

# The entrainment matrix of superfluid nucleon-hyperon mixture

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We calculate the entrainment matrix, an important parameter of hydrodynamics of superfluid mixtures, for the matter of inner layers of neutron stars composed of nucleons (neutrons and protons), hyperons ( $\Lambda$  and  $\Sigma^-$ ), as well as electrons and muons. In the approximation of zero temperature, the calculation is performed using the relativistic mean field sigma-omega-rho model and in the frame of non-relativistic Landau Fermi-liquid theory. Comparing the results of these two approaches, we find all 16 Landau parameters for the nucleon-hyperon matter. Using these Landau parameters, we determine the entrainment matrix for any temperature. The results can be important for analyzing pulsations and gravitational-radiation driven instabilities of superfluid neutron stars.

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