

Celebrating 20 years of Swift Discoveries



Contribution ID: 85

Type: **Contributed talk**

A Tale for Two Class of X-ray Pulsars: Two Decades of Swift Sky Observations

Wednesday 26 March 2025 15:30 (15 minutes)

With 20 years of nearly continuous sky observation Swift has enabled studies of objects from several different classes. Among these, I will focus on the impulsive behavior of magnetars and the long-term evolution of pulsating ultra-luminous X-ray sources (PULXs). **Magnetars** are neutron stars powered by their intense magnetic fields, often identified by their emission of powerful X-ray bursts lasting from a few milliseconds to several minutes. Over its mission, Swift's BAT has recorded thousands of these events, providing us with the opportunity to conduct detailed studies of this phenomenon, under the hypothesis that they are primarily magnetically trapped fireballs. **Pulsating ULXs** are X-ray pulsars found in distant galaxies. These pulsars are likely accreting material at super-Eddington rates, with luminosities reaching up to 10^{41} erg/s. The physics behind their extreme properties is still under debate, and much information remains hidden in archived data. In this talk, I will discuss the potential and results of monitoring programs (in particular those of Swift/XRT), which have observed several galaxies within approximately 30 Mpc of the Milky Way. Finally, a possible new way to find new candidate PULXs will be also outlined.

Author: ISRAEL, GianLuca (Istituto Nazionale di Astrofisica (INAF))

Presenter: ISRAEL, GianLuca (Istituto Nazionale di Astrofisica (INAF))

Session Classification: Magnetar and pulsars