Oblique electron fire hose instability

Petr Hellinger (1), Pavel Travnicek (1,2), and Victor Decyk (3)
(1) Astronomical Institute, AS CR, Prague, Czech Republic (petr.hellinger@asu.cas.cz, +420 226258499), (2) SSL, University of Berkeley, USA, (3) UCLA, Los Angeles, USA

Nonlinear properties of the resonant oblique electron fire hose instability are investigated using a two-dimensional full-particle code in the Darwin approximation. The numerical simulations show that the oblique fire hose instability generate initially zero-frequency waves which are gradually transformed into propagating whistler waves; during this process the waves are strongly damped and heat electrons mainly in the perpendicular direction. The final state of the simulation is stable, far from the marginal stability of the fire hose.