

Abstract Submitted
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Self-bound state with kaon condensates and its implications for deeply-bound kaonic nuclei TAKUMI MUTO, Chiba Institute of Technology — We study the equation of state with kaon condensates in hyperonic matter, where hyperons (Λ) are mixed in the ground state of neutron-star matter, by the use of the effective chiral Lagrangian for the kaon-baryon interaction, combined with the nonrelativistic baryon-baryon interaction model. Due to much softening of the EOS caused by both hyperon-mixing and kaon condensates, it is shown that the energy of the system has a local minimum as a density isomer, which leads to a metastable configuration of a self-bound kaon-condensed star in addition to a usual kaon-condensed star with a two-phase structure obtained by the Maxwell's construction. Based on the EOS, a possible existence of a kaon-condensed nucleus and its relation to deeply bound kaonic nuclei are also considered in a simple liquid-drop picture.

Takumi Muto
Chiba Institute of Technology

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