



Contribution ID: 457

Type: **Talk in a parallel session**

Protoneutron star dynamos and magnetar formation

Tuesday, 9 July 2024 17:20 (20 minutes)

Magnetars are isolated young neutron stars that exhibit the most intense magnetic fields known in the Universe and are characterized by a wide variety of high-energy emissions. The birth of rapidly rotating magnetars is also a promising scenario to power outstanding explosive transients. The formation process of these objects, as well as the origin of their ultra-strong magnetic fields, remains an open question, but the amplification of magnetic fields by MHD instabilities inside protoneutron stars seems inevitable. I will review the different dynamo scenarios that can explain magnetar formation, focusing on recent progress achieved with 3D-MHD HPC simulations, and discuss them in light of various observational constraints.

Primary authors: Dr REBOUL-SALZE, Alexis (AEI); Dr GUILLET, Jérôme (CEA); Dr BUGLI, Matteo (UniTO); Dr BARRÈRE, Paul (CEA); RAYNAUD, Raphaël (UPCité)

Presenter: RAYNAUD, Raphaël (UPCité)

Session Classification: High energy astrophysics

Track Classification: High energy (HE): High energy astrophysics