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AGILE contribution to MW campaigns to search for High-Energy Counterparts of Fast Radio Burst sources

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The AGILE space mission, with its unique features (two coaligned imaging X- and gamma-ray detectors, a non-imaging calorimeter, and the observing capability to cover about 80% of the sky in 7 minutes), participated to all the recent campaign searches for electromagnetic (e.m.) counterparts of multi messenger events (gravitational waves and neutrinos), but also to high-energy counterparts search of Fast Radio Burst sources (FRBs). Since 2019, when the important discoveries of the CHIME/FRB instrument were published, AGILE has started an activity to search for X- and gamma-ray counterpart of these sources either in the archive or in real time.

We dedicated our first archival work to two repeater sources (R-FRBs), FRB20180916B and FRB20181030A, supposed to be the nearest in 2019, based on the DM_{excess}. No detection were found in AGILE archive but significant hard X-ray to MeV-GeV upper limits (ULs) were evaluated. After the discovery of the periodic activity cycle of the repeater FRB20180916B we setup a MW campaign with the italian radio telescopes, Northern Cross and Sardinia Radio Telescopes, together with Swift observations, whose main goal was to acquire XRT data to evaluate at first the X-ray emission from the source improving the total exposure, but mainly devoted to monitor the activity cycles for eventual soft X-ray emission during simultaneous radio observations.

Preliminary analysis of XRT data resulted in no emission during this very long campaign (~400ks), and 3sigma flux X-ray and gamma-ray ULs from XRT, MCAL and GRID data were extracted and partially reported in 2020, 2021 and 2024.

Moreover, we started other two campaigns with Swift and the italian radiotelescopes, targeting the very active R-FRBs FRB20220912A and FRB20240114A.

We will describe the results from the AGILE MW campaigns involving the Swift mission, in particular that on the periodic source, and the perspective to continue the new ones, after the AGILE operations end.

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