

Workshop on Kinetic Models of Relativistic Plasmas



Contribution ID: 35

Type: **not specified**

Alfven-wave Turbulence vs. Reconnecting Turbulence

Thursday, March 2, 2023 9:00 AM (40 minutes)

Relativistic turbulence can energize and illuminate magnetized plasmas around magnetars, neutron star mergers, jets, and accretion flows. In some cases, the turbulence can be naturally powered by “ringing” and “twisting” motions of the local magnetic field lines - magnetic shear waves. In other cases, the turbulence is triggered by rapid reconfiguration of the magnetosphere - magnetic reconnection events. Both cases are efficient at transferring the local magnetic energy into the kinetic energy of the plasma. In my talk, I will give an overview of the possible astrophysical sources that can house such turbulent magnetospheres. I will also present our latest efforts in modeling these turbulent energy-transfer processes with fully-kinetic 3D plasma simulations. Lastly, I will remark on their radiative properties and how to distinguish these various forms of turbulence from each other.

Primary author: NÄTTILÄ, Joonas

Presenter: NÄTTILÄ, Joonas