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Deformed neutron stars due to strong magnetic field in terms of relativistic mean field theories KOTA YANASE, NAOTAKA YOSHINAGA, Saitama University — Some observations suggest that magnetic field intensity of neutron stars that have particularly strong magnetic field, magnetars, reaches values up to 10^{14-15}G. It is expected that there exists more strong magnetic field of several orders of magnitude in the interior of such stars. Neutron star matter is so affected by magnetic fields caused by intrinsic magnetic moments and electric charges of baryons that masses of neutron stars calculated by using Tolman-Oppenheimer-Volkoff equation is therefore modified. We calculate equation of state (EOS) in density-dependent magnetic field by using sigma-omega-rho model that can reproduce properties of stable nuclear matter in laboratory Furthermore we calculate modified masses of deformed neutron stars.

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