Abstract Submitted
for the TSF11 Meeting of
The American Physical Society

Searching for the "Fifth Force" with the Spectrum of Gravitational Wave Signals from Oscillating Neutron Stars WEIKANG LIN, TAMU-Commerce — What information about the "fifth force" could be drawn from the gravitational waves signals? As long as the maximum mass of the neutron star is concerned, there is a degeneracy between the uncertainty in nuclear matter properties and the uncertainty in the gravity, since the soft EOS can also produce a large enough maximum mass under the effect of Yukawa term. We investigated the Yukawa-term-modified gravity on the mode oscillation frequencies of non-rotating neutron stars. The existence of Yukawa term could bring down significantly the mode oscillation frequencies. The distinct effect on stellar mode oscillation frequencies would help to solve the above degeneracy. While there have been some experiments to search and set constraints on the "fifth force," we state that the gravitational wave detection would open a new approach to this problem.

Weikang Lin
TAMU-Commerce

Date submitted: 12 Sep 2011 Electronic form version 1.4