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Search for orphan GRB afterglows in Rubin LSST data with FINK

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Gamma-Ray Bursts (GRBs) are among the most energetic phenomena in the Universe. Viewed off-axis, this emission has a negligible gamma-ray flux and is hence called "GRB orphan afterglow"(OA). To identify OAs in Rubin LSST data, we plan to use the characteristic features of their light curves which depends on several parameters defined by the chosen model, here the forward shock model associated with the electron synchrotron model. In this work, we generated a population of short GRBs and simulated their afterglow light curves with the afterglowpy package. We then used the rubin_sim package to simulate "pseudo-observations" of these OAs with Rubin LSST. Features describing the shape of the light curves are then calculated for the pseudo-observed OA light curves and for a sample of ELAsTiCC data, allowing us to establish some cuts to remove as much as possible non-OA events among all the data. This work will ultimately allow us to implement a filter in the alert broker FINK

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