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Magnetars in the Infrared

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Most of our knowledge about magnetars and pulsars is based on high-energy or radio observations. Due to the faintness of neutron stars in the infrared and the limited availability of space missions covering the wavelengths between millimeter wavelengths and the visible light, infrared studies of these compact objects are sparse. Yet, there is a lot of discovery potential at these wavelengths. The recently launched JWST allows us to probe the physics of magnetars and their environments with deep infrared observations.

A particularly interesting example is the bright magnetar 4U 0142+61 for which Wang et al 2007 reported an infrared excess, based on Spitzer observations, that was interpreted as a passive disk. Our JWST observing campaign measured the infrared emission of 4U 0142+61 over a wider wavelength range than has been previously possible. This presentation will summarize our surprising results, discuss their implications for the infrared emission process, and put them into perspective with respect to other infrared observations of neutron stars.

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