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Constraints on Neutron Star Crusts From Oscillations in Giant Flares[1] ANDREW STEINER, JINA/NSCL, Michigan State University, ANNA WATTS, Astronomical Institute "Anton Pannekoek" — We show that neutron star seismic modes observed as quasi-periodic oscillations in giant flares emitted by highly-magnetized neutron stars are particularly sensitive to the nuclear physics input of the neutron star crust. In fact, we find that the oscillation frequencies may prove to be one of the strongest constraints from astrophysical observations on the physics of nucleonic matter just below the saturation density. Previous work as suggested that the 30 Hz mode observed is the fundamental crustal mode. We show that this requires a particularly soft nuclear symmetry energy, which may not be supported by planned experimental measurements of the neutron skin thickness of lead.

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