

The rates of non leptonic weak processes in spin one superconducting quark matter

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Abstract content

Summary

It is possible that the densest regions inside neutron stars are made of a qualitatively new, quark state of matter. Such quark matter is likely to be color superconducting. In this work we calculate the rates of the non-leptonic weak processes in four different spin-one color superconducting phases of quark matter that may exist in the inner cores of neutron stars. The non-leptonic processes in question are likely to dominate the dissipation mechanism responsible for the bulk viscosity of the stellar matter. This work may have important observational significance in the future studies of stars and shed light on the possible existence of dense quark matter in nature.

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