Constraints on neutron-star mass-radius relation by the EOS derived from realistic interactions NGO QUANG THIN, SHOJI SHINMURA, Faculty of Engineering, Gifu University, Yanagido 1-1 Gifu 501-1193, Japan — Using new versions of realistic baryon-baryon interactions, we determine the EOS of high-density beta-stable baryonic matter and calculate the mass-radius relation of neutron stars by solving the TOV equation. We consider the three regions in neutron stars. The first region is the crust of neutron stars, which is not important for the mass-radius relation. The second is the region dominated by hadronic interactions with densities lower than n-times of the nuclear normal density, where n is a variable. In this region, we assume additionally a theoretical three-body force. Third region is that with densities higher than n-times of the normal density. This region is described by the EOS allowed theoretically. Our aim in this talk is to impose constraints on the mass-radius relation of neutron stars based on the EOS in the second region.

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