



University of Crete
Department of Physics



FORTH
INSTITUTE OF ASTROPHYSICS



Joint Physics & IA/FORTH Colloquium

Thursday, 27 April 2023 | 17:00 – 18:00, Online via ZOOM

Gamma Ray Bursts and the SVOM space mission

Dr. Stéphane Basa

Laboratoire d'Astrophysique de Marseille, France

ABSTRACT

The Gamma-Ray Bursts (GRBs) are the most energetic explosions in the Universe after the Big Bang. They are associated with the death of the most massive stars (supernovae) or merging processes of compact stellar objects (neutron-star/neutron-star or neutron-star/black-hole). The radiated energy within a minute by a GRB is typically 10^{51} erg. Due to these extreme luminosities, GRBs can be used to probe the most observationally hostile and remote regions of the Universe.

The forthcoming Sino-French SVOM (Space-based multi-band astronomical Variable Objects Monitor) mission will have a major contribution to this scientific domain by improving our understanding of the GRB phenomenon and by allowing their use to understand the infancy of the Universe. It is designed to achieve the best compromise between space and ground instrumentation. The onboard instruments will permit the detection of the GRBs, their localization from arcminute to arcsecond accuracy, the study of the prompt emission and the early detection and follow-up of visible afterglow. The ground segment will permit the fast distribution of the alerts, the localization of GRBs with sub-arcsecond precision and the primary selection of high-redshift candidates ($z > 6$)

During this seminar, I will make a general presentation of these fascinating objects that are the GRBs (what do we know?, what are the questions still to solve?, how to use them to probe the universe?, etc.), while presenting the future SVOM mission that will be launched at the end of this year. This will be the occasion to discover the opportunities that the GRBs will open up very soon.

ZOOM: <https://ia-forth-gr.zoom.us/j/81773472220?pwd=WGZvQTVvVVBRROwzTXJ6cG5FRlJlZz09>