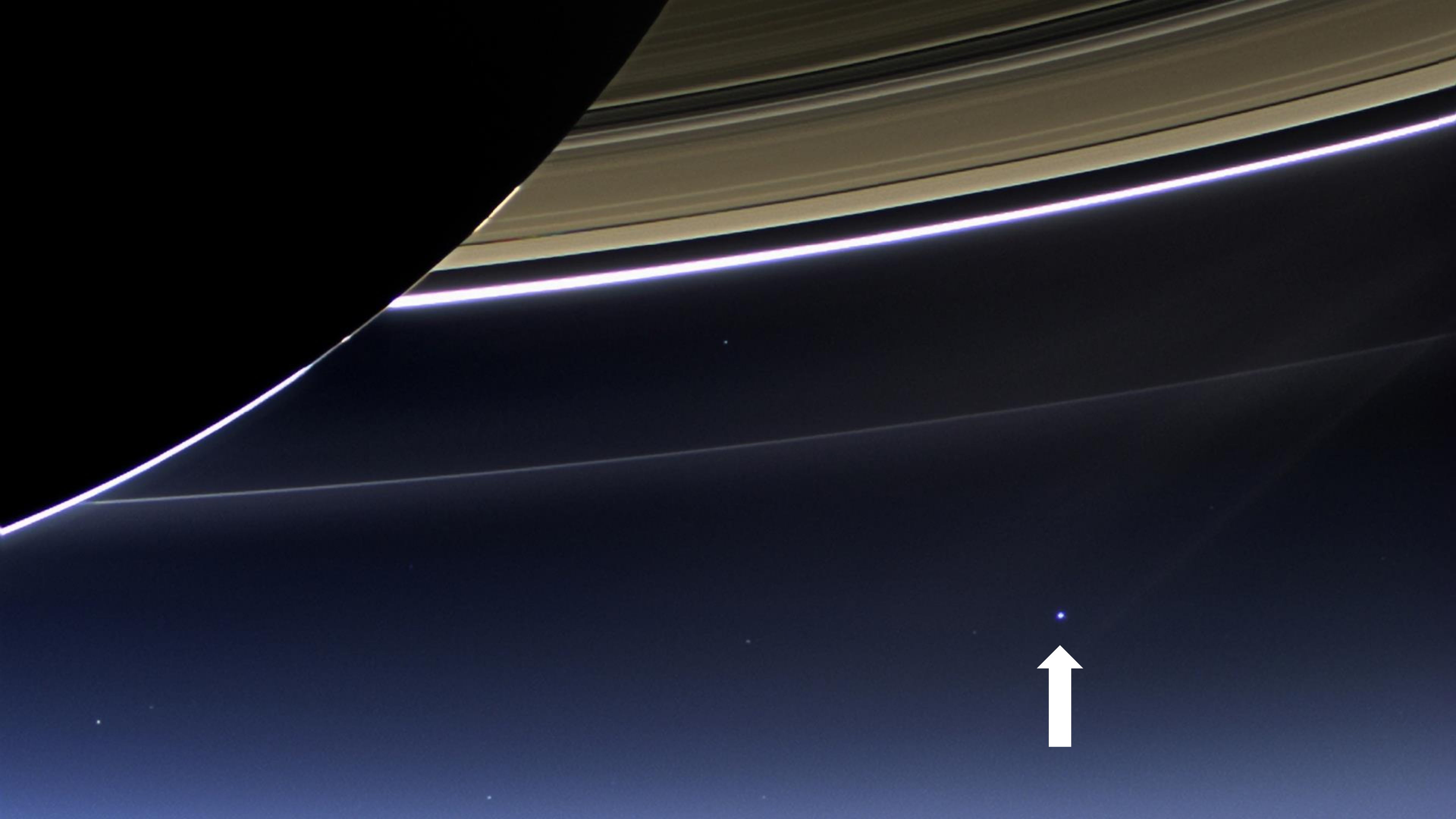
international & intercultural cooperation in spaceflight for capacity building

