

Model dynamic spectra from angular beaming patterns of ECMI radiation propagating in exoplanet magnetospheres

Robert Mutel
University of Iowa USA (robert-mutel@uiowa.edu)

Abstract

The beaming pattern of radiation produced by the electron-cyclotron maser instability (ECMI) is a complex function of the electron distribution function, the ratio of electron gyro-to-plasma frequency, and the harmonic number. In addition, refractive effects due to intervening magnetospheric plasma can strongly modify the angular beaming pattern. I will present expected dynamic spectra resulting from numerical models of ECMI radiation propagating in model planetary magnetospheres for a variety of obliquely rotating magnetospheres and observer viewing angles. The model uses a full 3-d ray tracing propagation model and accounts for both the fundamental and higher harmonics in both L-O and R-X modes.