## The Modern Physics of Compact Stars and Relativistic Gravity 2021



Contribution ID: 17

Type: not specified

## LOCV calculation of the equation of state and r-mode instability of neutron stars

Tuesday 28 September 2021 11:00 (35 minutes)

R-modes are well known quasi-toroidal oscillations in rotating fluids that happen because of the Coriolis effect [1]. These modes are driven instable by gravitational radiation reactance via the Chandrasekhar-Friedman-Schutz (CFS) mechanism and can increase toroidal magnetic field by inducing differential rotation in neutron stars [2]. The bulk viscosity is the basic dissipation mechanism at high temperature and the shear viscosity is the dominant mechanism at low temperature [3].

In this paper, we study r-mode instability windows and present the calculation of critical angular velocity  $\Omega c$  [4]. We have used the microscopic lowest order variational (LOCV) method to extract the EOS by employing the realistic nucleon-nucleon interaction [5][6].

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