

Exploration and Innovation - Interplanetary Missions – a new Human & Human Robot Flagship Project High for Power Space Transportation -

Hybrid INPPS Flagship Status

Dr. Frank Jansen et al. (!)

DLR Institute of Space Systems Bremen Germany



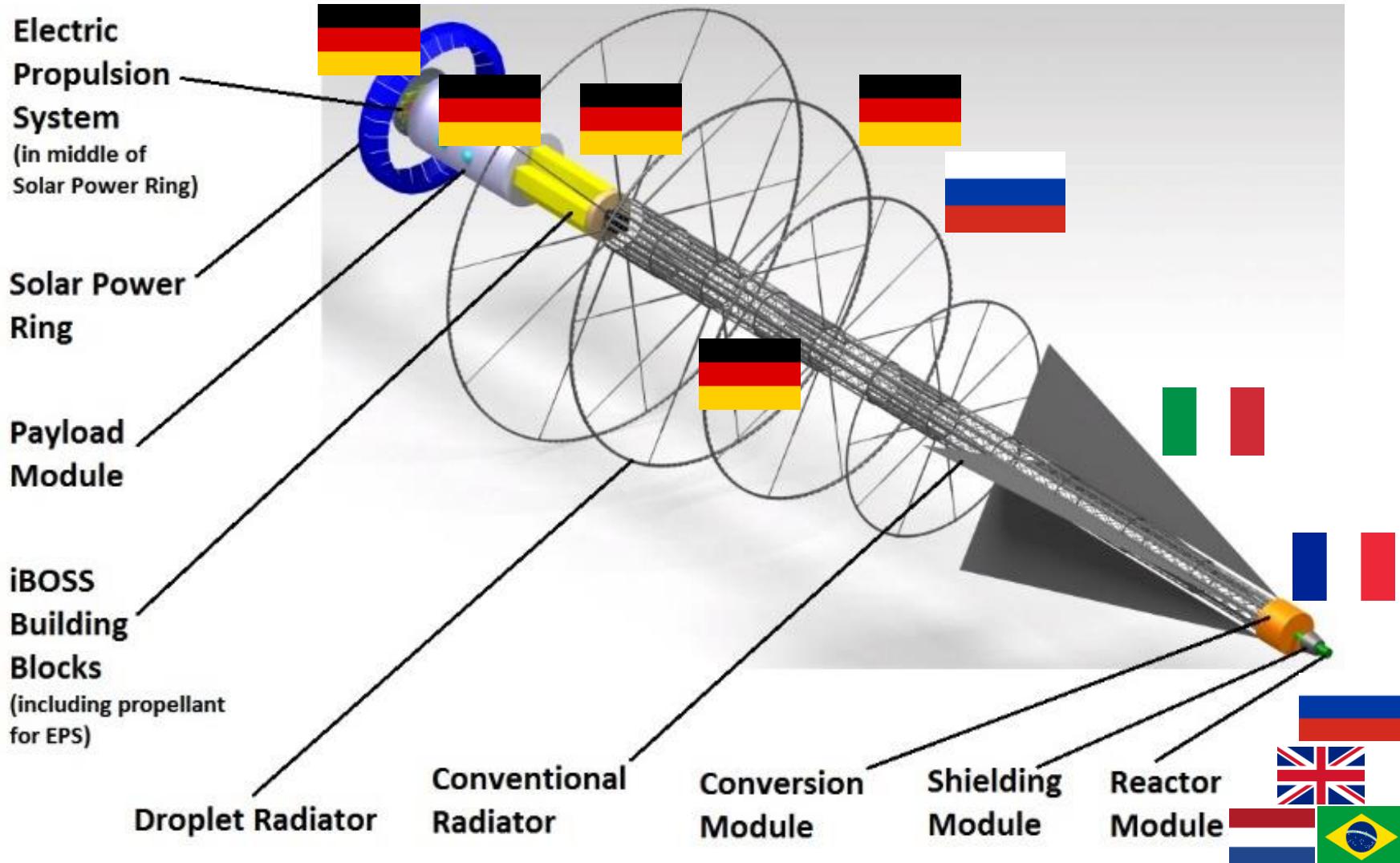
2016: DLR HB

