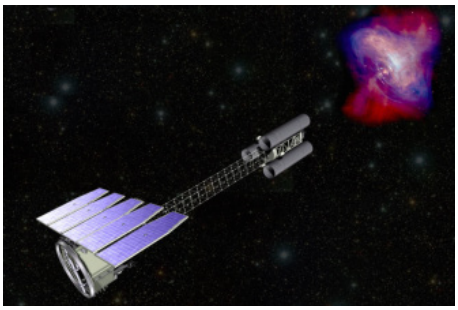

SPACE

INFN-ASI AGREEMENT FOR THE NEW IXPE MISSION

The agreement between INFN and the Italian Space Agency (ASI) has been signed for the launch of innovative detectors capable of measuring the polarization of the X-ray radiation of the astrophysical sources: so far a property only observed in the brilliant Crab Nebula in 1972, due to the lack of sufficiently sensitive instrumentation. This property is expected in many sources, and it is essential to understand, for instance, the geometry and magnetic field of black holes and neutron stars. The unique feature of the new GPD (Gas Pixel Detectors) is the combined use of a gas detector and a high resolution reading integrated circuit. The three GPDs, designed and built in the INFN laboratories in Pisa, will be the eyes of the Imaging X-ray Polarimetry Explorer (IXPE) telescope, the next mission of the Small Mission EXplorers (SMEX) program, whose launch is scheduled for the end of 2020. For over ten years, INFN, the National Institute of Astrophysics (INAF) and ASI have been perfecting GPDs for applications in polarization measures for their use on dedicated satellites: every photon that arrives on the detector develops in the gas of the GPD a track whose direction, rebuilt thanks to the pixel sampling, is bound to the properties of polarization of the radiation. IXPE will provide for the first time a simultaneous measurement of source image, time and energy development of their X-ray emissions and polarization properties. ■