Reconstruction of Neutron Star Mass Distribution from Cooling Evolution

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Based on observations of the surface temperature and age of neutron stars, possible mass values of the observed objects were investigated across various cooling models. The results showed that these values strongly depend on the compressibility and superconductivity of nuclear matter. It was found that the masses of the observed stars primarily range between 1.2 and 1.7 solar masses. Additionally, the dependence of the temperature range of neutron stars on their age was studied for different cooling models.