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Constraints on FRB emission in the aftermath of GRBs

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The physical origin of Fast Radio Bursts (FRBs) is still unknown. Many models consider magnetars as possible FRB sources, supported by the observational association of FRBs with the galactic magnetar SGR 1935+2154. Magnetars are also thought to be the source of the power of a fraction of Gamma Ray Bursts (GRBs), opening the possibility that the two extreme phenomena have a common progenitor.

In this talk we present a new, systematic search for GRB-FRB association, using the most updated catalog of FRBs observed with the Canadian Hydrogen Intensity Mapping Experiment (CHIME) instrument, and the sample of all GRBs detected by Swift so far. We also show, using a synthetic population of FRBs associated to Swift GRBs, how likely it is to have a joint detection with current and future radio facilities.

With our analysis we only recovered two, low significant, possible GRB-FRB associations already reported in literature; however the absence of any unambiguous association so far between Swift GRBs and FRBs cannot exclude that the two populations are connected, given the characteristics of current GRB and FRB detectors. In the next decade, with new generations of GRB and FRB detectors there will be a higher probability to detect joint GRB-FRB events, if any.

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