Dr. Matthias Maurer
ESA / EAC Köln



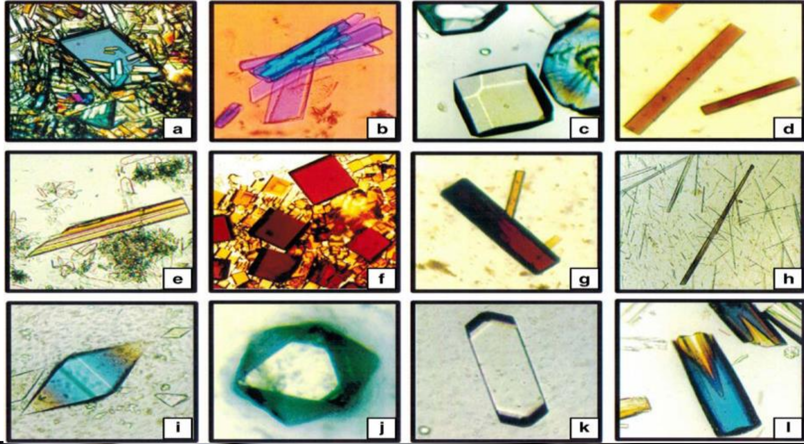

INTERNATIONAL
SPACE STATION ISS

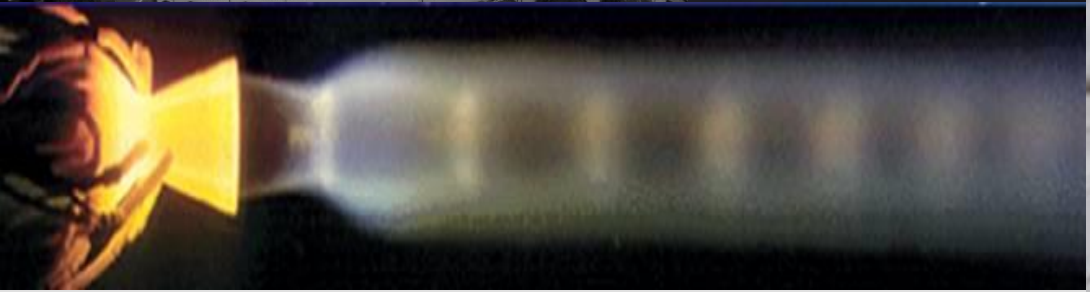
IKARUS

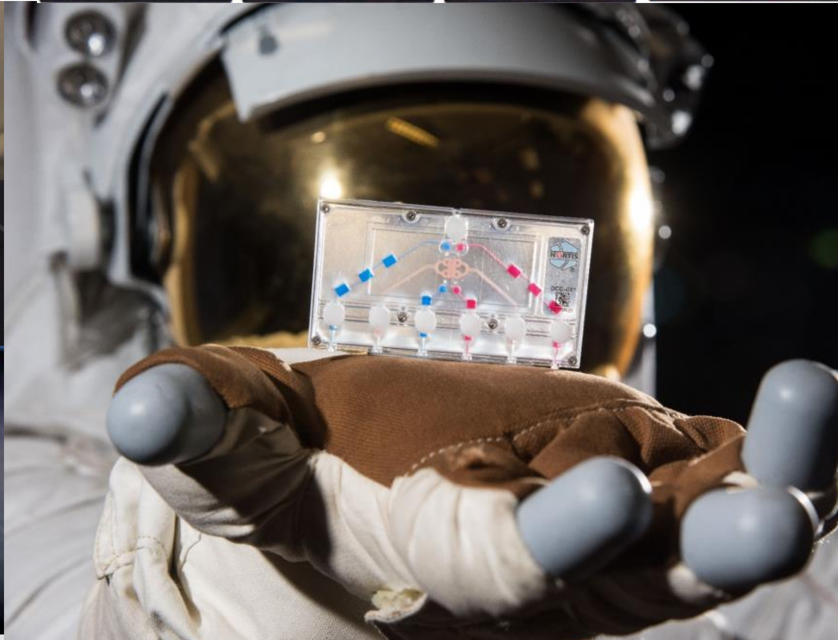
Max Planck Institut für Ornithologie in Radolfzell
DLR, Roskosmos, Russ. Akademie der Wissenschaften - Institut für Geographie

