

## Characterising the Information Content of Microlensing Light Curves

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**Abstract:** Assessing and quantifying the information content of microlensing light curves can be rewarding for planning observations and the subsequent data analysis. Following the seminal works of Claude Shannon and Ronald Fisher, microlensing observations can be regarded as communication between nature and human observers where the information content can be measured either as the surprise of observing certain parameters or as parameter sensitivity. The sensitivity analysis of a given light curve model provides not only an upper bound for the predictive power of an ongoing microlensing event but also gives some indication of how to distribute follow-up observations in the context of the Fisher matrix formalism. Every observation contributes to the overall information content of the event and thus an efficient follow-up strategy aims to maximise the increase in information. This work illustrates how such an approach may be realised and gives insight into how limited observing resources improve the characterisation of an event. As a second application of the Fisher matrix, an information-driven compression technique is presented. For this purpose, the model-dependent information content of a binary light curve is used for selecting suitable subsets of the observed light curve.