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Uniform models of neutron and quark stars in General Relativity

Models of neutron and quark stars are considered in the case of a uniform density distribution. A universal algebraic equation, valid for any equation of state, is obtained in General Relativity. This equation allows one to find
the approximate mass of a star for a given density without resorting to the integration of differential equations. The solutions neutron star models for various equations of state, are calculated. The maximum values of stable NS masses differ from the values in exact solutions obtained by the numerical integration of differential equations by at most 20%.

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