

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Using Plasma Metrics as a Diagnosis of Solar Wind Mode Composition KRISTOPHER KLEIN, GREGORY HOWES, JASON TENBARGE, University of Iowa — We present a suite of plasma metrics, including electric and magnetic field polarizations, helicities, and compression ratios, which taken together can be used as a means of identifying the presence as well as type of linear wave modes in a turbulent plasma such as the solar wind. The importance of the wavevector size and angle as well as various plasma parameters such as β and T_{\perp}/T_{\parallel} are taken into account in determining the expected behavior of these metrics. These metrics are then examined in synthetic data prepared from spectra of linear kinetic eigenmodes and non-linear gyrokinetic simulations. A comparison between synthetic and in-situ data taken from the solar wind could help to elucidate the role of linear and non-linear physics in the turbulent transfer of energy from large to small scale fluctuations.

Kristopher Klein
University of Iowa

Date submitted: 09 Jul 2012

Electronic form version 1.4