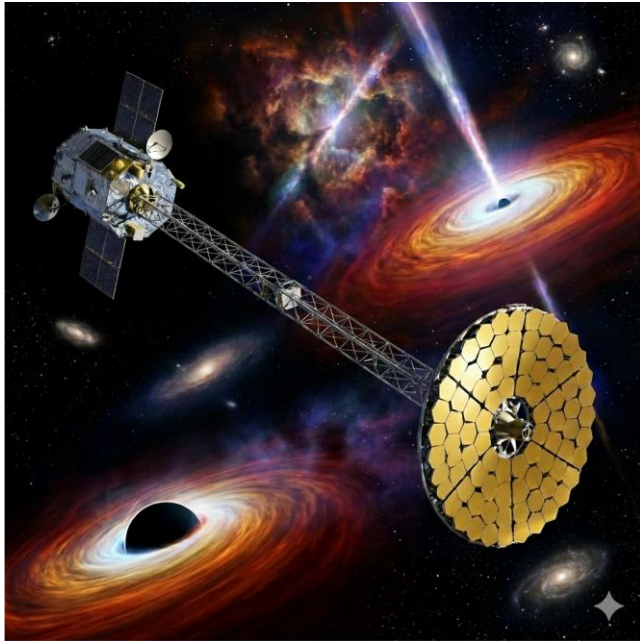


i-Astro Activities

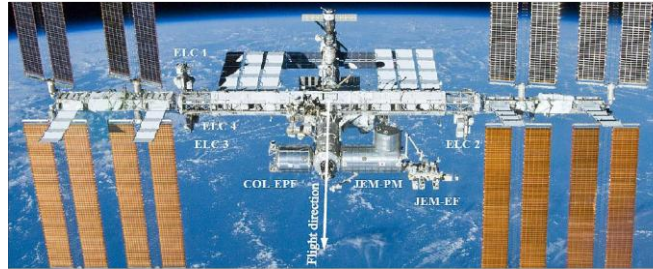
Main drive:
HE/MM Astrophysics



PHEMTO ESA Preselected at M8 Call

Science/Instrument topics: Polarimetry, GRB, TGF and radiation hardness

Space Experiments for HE Astrophysics Missions

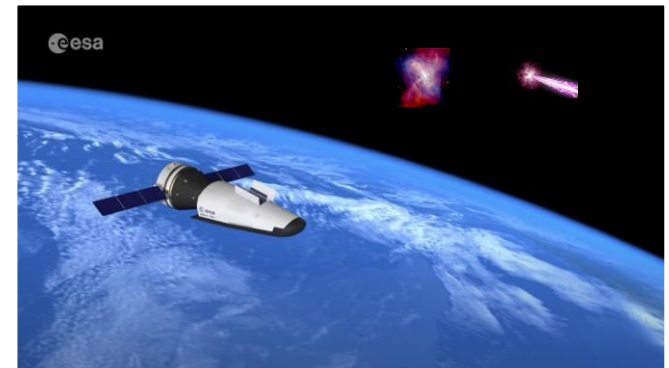


GLOSS: Gamma-ray Laue Optics and Solid State detectors
(ESA/CNES Euro Ageing Materials)
Flight Dec. 2024 to Dec. 2025

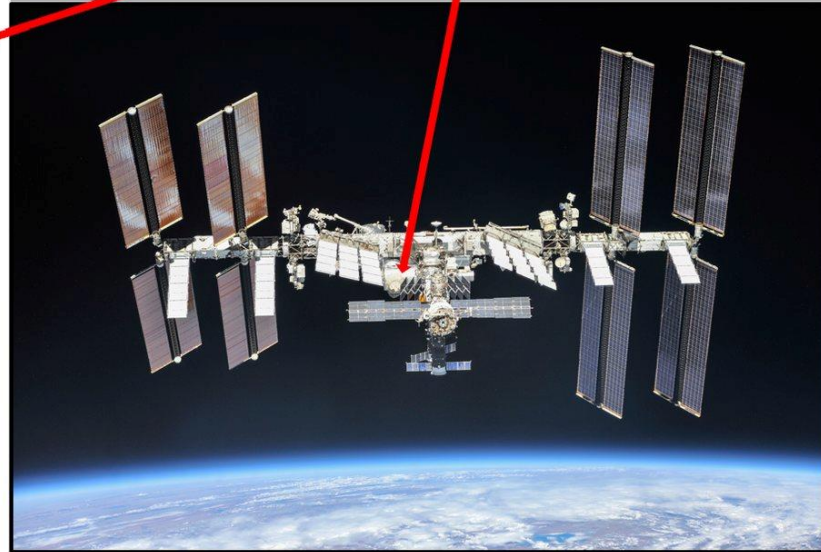
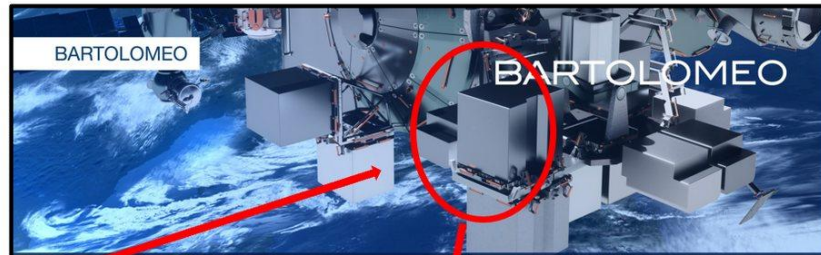
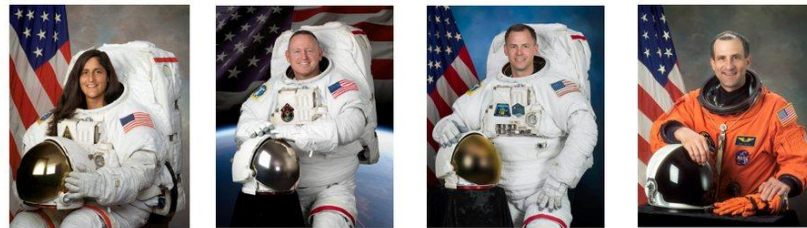
THOR-SR

