

# Asymmetric neutrino emission in quark matter and pulsar kicks

Irina Sagert<sup>1</sup>, Jürgen Schaffner-Bielich<sup>1</sup>

<sup>1</sup>Institute for Theoretical Physics, J.W. Goethe University

**ABSTRACT:** The direct Urca process in quark matter is tested for asymmetric neutrino emission due to a strong magnetic field. The results are applied to neutron stars with quark cores. To create a possible propulsion mechanism for the neutron stars due to the asymmetric neutrino emission we give constraints on the neutron star's temperature, magnetic field strength and electron chemical potential by considering fully spin-polarized electrons and neutrino mean free paths.