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Dense nuclear matter with phenomenological short distance repulsion

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The possibility of short distance repulsion applicable inside the cores of neutron stars is incorporated into the hadron equation of state generated by the quark-meson coupling model. Whilst obtaining an incompressibility compatible with data on giant monopole resonance, neutron stars are predicted to have a maximum mass in excess of 2.1 $M_\odot$, even when hyperons are included under β-equilibrium. Radii and tidal deformations are also consistent within the current experimental constraints.

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