



## **The Detection and Consequences of Coherent Electromagnetic Plasma Waves**

Bruce T. Tsurutani<sup>1</sup>, Gurbax S. Lakhina<sup>2</sup>

<sup>1</sup>Space Research Center, Pasadena, Calif. USA <sup>2</sup> Indian Institute for Geomagnetism, Navi Mumbai, India

e-mail (Bruce Tsurutani): Bruce.Tsurutani@gmail.com

Space plasma wave instrumentation has the ability to make extremely high cadence, 3D measurements of both electromagnetic and electrostatic plasma waves. We have recently made the discovery that both electromagnetic whistler mode and ion cyclotron waves in the Earth's magnetosphere are coherent when

detected near their source regions. This has extreme implications for cyclotron resonant wave-particle interactions. It also has implications for the instabilities creating the coherent waves. In this talk we will discuss only the former topic, that of pitch angle transport.