

Abstract Submitted
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What can LIGO results say about mountains on pulsars? BENJAMIN OWEN, RICHARD O'SHAUGHNESSY, Penn State — Neutron stars containing quark matter might have ellipticities large enough to generate periodic gravitational waves detectable in LIGO's recent data. Detection of a large ellipticity would indicate the presence of quark matter, but even upper limits can be interesting. A single upper limit does not constrain the composition of the star because any star may just happen to be very smooth, but a set of upper limits may constrain population statistics and deformation mechanisms. We consider two generic phenomenological models, a static power-law distribution of ellipticities and a dynamical scenario with generic mountain building and mountain shrinking processes. We describe how future LIGO observations, even if they are only upper limits, will constrain these models more than they are already constrained by pulsar spin-downs.

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