Key technologies for space

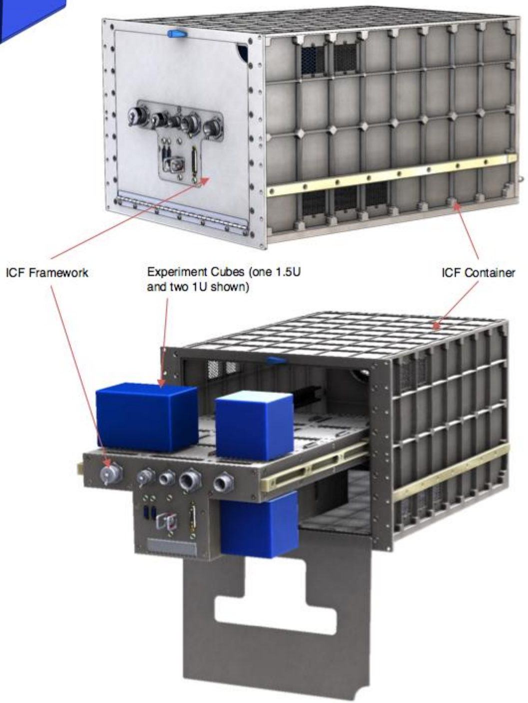
- Additive Manufacturing
- Space 4.0 – Internet of Things
- Artificial Intelligence
- Lab-on-chip https://youtu.be/8kLw0mKU6Zk
- Mikroelectronic Mechanical Systems (MEMS)

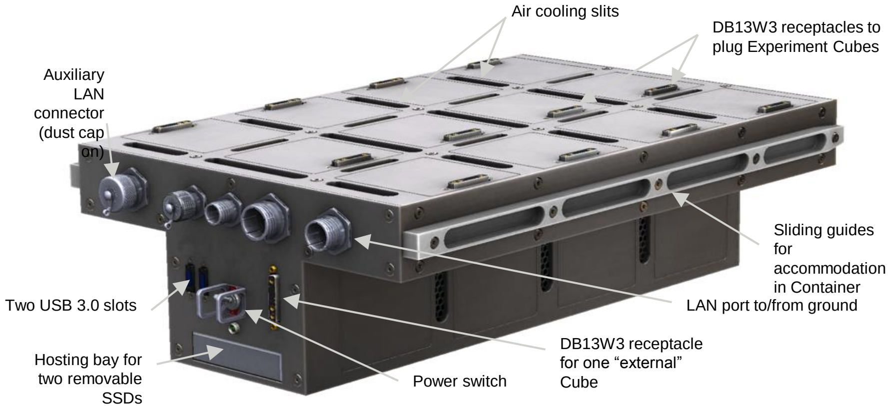




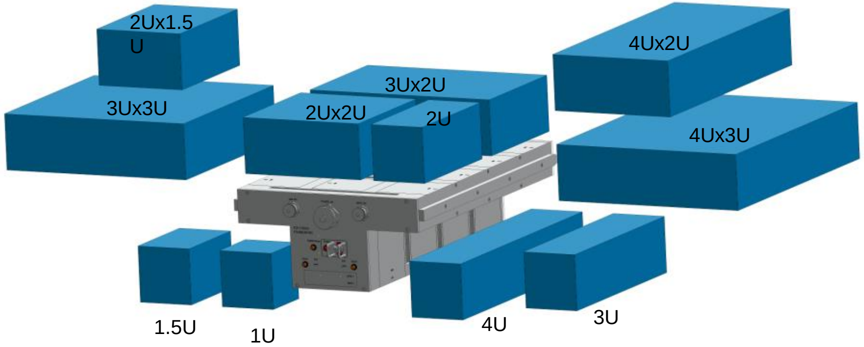


ICEcubes: “1l weightlessness”





