

# HERMES

## Technologic and Scientific Pathfinder

[www.dsf.unica.it/hermes](http://www.dsf.unica.it/hermes)

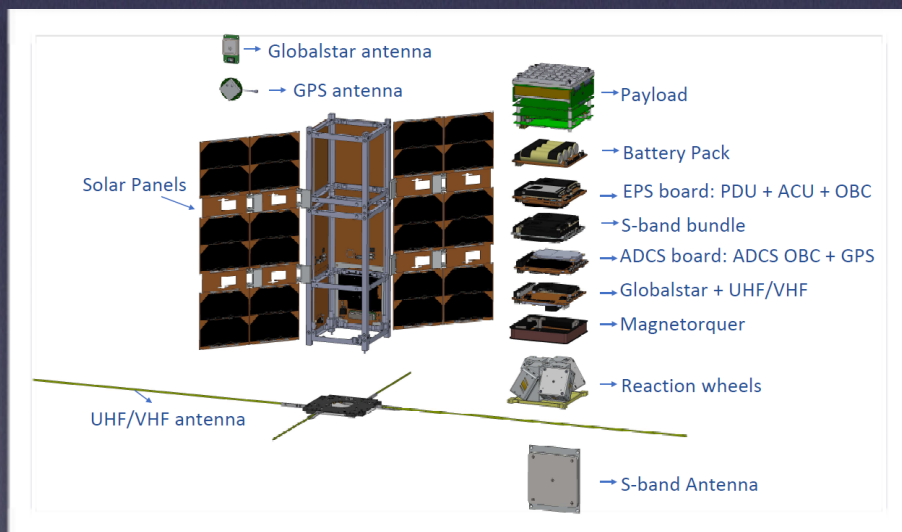
[www.hermes-sp.eu](http://www.hermes-sp.eu)

HERMES-TP/SP is a constellation of six 3U nano-sats hosting simple but innovative X-ray detectors for the monitoring of GRB and the electromagnetic counterparts of GWE, and for the determination of their position.

HERMES-TP/SP is an in orbit demonstration planned for 2022. It is intrinsically a modular experiment that can be naturally expanded to provide a global, sensitive all sky monitor for high energy transients in the 2020'.

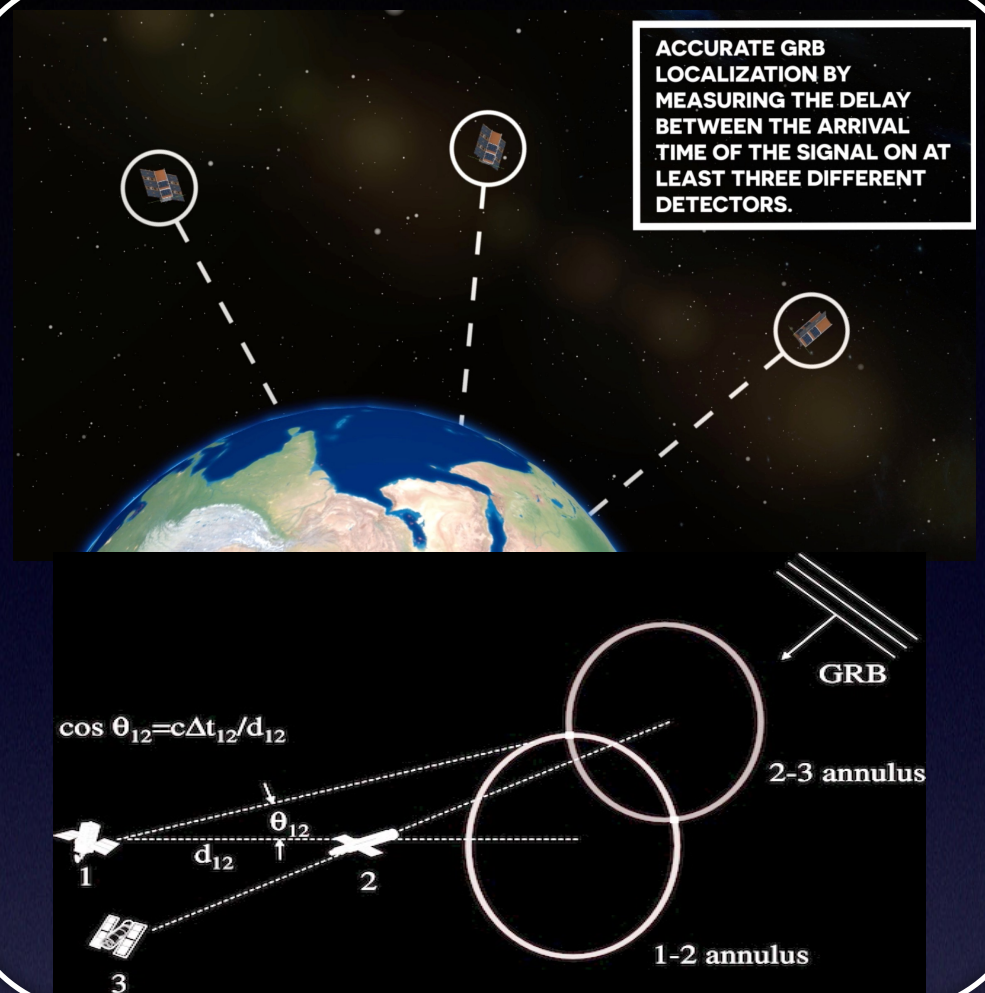
- ★ Develop miniaturized instrumentation for breakthrough science
- ★ Contribute to the Space 4.0 goals
- ★ Prepare for large future constellations