2021: UFS Zugspitze



Knowledge for Tomorrow

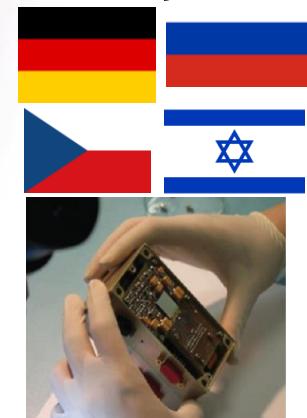
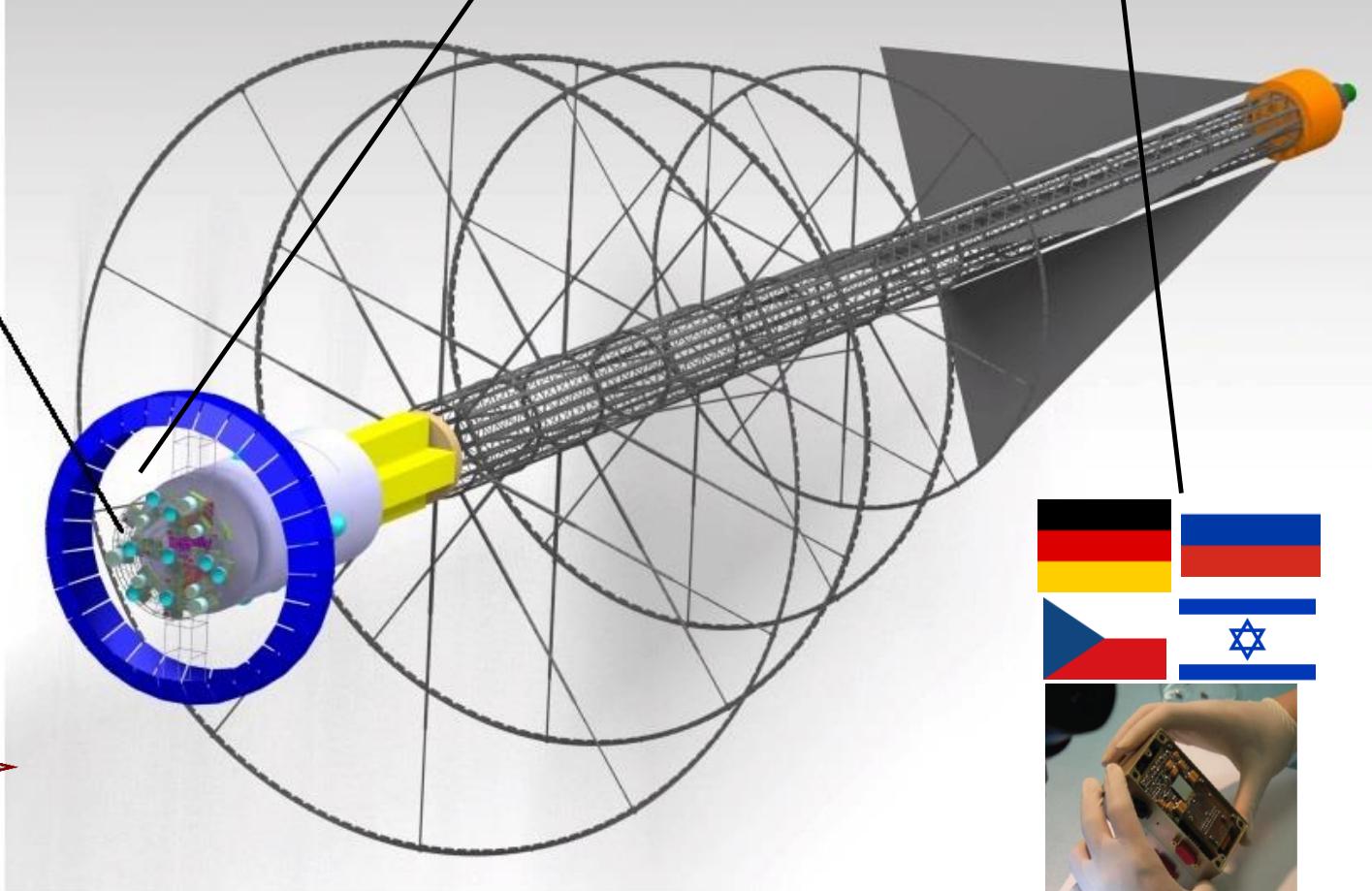
Exploration and Innovation - Interplanetary Missions – a new Human & Human Robot Flagship Project High for Power Space Transportation SPACE SYSTEMS: WHO & WHAT



