

## Third Gravi-Gamma Workshop: The multimessenger view of the black hole life cycle



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### A fast radio burst from a Galactic magnetar

*Thursday, 6 October 2022 15:30 (30 minutes)*

Fast radio bursts (FRBs) are bright millisecond-duration bursts of radio waves coming from far outside the Galaxy whose nature is an ongoing mystery in astrophysics. A leading model for FRBs is that they are extragalactic magnetars, young neutron stars whose emission is powered by their extremely strong magnetic fields. However, a challenge to these models was that FRBs must have radio luminosities many orders of magnitude larger than those seen from known Galactic magnetars. On 2020 April 28, the Canadian Hydrogen Intensity Mapping Experiment (CHIME) FRB project discovered a bright radio burst from Galactic magnetar SGR 1935+2154 during a known state of X-ray outburst. The radio burst energy of the detected burst was three orders of magnitude higher than any radio emission previously seen from a Galactic magnetar and it overlaps with the faintest known extragalactic FRBs. This discovery strongly signals that at least some FRBs originate from magnetars, although the fraction is unlikely to be unity and may even be small. In this talk I will present the CHIME/FRB discovery of the radio burst, put it in context with the wider evidence for and against FRBs as magnetars, and discuss the implications of this landmark result.

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