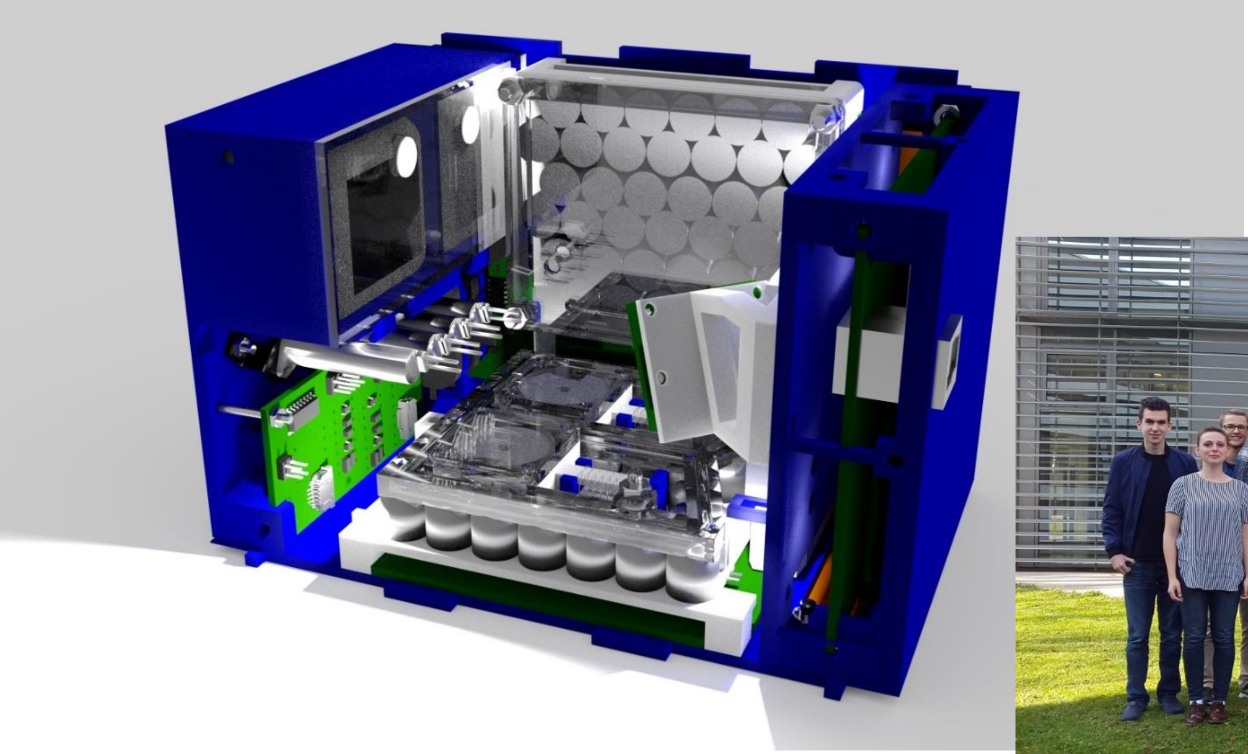
ICE Cubes Facility



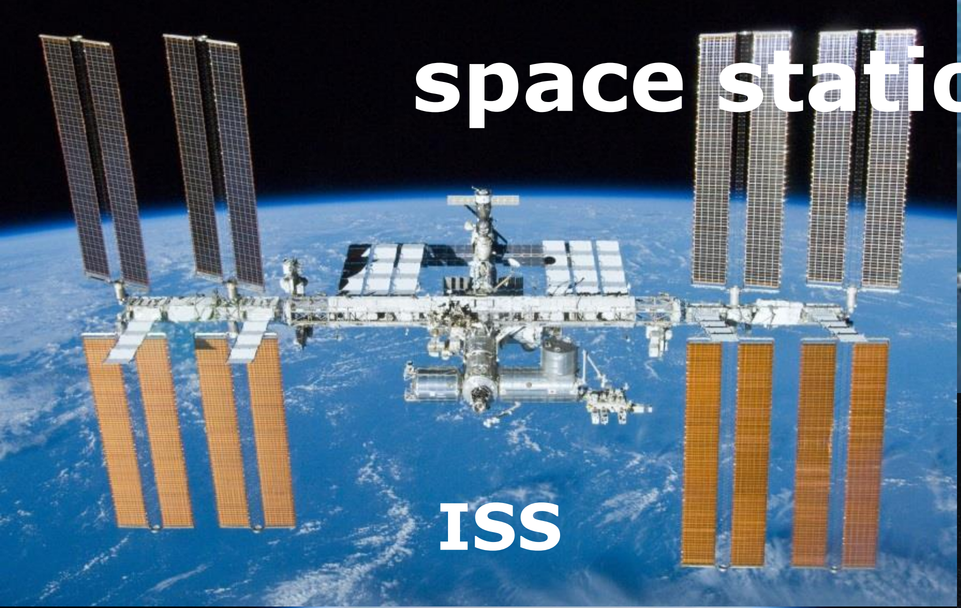
Additional external Wired Experiment Cubes + Wireless Experiment Cubes are possible

