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## Creation and dissipation of magnetic fields in the relativistic plasmas of compact objects

Compact objects, and neutron stars in particular, are characterised by strong magnetic fields that are crucial to explain the high-energy emission from the sources. These magnetic fields may be subject to complex evolution inside the hosting relativistic plasma, like dynamo or chiral processes amplifying initial seed fields in early stages, or dissipative reconnection events in thin current sheets as believed to occur in the magnetospheres of magnetars. Here we present a unified treatment of these non-ideal effects within the framework of general relativistic magnetohydrodynamics (GRMHD) and numerical simulations obtained with the ECHO code will be shown for selected test cases.

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