

Title

**Searching for a break in the late time radio light curve of GRB 221009A**

Abstract

GRB 221009A, a long gamma-ray burst (GRB) from a collapsing massive star was detected on the 9th October 2022 and has since been established as a once in 10,000 year event. Synchrotron radiation emitting from the jet (called the afterglow) that emitted the GRB and the surrounding environment has been detected consistently between 0.4 GHz and 20 TeV allowing for a detailed study spanning the first 500 days post-burst. In this proposal, we are requesting three epochs spanning the next observing term each consisting of an observation at 1.3 and 3.1GHz. With the proposed observations, we aim to study the late time behaviour of the afterglow to search for a jet break, a transition to Newtonian regime (both demonstrating significant deceleration) or evidence for the jet passing through the stellar wind termination shock of the progenitor star. The results of this proposal we be used to jet out to 1000 days post-launch during which models predict at least one of the aforementioned signatures should be observed.