



SPACE

IXPE TAKES OFF

On December 9, from NASA Kennedy Space Center at Cape Canaveral, Florida, IXPE (Imaging X-ray Polarimetry Explorer) satellite successfully took off aboard a Falcon 9 launcher. Born from the collaboration between NASA and the Italian Space Agency (ASI), as leading partner, the INFN and the INAF National Institute for Astrophysics, IXPE is the first mission entirely dedicated to the study of the universe through the polarization of X-rays, which will allow to better understand the characteristics of extreme astrophysics sources such as neutron stars, black holes and supernova remnants.

The measurement of the polarization of X-rays emitted by the celestial bodies will be made possible by Gas Pixel Detectors (GPD), the main detectors of the three telescopes that make up the satellite. The GPDs exploit a technology developed over the past 15 years and that uses the expertise acquired by INFN in the field of particle physics. In each of the detectors, every single photon absorbed in the gas is transformed into an electron (photoelectric effect), of which the GPD reconstructs the trajectory and the charge deposited, allowing to obtain direct indications on the characteristics of the electromagnetic fields of the astrophysical sources responsible for the emission of photons. In addition to the realization of the detectors, INFN, through the divisions of Pisa and Turin, has been responsible for the design, implementation, testing and space qualification of the IXPE Flight Detector Units, as well as for the coordination of activities related to the development of the simulation tools and scientific analysis. ■