



## Velocity shear driven instability in relativistic EMHD regime

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Velocity shear driven instability is critical for fast-ignition scenarios. At fast time scales, this velocity shear driven Kelvin-Helmholtz (KH) like instability has been investigated for non-relativistic electron fluids in past in considerable detail with the help of Electron Magneto hydrodynamic (EMHD) model. The present talk provides a simple generalization of the EMHD model to relativistic regime in 2-D. Even in the relativistic regime by confining to phenomena occurring at time scales slower than the plasma period the density perturbations can be neglected. This leads to a simplified incompressible relativistic fluid model for electron motion in 2-D. It is observed that the usual normal KH like unstable mode gets modified due to the shear in the relativistic mass factor associated with the equilibrium velocity flow.

### References

- [1] Electron velocity shear driven instability in relativistic regime, Sita Sundar and Amita Das, Physics of Plasmas 17(2), 022101 (2010)