3U cubesat, 10x10x30cm, 5kg



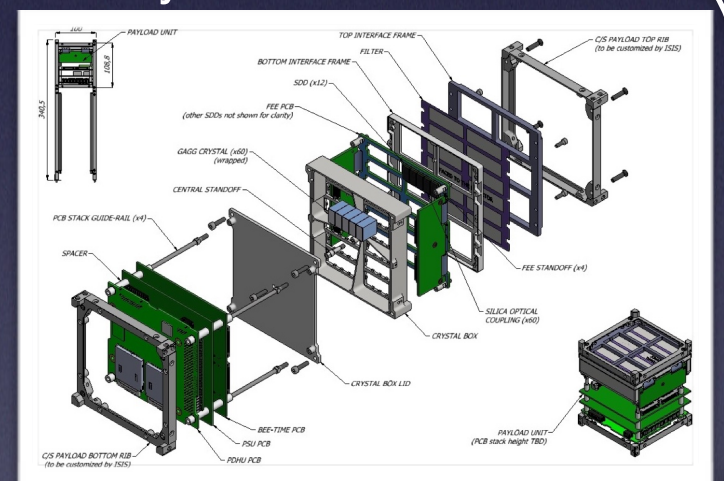
Launch ~ 2022, LEO, <math><20^\circ</math> inclination

HERMES-TP is funded by the Italian MIUR and ASI. HERMES-SP is funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 821896.



### Payload

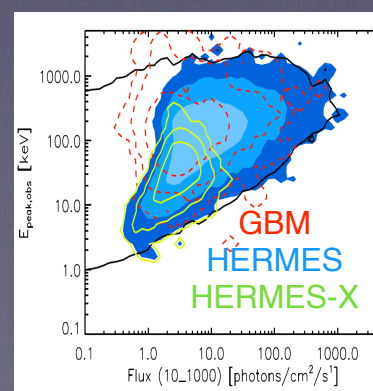
GAGG crystals + SDD  
3-2000keV  
AEF ~ 50cm<sup>2</sup>  
 $\Delta t \sim 300$ ns  
Data rate ~ 1 Gbit/day/sat



BGD(50-300keV) ~ 1.5 cts/s/cm<sup>2</sup>

### Performances

GRB detection rate ~ Fermi/GBM



GRB positions: 3 sat. simulation

$\sigma_{PA} \sim 2.4^\circ$   
 $[(\sigma_{CC}^2 + \sigma_{sys}^2) / (N-1-2)]^{0.5}$   
 $\sigma_{CC} \equiv \sigma$  cross corr. function  
 $> \sigma_{sys} \sim 1$ ms  
 baseline ~ 7000km

