RSPP seminars

Dr Thomas Elsden

University of St Andrews

"Magnetospheric Field Line Resonances in 3D"

Low frequency periodic perturbations to the Earth's background magnetic field, known as ultra low frequency (ULF) waves, have been observed on the ground and in space for many decades. With a large scale length and low frequency, these waves can be effectively studied using magnetohydrodynamics (MHD). This talk will focus on a particular type of ULF wave phenomena, known as field line resonance (FLR). This is the result of wave coupling between two MHD wave modes, namely the fast magnetoacoustic wave and the Alfvén wave. This results in the generation of Alfvén waves which propagate along field lines toward the ionosphere, and can then be observed on the ground. Indeed, FLR is a mechanism which has been used to explain a plethora of ground and spaced based ULF wave observations. I will summarise the theoretical/modelling work that I've been doing with Andy Wright over the last three years, which looks at the effects of considering 3D inhomogeneities in the magnetic field and density on FLR formation.

Wednesday, September 26th at 4 pm in Physics LTD