



SPACE

FERMI-LAT PROVIDES THE FIRST MAP OF EXTRAGALACTIC TRANSIENT SOURCES

The first list of extragalactic transient sources has been obtained.

These sources correspond to a particular class of extreme astrophysical objects characterised by a non-continuous and variable emission of gamma rays, i.e., photons at high energies. The results, published in early September in the *Astrophysical Journal Supplement*, are the fruit of a study led by Italian researchers from INFN and ASI Italian National Space Agency, as part of the international Large Area Telescope (LAT) collaboration. One of the two detectors on board NASA's Fermi Gamma-ray Telescope, the LAT detector, has allowed to extract a completely new catalogue compared with those published so far, and it is called the Fermi-LAT Long Term Transient Catalog (1FLT), which could help scientists shed light on possible dark matter candidates.

To find the 142-point sources in 1FLT that radiate very high-energy light for even short periods of time, the researchers compared the observations in the source catalogue obtained from 10 years of Fermi-LAT data.

Most of the new gamma-ray transient sources detected by Fermi-LAT are associated with blazars, active galaxies with supermassive black holes at their centre. The remaining ones, for which no counterpart could be found in other wavelengths and are therefore unknown, are of great astrophysical interest, because they could be an important clue to the presence of dark matter, thus helping scientists to understand the characteristics and behaviour of this mysterious and widespread component of the universe. ■