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The maximum mass of a neutron star is a fundamental issue in astrophysics, as it critically constrains the equation of state of ultra-dense matter. While the Tolman-Oppenheimer-Volkoff (TOV) limit provides a theoretical upper bound for non-rotating stars, most observed neutron stars are rotating. This talk examines how rapid rotation alters the maximum mass limit, pushing it beyond the classical TOV value. We will explore the theoretical challenges in modelling these stationary configurations and present a novel discussion on the consequences for the observed mass distribution of compact objects, particularly the mass gap between the most massive neutron stars and the least massive black holes.

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