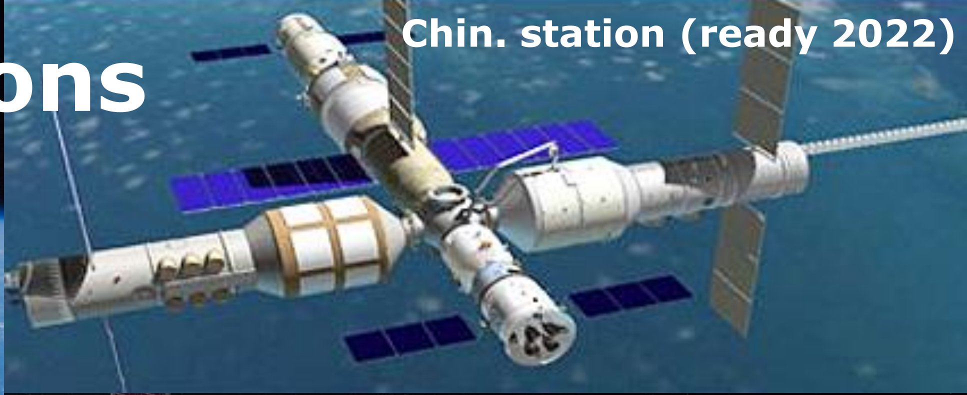
Student team on ISS:

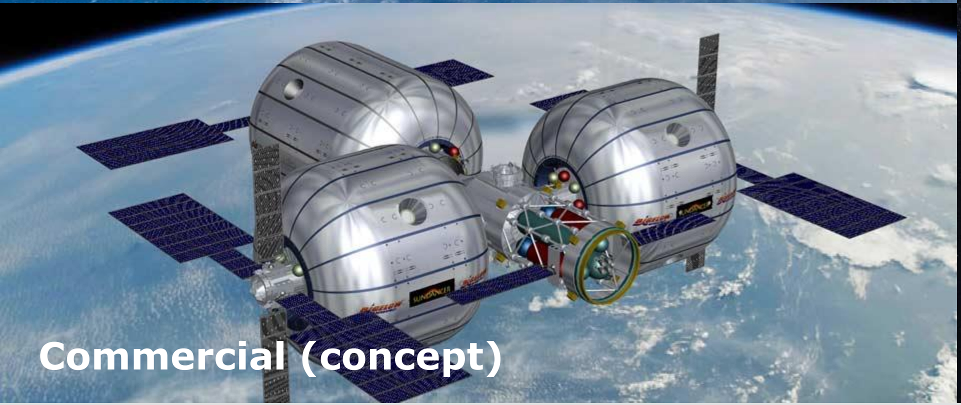
Magnetic fluids for modern pump technology



