

Magnetic field amplification and the search for Magneto-Rotational-Instability in bar-mode unstable Neutron stars.

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Thanks to the recent advances in high performance computing, it is opening the possibility to tackle new problems on the dynamics of magnetic fields inside neutron stars where very-high-resolution three-dimensional simulations in full General Relativity are needed. We present results on the possible roles that magnetic instabilities may have the evolution of neutron star during matter unstable phases.

Our main goal was to find and follow the possible onset and growth of magneto-rotational instability (MRI).

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