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Lecture: Kinetic Theory of Collisionless plasma

Monday, 2 July 2018 11:00 (1 hour)

The motion of particles in E-M fields, pitch angle evolution and an intro to the fluid description of a plasma

Topics of Particle motion in steady electromagnetic fields include:

Motion in uniform and non-uniform steady B fields - gyration, mirror motion, first adiabatic invariant.

E_{\parallel} is usually zero

$\mathbf{E} \times \mathbf{B}$ drift

Frozen in flow

Gradient and curvature drifts

Briefly, effect of collisions - Pedersen and Hall currents, loss cone

Primary author: NICHOLS, Jonathan (University of Leicester)

Presenter: NICHOLS, Jonathan (University of Leicester)