

Celebrating 20 years of Swift Discoveries



Contribution ID: 166

Type: Poster

From Swift/GROND to SVOM/COLIBRI to study the GRB afterglow

Tuesday 25 March 2025 14:29 (1 minute)

We are now in the era of rapid-response observations of gamma-ray bursts (GRBs). Multiwavelength observations are essential in GRB and other transient phenomena studies. A rapid follow-up is crucial as the analysis of the GRB afterglow properties may be impacted by its rapid fade. Early-time observations taken with the onboard Neil Gehrels Swift Observatory (*Swift*) instruments enable the study of GRBs up to the epoch of reionization. In addition, ground-based telescopes such as the seven-band filter Gamma-Ray Optical and Near-Infrared Detector (GROND) have a high enough sensitivity and wide-band coverage for studying high extinguished and redshifted GRBs. The combination of such observations provides us with high signal-to-noise spectral energy distributions of GRB afterglows that allow us to study different properties of their host galaxy. Launched in 22nd, June 2024 from the Xichang launch base, the Space-based multi-band astronomical Variable Objects Monitor mission (SVOM) provides a versatile satellite equipped with multiwavelength instruments. The orbit and pointing strategy of the satellite have been thought to maximize the GRB detection rate of ground-based telescopes operating at optical and NIR wavelengths. These SVOM space and ground-based facility synergies are consolidated by the building of a dedicated and coordinated follow-up segment with robotic telescopes including the 1.3m COLIBRI (in Mexico) and the C-GFT 1.2m (in China) telescopes. In particular, COLIBRI, which was inaugurated on 7th, September 2024 at the San Pedro Mártir National Astronomical Observatory, Mexico, will be able to observe the sky with the DDRAGO two channels camera (*gri* and *zy* filters) and the CAGIRE infrared camera (*JH* filters). Although the *K*-band is absent, the COLIBRI instrument configuration is quite similar to GROND, while offering a significantly wider field of view of 26 arcminutes and a response time of less than 20 seconds from one alert to an observation. This capability will enable rapid photometric redshift estimates up to high redshifts. In addition, the association of the SVOM instruments with COLIBRI will allow us to study the color evolution of GRB afterglows and characterize the effect of the dust extinction from their host galaxies during the next decade.

Primary author: RAKOTONDRAINIBE, Ny Avo (Laboratoire d'Astrophysique de Marseille)

Presenter: RAKOTONDRAINIBE, Ny Avo (Laboratoire d'Astrophysique de Marseille)

Session Classification: Poster Session