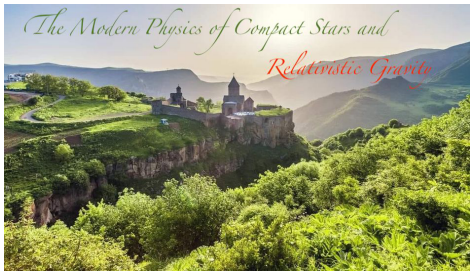

Contribution ID: **66** Type: **not specified**

Making (neutron-star) mountains out of molehills

Tuesday, September 28, 2021 1:00 PM (25 minutes)

Over the past few years, we have enjoyed a wide variety of gravitational-wave detections of compact binary coalescences. However, the wait continues for the first observation of a rotating neutron star via gravitational waves and, so far, only upper limits on the size of the involved deformations have been obtained. For these reasons, the maximum quadrupole deformation (or mountain) that a neutron star can sustain is of great interest. In this talk, I will outline how neutron-star mountains are calculated, while identifying issues with previous studies relating to boundary conditions. In light of these issues, I shall present a novel scheme for modelling neutron-star mountains, which requires a description of the fiducial force that takes the star away from sphericity. I will show some results computed in full general relativity, exploring the roles of both the deforming force and the equation of state in supporting mountains.

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