Contribution ID: **67**   Type: **not specified**

Magneto-vortical Effect in Strong Magnetic Field

We develop covariant chiral kinetic theory with Landau level basis. We use it
to investigate a magnetized plasma with a transverse electric field and a steady vorticity as
perturbations. After taking into account vacuum shift in the latter case, we find the resulting current and
stress tensor in both cases can be matched consistently with constitutive
equations of magnetohydrodynamics. We find the solution in the vorticity case contains
both shifts in temperature and chemical potential as well as excitations of the lowest Landau
level states. The solution gives rise to an vector charge density and axial current density.
The vacuum parts coming from both shifts and excitations agree with previous studies and
the medium parts coming entirely from excitations leads to a new contribution to vector
charge and axial current density consistent with standard chiral vortical effect.

Primary author: LIN, Shu (Sun Yat-Sen University)

Co-author: YANG, Lixin (Sun Yat-Sen University)

Presenter: YANG, Lixin (Sun Yat-Sen University)