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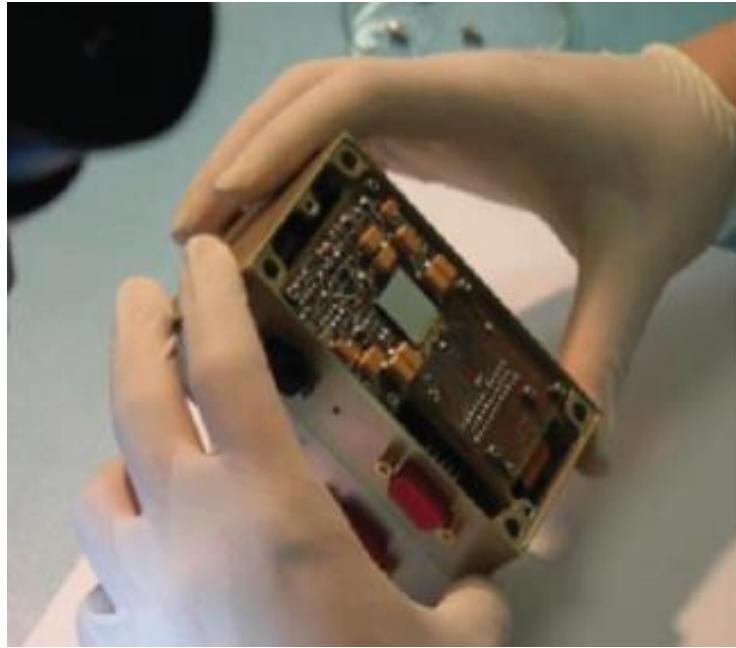


WHO / WHICH ET in the CET / CO-FLYING S/C TIMEPIX + VIDEO



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UN NPS PRINCIPLES (NO LAW!)



Timepix technology from high energy physics =>
synergy => space qualification on flagship surface +
co-flying satellites.

