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HERMES-TECHNOLOGIC AND SCIENTIFIC PATHFINDER

Abstract

HERMES-Technologic and Scientific pathfinder (HERMES-TP/SP) is a constellation of six 3U nanosatellites hosting simple but innovative X-ray detectors for the monitoring of Cosmic High Energy transients such as Gamma Ray Bursts and the electromagnetic counterparts of Gravitational Wave Events. The main objective of HERMES-TP/SP is to prove that accurate position of high energy cosmic transients can be obtained using miniaturized hardware, with cost at least one order of magnitude smaller than that of conventional scientific space observatories and development time as short as a few years. The main goals of the projects are: 1) join the multimessenger revolution by providing a first mini-constellation for GRB localizations with a total of six units. Perform the first experiment of GRB triangulation with miniaturized instrumentation; 2) develop miniaturized payload technology for breakthrough science; 3) demonstrate COTS applicability to challenging missions, contribute to Space 4.0 goals; 4) push and prepare for high reliability large constellations. The HERMES-TP project is funded by the Italian Ministry for education, university and research and the Italian Space Agency. The HERMES-SP project is funded by the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No. 821896. The projects passed the critical design review on Q4/2020 and we have started the production phase of the mini-constellation for a launch in the second half of 2022. I will present the main scientific and technologic goals of HERMES-TP/SP, as well as a progress report on the development of the flight and ground segments.