Abstract Submitted
for the APR11 Meeting of
The American Physical Society

Using spin-down of neutron stars as a probe of the phases of ultra-dense matter SIMIN MAHMOODIFAR, MARK G. ALFORD, KAI SCHWENZER, Washington University in St. Louis — Spin frequency is the most accurately measurable property of neutron stars. The range of possible frequencies is determined by internal properties, such as the amplitude of "r-modes," which spin the star down by emitting copious gravitational radiation. I will discuss the damping of r-modes by non-linear contributions to the bulk viscosity, which grow with the oscillation amplitude and may become large enough to stop the growth of the r-modes. I will present our results for the viscous damping of the r-modes taking into account the high-amplitude bulk viscosity for different cases of hadronic stars, strange stars and hybrid stars and its effect on the spin-down evolution of the star.

Simin Mahmoodifar
Washington University in St. Louis

Date submitted: 16 Jan 2011 Electronic form version 1.4