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R-mode frequencies of slowly rotating relativistic neutron stars with realistic equations of state BENJAMIN OWEN, Texas Tech University, ASHIKUZZAMAN IDRISY, Penn State University, DAVID JONES, University of Southampton — The frequencies of r-mode oscillations of rotating neutron stars can be useful for guiding and interpreting gravitational wave and electromagnetic observations. We extend the formalism of Lockitch et al to compute r-mode frequencies for slowly rotating relativistic stars with realistic equations of state. We find that the r-mode frequency ranges from 1.39 to 1.57 times the spin frequency of the star when the relativistic compactness parameter (M/R) is varied over the astrophysically motivated interval 0.11 to 0.31. The results presented here are relevant to the design of gravitational wave and electromagnetic r-mode searches, and following a successful r-mode detection could help constrain the high density equation of state.

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