(ESA Space Rider Maiden Flight
Call for Academy)

Launch Q1 2028



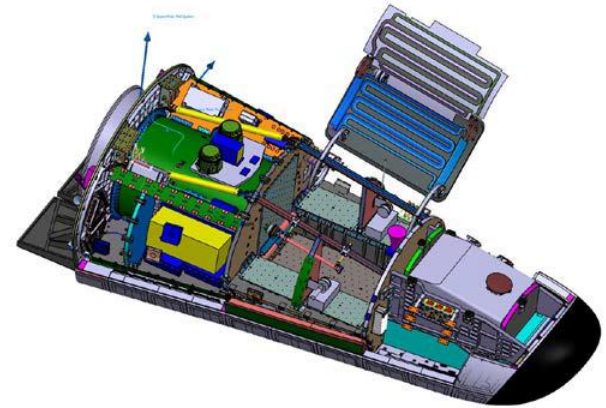
GLOSS: CdTe, Ge & Si samples 1 Year in Orbit @ ISS



THOR SPACE RIDER

PRODEX
LIP: 650 k€ -> 2028

Industrial Partners

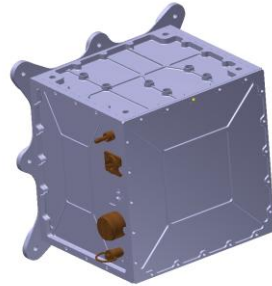


High-energy Astrophysics Pathfinder Instrument

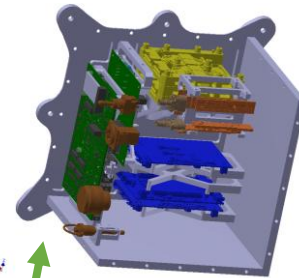
- High-energy Sources: Crab Nebula or GRB. Spectroscopy, Imaging, Time Variability and Polarization in all-sky mode.
- Particle environment measurements and Radiation ageing (Space Exposure Locker);
- TGF monitor test;
- TGF polarization: outstanding scientific measurement

PDR -> Approved

Enclosure View



Subsystems View



Detector Unit

OBC & PDU



OBC: Nvidia Jetson Orin GPU

2026

2027

2028

2029

2030

2031

New Generation of Space Observatories for High-energy Astrophysics

PHEMTO ESA M8 Class Mission Development

Science Instrument Performance Simulations

Design and Development of Science Instrument for PDR and CDR

EM and FM Development

ESA Fast Mission Call

HE Transient Observatory

Space Experiments – TRL9

GLOSS Experiment @ Bartolomeo in the ISS



GLOSS Samples Delivery

THOR Space Rider Experiment



M class Polarimeter on Space Rider



Space Rider launch

SWOT

Strengths

- i-Astro is leading the ESA Material Ageing GLOSS international consortium and THOR Space Rider experiment.
- Members of European Consortium on PHEMTO ESA M8 high-energy astrophysics mission
- Group multidisciplinary profile

Opportunities

- In case PHEMTO selection outstanding ESA space mission participation.
- The GLOSS project provides an outstanding opportunity to estimate the performance of our instruments under orbital environment at ISS in LEO;
- The Space Rider will provide a unique opportunity to develop space scientific instruments for astrophysics and TGF observation with the industry.

Weaknesses and Threats

- Components world market shortage;
- Difficult to attract students beyond master thesis research for PhD degree: due poor perspectives;
- LIP UC Physics Department facilities require a deep update to address properly space grade research and technical tasks.