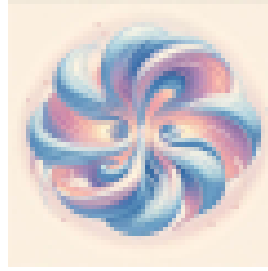


# The 8th International Conference on Chirality, Vorticity and Magnetic Field in Quantum Matter



ID de Contribution: 23

Type: **Talk**

## Chiral transport phenomena in core-collapse supernovae

*mardi 23 juillet 2024 14:30 (30 minutes)*

The dynamics of relativistic leptons such as electrons and neutrinos play an important role in the evolution of core-collapse supernovae (CCSN). Nevertheless, chirality as one of the fundamental microscopic properties that could affect lepton transport through the weak interaction has been widely overlooked. In this talk, I will discuss how chiral effects such as the (effective) chiral magnetic effect (CME) for an electric charge current induced by magnetic fields could result in unstable modes of magnetic fields and inverse cascade, which may further influence the matter evolution in CCSN, pulsar kicks, and dynamical generation of strong magnetic fields in magnetars. I will also show how such an effective CME could be realized via the backreaction from non-equilibrium neutrino radiation even in the absence of chiral imbalance.

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**Classification de Session:** Chiral Magnetic Effect