

## **Constraining the nuclear EOS and neutron star models with QPOs from giant flares**

We examine crustal torsional oscillations, newly taking into account the effect of the pasta structure. We find from eigenmode analyses for various models of the equation of state of uniform nuclear matter that the fundamental frequencies of such oscillations are almost independent of the incompressibility of symmetric nuclear matter ( $K_0$ ), but strongly depend on the slope parameter of the nuclear symmetry energy ( $L$ ). On the other hand, we also find that the frequencies of the 1st overtones depend strongly on not only  $L$  but also  $K_0$ . By comparing the resultant frequencies to the quasi-periodic oscillations observed in the giant flares, we can constrain the values of  $L$  and  $K_0$ . Furthermore, considering the constraints on  $K_0$  obtained from the terrestrial nuclear experiments, we can successfully make a more severe constraint on not only  $L$  but also the neutron star model for SGR 1806-20.

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