Dense Nuclear Matter with Bag Overlap

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The possibility of new short-distance physics applicable inside the cores of NS is incorporated into the equation of state generated by the quark-meson coupling model. The contribution of this new physics to the energy density is taken to be proportional to the amount of overlap between the quark cores of the baryons involved. With no change to the properties of symmetric nuclear matter at saturation density, including an incompressibility compatible with data on giant monopole resonances, one can sustain neutron stars with a maximum mass $M_{max} > 2.1$ M$_\odot$, even when hyperons are included.