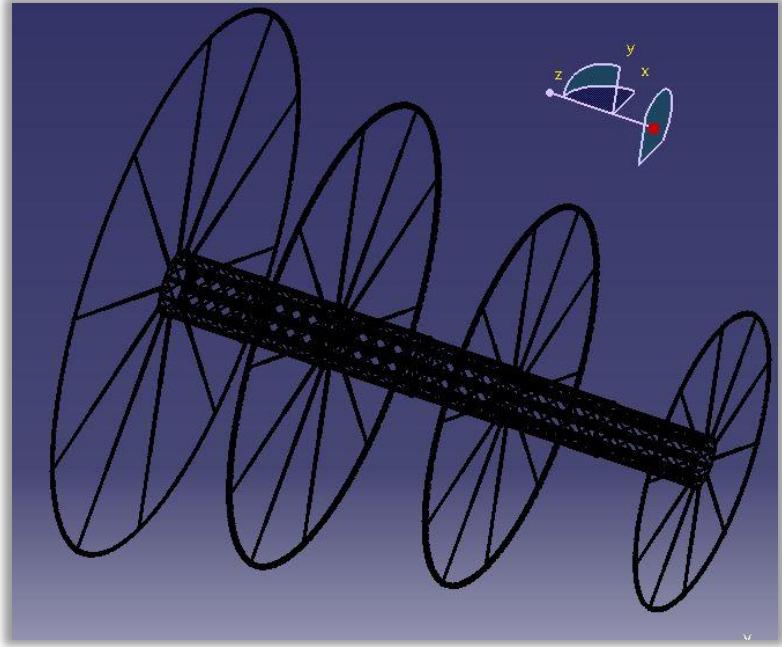
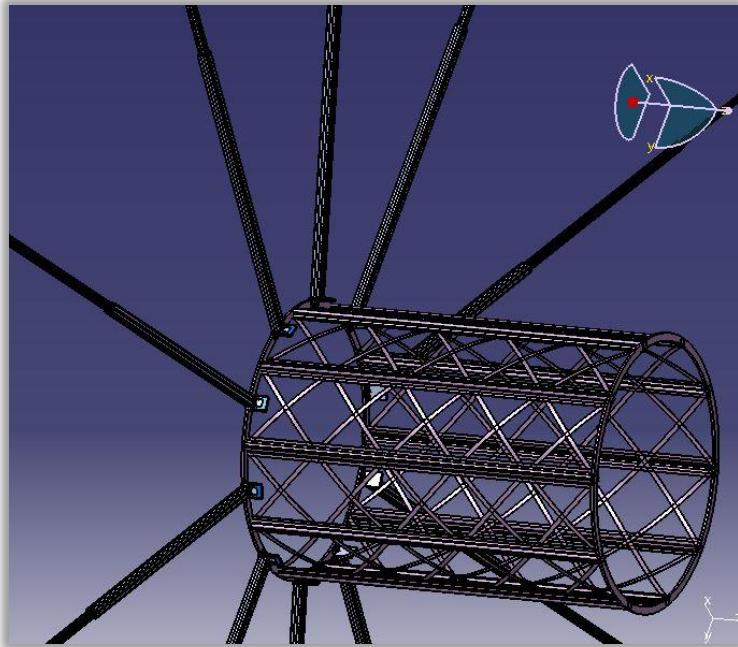


English => Russian translation Commentary NPS Principles NPS Safety Framework.



