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The Need For Speed: Modelling Fast Transients

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For the first time ever, it is possible to obtain well sampled light curves of fast transients, with a plethora of data provided by a range of telescopes. In particular, *TESS* has a uniquely fast cadence that allows us to observe transients during the rise a, and decay after peak brightness. With detailed light curves built from both high cadence and multi wavelength data, understanding the behavior of such events can be modeled and tested. By simulating transients that may be observed by a combination of *LSST* and other telescope data, we can assess *afterglowpy*, the primary package used for modelling gamma ray burst afterglows. Determining the reliability of the parameters fit to simulated data allows us to see which parameters can be reliably recovered from observational data, and conversely, show us which parameters cannot be recovered based on our current understanding of the underlying physics.

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