



Contribution ID: 366

Type: **Talk in a parallel session**

## **Exploring the behaviour of long gamma-ray bursts with intrinsic afterglow correlations**

*Thursday, 11 July 2024 18:05 (25 minutes)*

We present a correlation observed in the afterglows of long duration Gamma-ray Bursts (GRBs) between the initial luminosity and average afterglow decay rate. We will show how this correlation, initially found at optical and X-ray wavelengths, is observed across the electromagnetic spectrum from the GeV to the radio. This correlation does not depend on the presence of specific light curve features and is potentially applicable to all long GRB afterglows. We will also discuss this correlation in the context of other GRB correlations. We will also explore the implications and whether the correlation is consistent with the expectations of the standard afterglow model.

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**Session Classification:** Gamma ray bursts relationships in multi-wavelengths as cosmological tools

**Track Classification:** Gamma-Ray Bursts (GRB): Gamma ray bursts relationships in multi-wavelengths as cosmological tools