Searching for Short GRBs in Soft Gamma Rays with INTEGRAL/PICsIT - DTU Orbit (01/01/2019)

**Searching for Short GRBs in Soft Gamma Rays with INTEGRAL/PICsIT**

With gravitational wave (GW) detections by the LIGO/Virgo collaboration over the past several years, there is heightened interest in gamma-ray bursts (GRBs), especially "short" GRBs (T <2s). The high-energy PICsIT detector (~0.2 ─ 10 MeV) on-board the INTErnational Gamma-Ray Astrophysics Laboratory (INTEGRAL) is able to observe sources out to approximately 70° off-axis, making it essentially a soft gamma-ray, all-sky monitor for impulsive events, such as SGRBs. Because SGRBs typically have hard spectra with peak energies of a few hundred keV, PICsIT with its ~ 3000 cm² collecting area is able to provide spectral information about these sources at soft gamma-ray energies. We have begun a study of PICsIT data for faint SGRB similar to the one associated with the binary neutron star (BNS) merger GW170817, and also are preparing for future GW triggers by developing a realtime burst analysis for PICsIT. Searching the PICsIT data for significant excesses during ~30 min-long pointings containing times of SGRBs, we have been able to differentiate between SGRBs and spurious events. Also, this work allows us to assess what fraction of reported SGRBs have been detected by PICsIT, which can be used to provide an estimate of the number of GW BNS events seen by PICsIT during the next LIGO/Virgo observing run starting in Fall 2018.

**General information**

State: Published

Organisations: National Space Institute, Astrophysics and Atmospheric Physics, National Institute for Astrophysics, University of Geneva, Max-Planck-Institut fur extraterrestrische Physik, Centro de Astrobiologia, University College Dublin, The Research Institute in Astrophysics and Planetology, French Alternative Energies and Atomic Energy Commission, RAS - Space Research Institute, European Space Agency - ESA


Number of pages: 2

Publication date: 2018

Peer-reviewed: Yes

Event: Abstract from 231st AAS Meeting, National Harbor, United States.

Electronic versions:

Searching_for_Short_GRBs_in_Soft_Gamma_Rays_with_INTEGRAL_PICsIT.pdf

Source: Bibtex

Source-ID: urn:2922dad325853a2e55630f091bd06dd9

Research output: Research - peer-review | Conference abstract for conference – Annual report year: 2018