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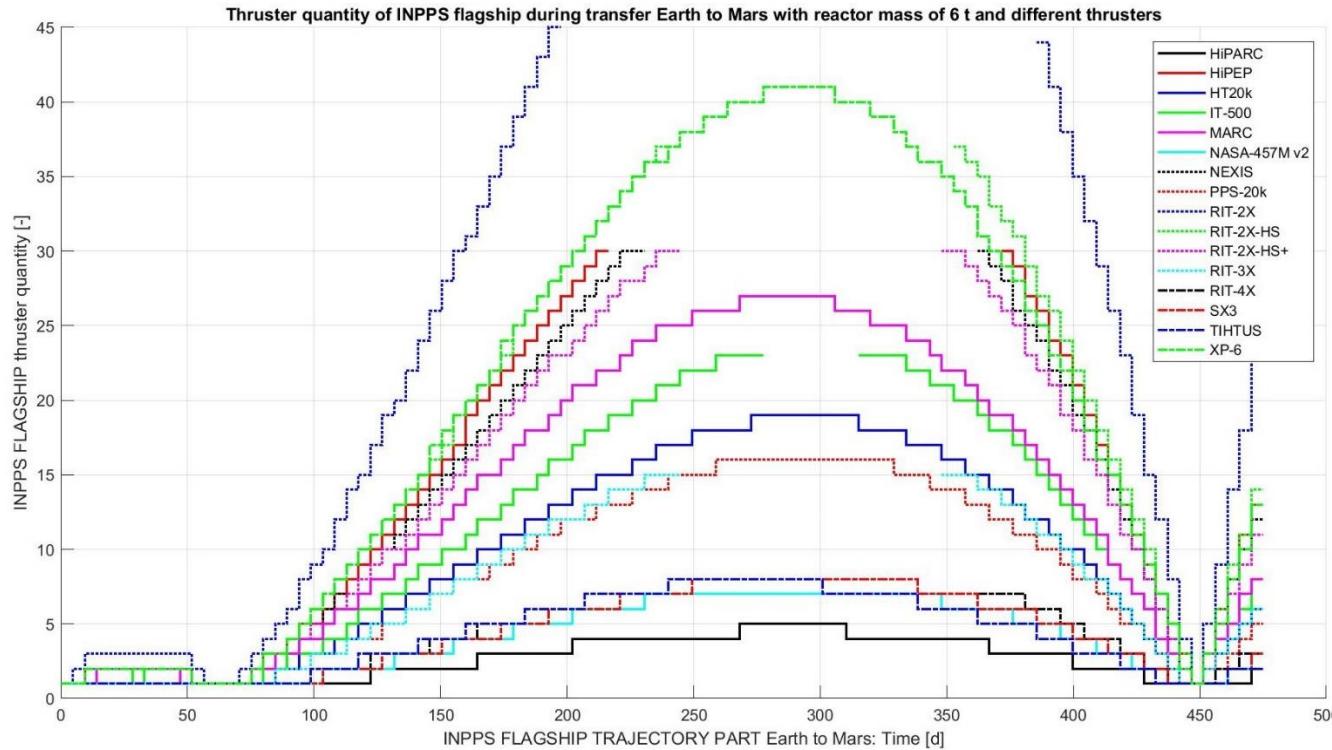
EXAMPLE: DLR BOOM & DROPLET RADIATORS



