

Energy of Gravitational Field of Static Spherically Symmetric Neutron Stars

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Abstract: By using the Einstein-Tolman expression of the energy-momentum pseudo-tensor, the energy density of the gravitational field of the static spherically symmetric neutron stars is calculated in the Cartesian coordinate system. It is exciting that the energy density of gravitational field is positive and rational. The numerical results of the energy density of gravitational field of neutron stars are calculated. For neutron stars with $M=2M_{\odot}$, the ratio of the energy density of gravitational field to the energy density of pure matters would be up to 0.54 at the surface.

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Key words: the energy of gravitational field, neutron star, Einstein-Tolman expression

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