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Abstract:

Magnetars are isolated neutron stars powered by the instabilities and decay of their extremely powerful magnetic field, making them the strongest magnets known in the Universe. Observationally, they are characterized by a distinctive high-energy flaring phenomenology: short bursts of X-/gamma-rays, often accompanied by enhancements of the persistent X-ray luminosity referred to as outbursts. Recently, magnetar-like activity was discovered in isolated neutron stars with a broad range of magnetic field strengths. An additional intriguing phenomena observed in the Universe are Fast Radio Bursts (FRBs). FRBs are short (milliseconds) and energetic radio bursts from extragalactic origin. Their nature is still an open question. In 2020 April, a new event shed light on their origin: a Galactic magnetar emitted a FRB-like burst, proving that at least a subgroup of FRBs can be powered by magnetars. Here, we propose to monitor future (re-)activations of Galactic magnetars or magnetar-like sources with the aim to search for simultaneous radio/X-ray bursts in order to better understand the link between FRBs and magnetars.