Droplet radiators results: mechanical details of DLR Boom + Russian droplet radiators (assembly, opening (boom / stiffener), droplets path & pipes mounting).

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2020 / 2021 DLR HB + UNI STUTTGART CET STUDIE



Important - 22 ET's were applied to MARS-EUROPA INPPS flagship:

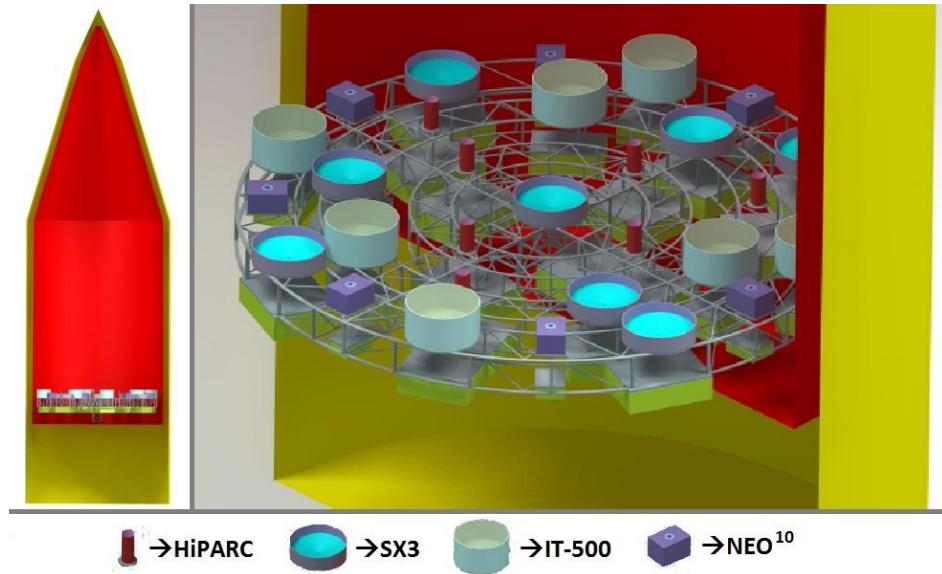
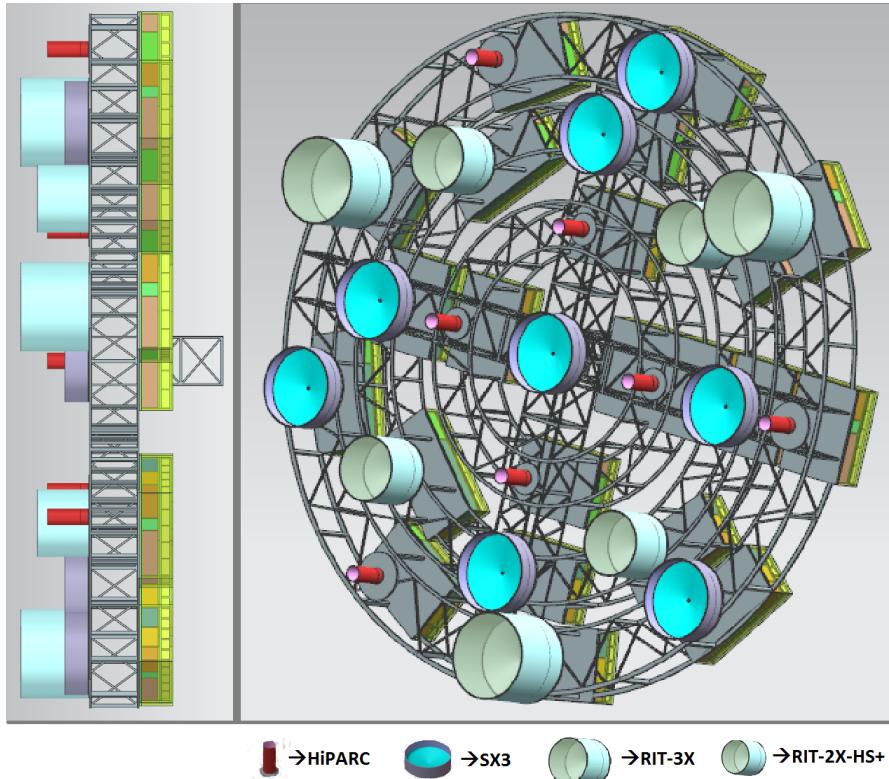
Russian - IT-500, **German** - HiPARC, MARC, SX3, THITUS and RIT-2X, RIT-2X-HS, -2X-HS+, 3X, 4X,

