



## *Joint Physics & IA/FORTH Colloquium*

Thursday, 3 October 2019 | 17:00 – 18:00, Seminar Room, 3rd floor

### **Gamma-ray bursts: breakthroughs and challenges**

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#### **ABSTRACT**

*Gamma ray bursts (GRBs) are the most violent explosions in the universe. While being studied extensively since the 1990's, their illusive nature prevented, so far, a clear understanding of their underlying physical processes.*

*In this talk, I will first give a broad overview of our current understanding of GRB physics. I will then discuss recent development in understanding the origin of the prompt spectra, and in particular the role of thermal emission in it. I will discuss some novel effects and theoretical ideas relevant for the study of many astronomical objects. As a few examples, I will show how emission from the photosphere can be observed to have high degree of polarization; how it can be used to infer the jet magnetization; and more.*

*Two years ago was the first (and so far only) confirmed detection of a GRB associated with a gravitational wave (GW) event, GW/GRB170817a. In the last part of the talk I will discuss this event and its implications.*