space stations



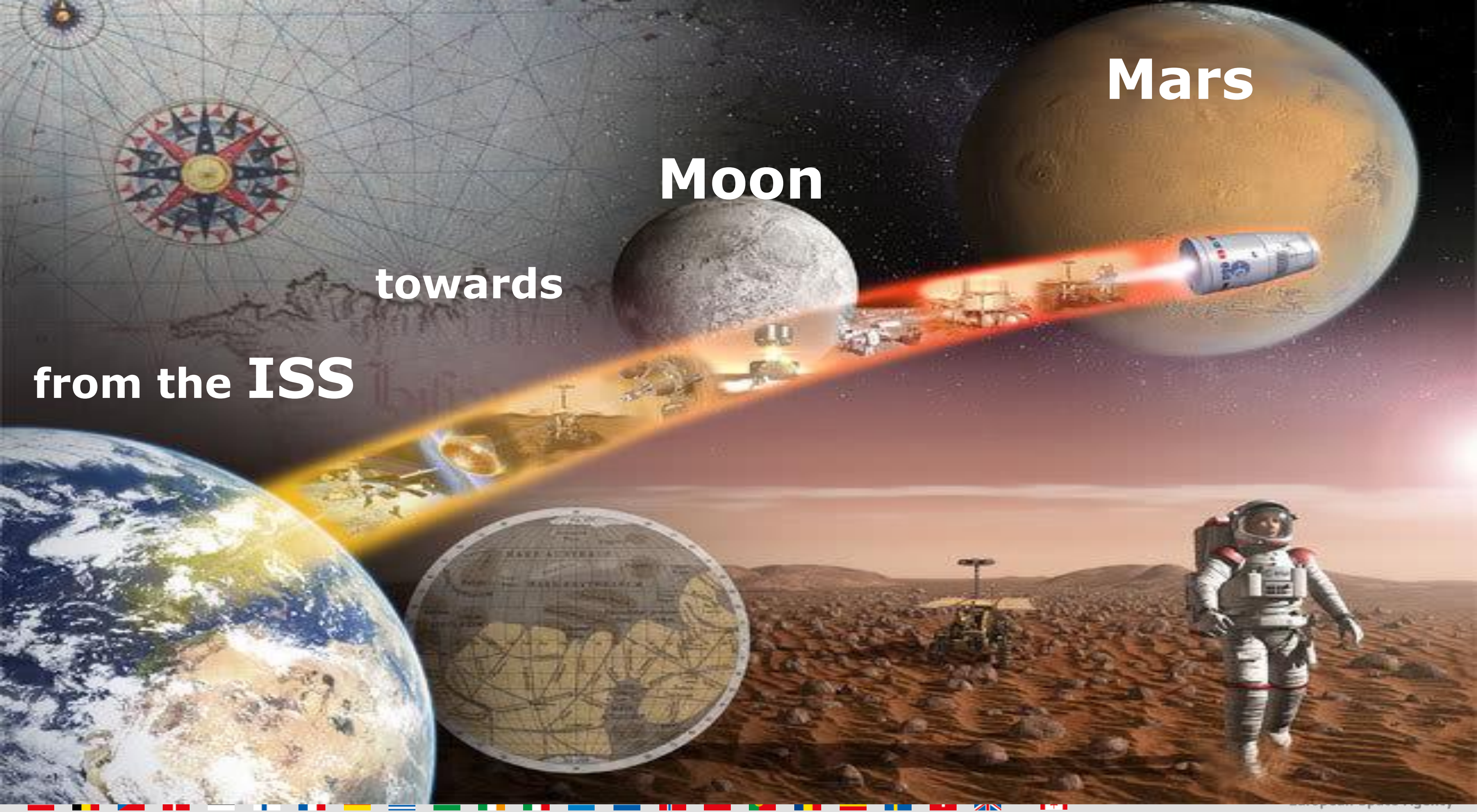





牢记“两个务必” 再创新的辉煌


Hello my dear friends of EAC


中国航天员中心
ASTRONAUT CENTER OF CHINA

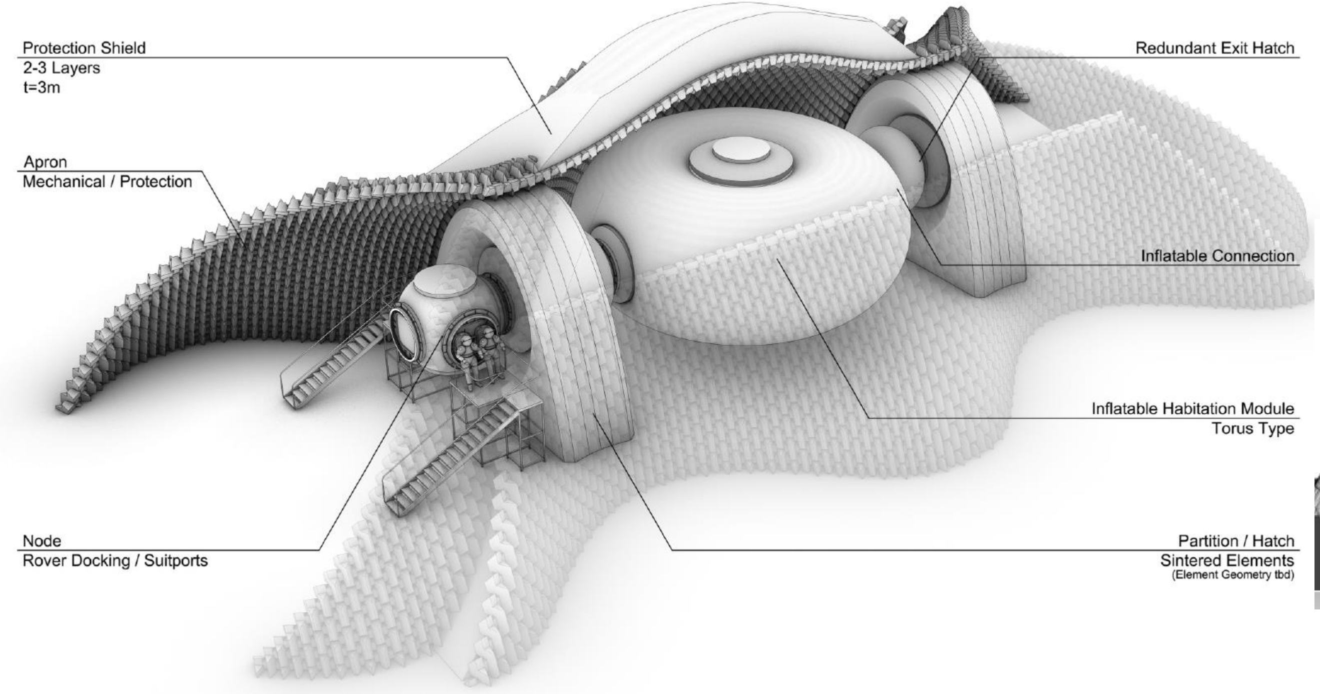

Mars
Moon
towards
from the ISS

How to prepare our international moon village?

Horizon 2020: RegoLight

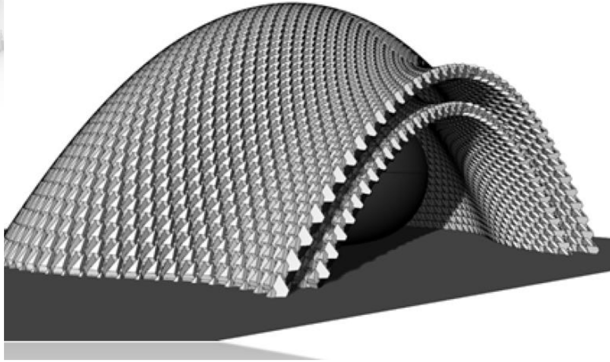
RegoLight: Habitat Scenarios

3D printing using sand + sun

