

Abstract Submitted
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NICER monitoring of magnetar 4U 0142+61 during outburst

MELANIA NYNKA, McGill University — Magnetars make up an extraordinary subcategory of neutron stars. While canonical neutron stars or pulsars power their emission rotationally through the loss of angular momentum, magnetars are dominated by the evolution of ultra strong magnetic fields. NICER is well-suited to study the unusual and variable behavior of magnetars which includes large X-ray outbursts, flares, and glitches in timing properties that can be used to probe their extreme environments.

Shortly after the launch of NICER magnetar 4U 0142+61 rapidly brightened in X-ray and was quickly observed by the newly-commissioned observatory. With a subsequent 4-month monitoring program NICER was able to observe the evolution of the spectrum, pulse profile, and timing properties of the magnetar as it slowly transitioned back to its quiescent state. We present the findings from this campaign and discuss the implications for the structure and physical processes that govern magnetars and their magnetospheres.

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