Austrian – Nano, Nano R³, Nano IR³, Micro R³, NEO, **French** – PPS-20k, **Italian** – HT-20k,

Japanese – XP-6 and **US** – HiPEP, NEXIS, 457M and 457Mv2

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CET CONFIGURATION (KIEL EPDP/ GIESEN NON-INVASIVE)& LAUNCHER FAIRINGS



Gridded CET plates. CET fitting in Angara, Ariane and more launcher fairings.

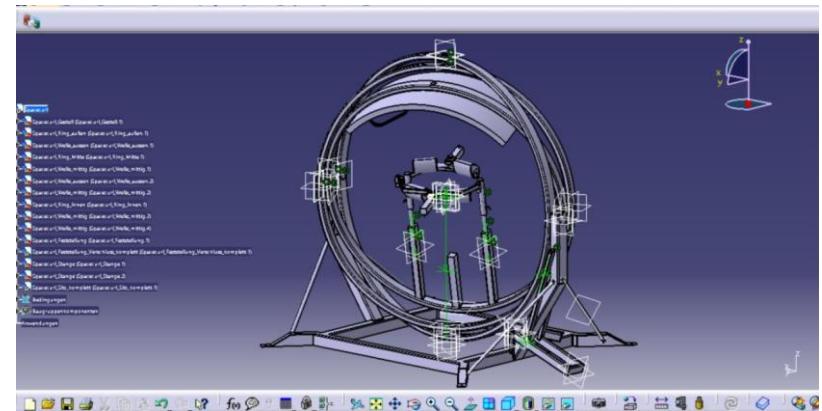
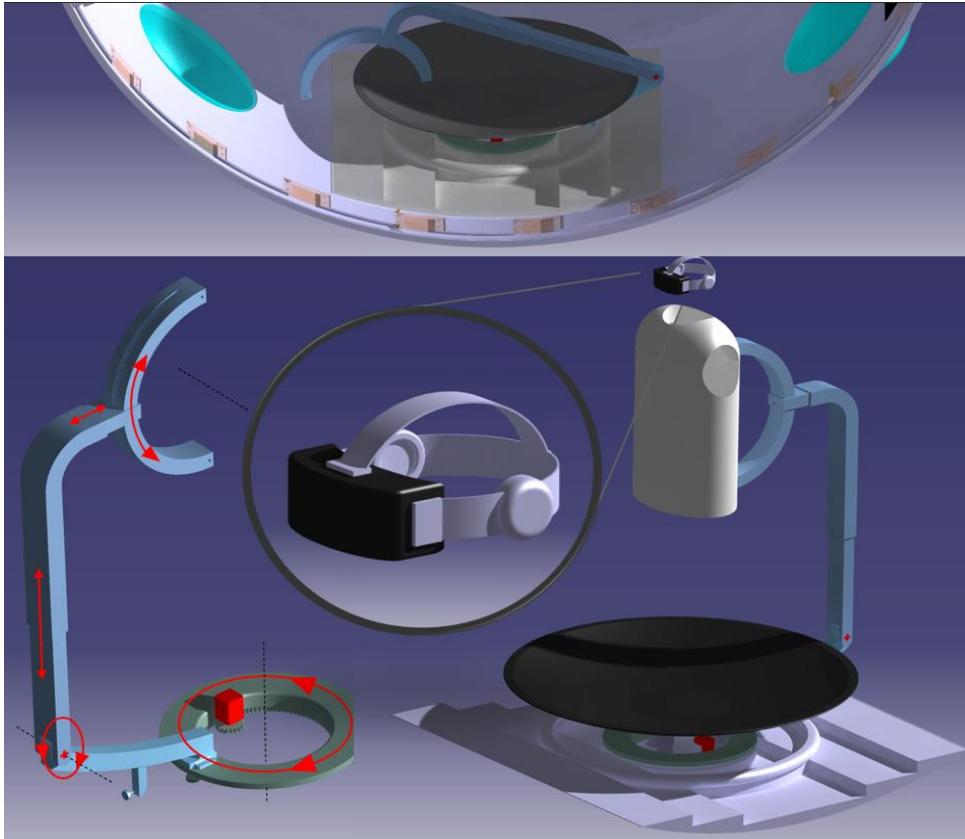
Exploration and Innovation - Interplanetary Missions – a new Human & Human Robot Flagship Project High for Power Space Transportation MARS JOURNEY ATTRACTION?



Commando Module: Travel Information Display.

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LASER COMMUNICATION: STREAMING (NOT ONLY TV / AUDIO) +

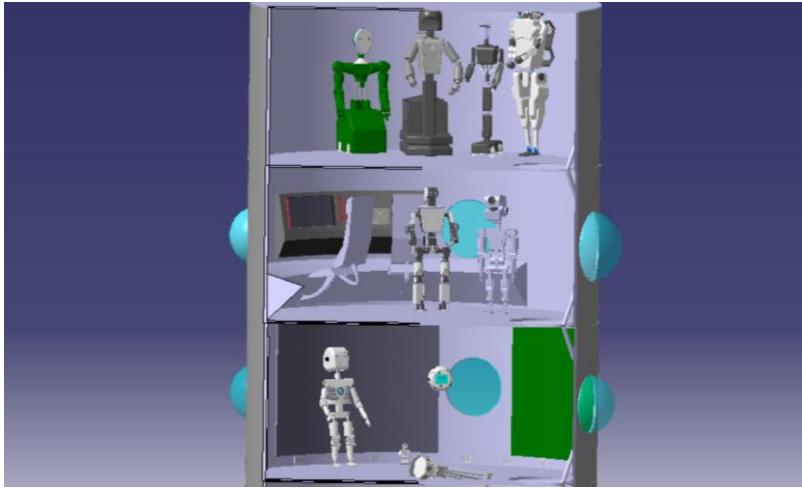


Communication Module: Overview of the 360° VR Treadmill and SpaceCurl.