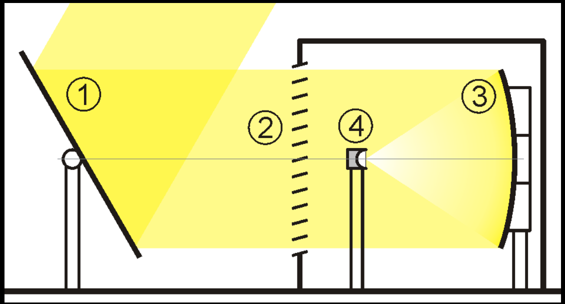


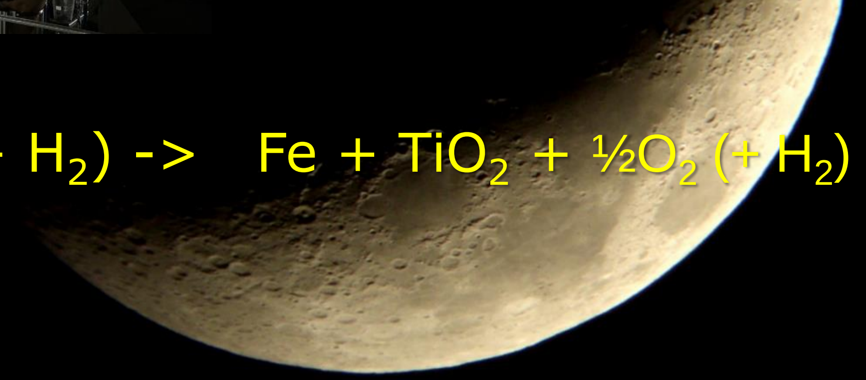
www.regolight.eu

DLR, Spaceapplication, Comex, Bollinger, Liquifer



Oresol: Oxygen on Moon from sand + sun





$$FeTiO_3 \ (+\ H_2) \ \text{->} \quad Fe + TiO_2 + ½O_2 \ (+\ H_2)$$

ref.: Thorsten Denk, Ciemat - Plataforma Solar de Almería; e-mail: tdenk@psa.es


We came in peace
for all mankind