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Mirror Neutron Stars JACK SETFORD, Univ of Toronto, JACQUELYN NORONHA-HOSTLER, NICOLAS YUNES, University of Illinois at Urbana-Champaign, DAVID CURTIN, Univ of Toronto, MAURICIO HIPPERT, HUNG TAN, University of Illinois at Urbana-Champaign — The potential for the discovery of exotic compact objects using gravitational wave observatories motivates the investigation of Mirror Neutron Stars. Mirror matter can occur in many well-motivated particle physics models, can be a subcomponent of dark matter and can be very weakly interacting with Standard Model matter. The simplest realisation of mirror matter results in a scaling-up of the masses of the quarks and leptons, resulting in a dark QCD sector with a higher confinement scale and heavier bound states. We use a simple model of the nuclear equation of state for Mirror QCD and discuss observable characteristics of Mirror Neutron Stars, including their mass-radius relationship, I-Love-Q relations, etc. We show that our results and predictions for the properties of Mirror Neutron Stars are robust even given uncertainties concerning the nuclear equation of state. Given the future reach of gravitational

Jack Setford
Univ of Toronto

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