

Abstract Submitted  
for the CAL13 Meeting of  
The American Physical Society

**Fluid Oscillations of Neutron and Quark Stars** ANASHE BANDARI, PRASHANTH JAIKUMAR, California State University, Long Beach — Quasi-toroidal modes—or r-modes—are modes of oscillation on a neutron star in which the Coriolis force is the restoring mechanism, and the frequency of the oscillation is proportional to the star's rotational speed. By starting with the Euler equations for fluid dynamics and applying linear perturbations to the pressure and density terms, we obtain a system of equations from which, when we take into account the equation of state of the star, we can solve for the frequencies of these oscillations. We describe these calculations for a neutrally stable star and an incompressible star. We indicate how these calculations will proceed in neutron stars or hybrid stars with quark matter. These results will be used in the study of gravitational waves.

Anashe Bandari  
California State University, Long Beach

Date submitted: 26 Sep 2013

Electronic form version 1.4