Contribution ID: **42** Type: **not specified**

Rapid Spin-Deceleration through Asymmetric Neutrino Emission in Magnetized Proto-Neutron Stars

We estimate the maximum possible contribution to the early spin deceleration of proto-neutron stars due asymmetric neutrino absorption under the strong magnetic field. We calculate the neutrino reaction in the context of a fully relativistic mean field theory and estimate the spin deceleration of neutron stars due to asymmetric neutrino absorption in a toroidal magnetic field configuration. We find the deceleration can much larger for asymmetric neutrino absorption in a toroidal magnetic field than
the braking due to magnetic dipole radiation.

Primary author: MARUYAMA, Tomoyuki (Nihon University)

Co-authors: Prof. MATHEWS, Grant Mathews (University of Notre Dame); Dr HIDAKA, Jun (National Astronomical Observatory of Japan); Prof. CHEOUN, Myong Ki (Department of Physics, Soongsil University, Seoul); YASUTAKE, Nobutoshi (Chiba Institute of Technology); Prof. KAJINO, Toshitaka (National Astronomical Observatory of Japan)

Presenter: MARUYAMA, Tomoyuki (Nihon University)