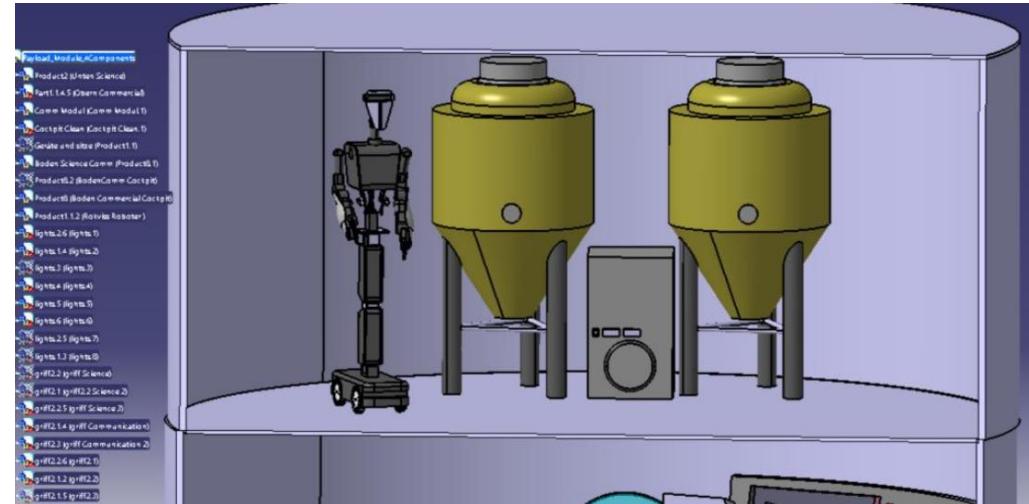
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HUMANOID ROBOTS => ASTRONAUTS, COMMERCIAL PRODUCTS



Alpha Mini Avatarion Switzerland,
ARMAR6 KIT Germany,
Atlas – Boston Dynamics USA,
CIMON DLR Germany,
FEDOR ROSCOSMOS Russia,
Meltant A and B MMI Japan,
ROBOY 3.0 Devanthro Switzerland,
T-HR3 Toyota Japan



ISS Scotch Whiskey => Czech mini brewery, complete two tanks.

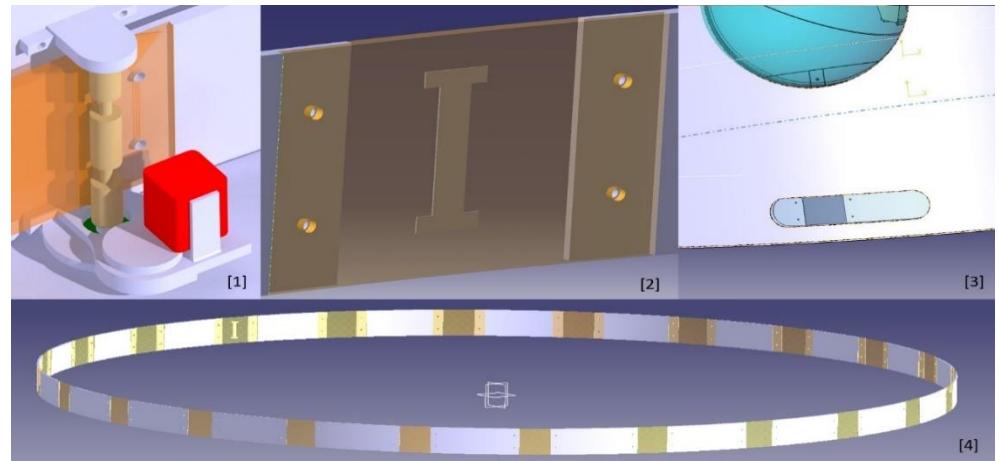
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SCIENCE PAYLOAD, ON BOARD TIME (DAY / NIGHT)



VaMEx (Valles Marineris Explorer),
Europa – TRIPLE (ice melting probe).

Sundial ring with mount incl. electric motor; [2] Translucent block with roman numeral and four screw holes in it; [3] Oval window with sundial ring behind it; [4] 24 translucent and 24 opaque blocks in alternating order forming the sundial ring.



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SUMMARY

Since the last 10 years we are prepared...

**In the next 10 years we can do these –
space qualification and space flights...**

Yes, we can – peaceful cooperation in space...

