

FINAL STATE SENSITIVITY OF PARTICLES IN A MAGNETIC NEUTRAL LINE FIELD, Jamie Svetich, Richard Martin*, Illinois State University Physics Department, Normal, IL 61790-4560, rfm@phy.ilstu.edu

Interactions between plasma particles and Earth's magnetic field are relevant to magnetic storms, which affect the aurora, radio communications, and the power grid. Observations indicate a region in the Earth's magnetotail is important in the dynamical processes involved. In this talk we will concentrate on particle dynamics in a magnetic neutral line field, where the magnetic field goes to zero along a line across the magnetotail. Previous work has shown scattering in a current sheet field has fractal behavior and we would like to see if the neutral line exhibits the same properties. The motion is known to be chaotic for some parameters and I will investigate final state sensitivity after the particles scatter off the neutral line region.