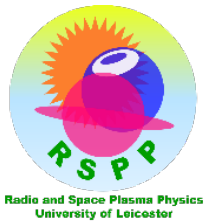
RSPP seminars



UNIVERSITY OF LEICESTER

Dr Maria Walach

Lancaster University

"Ionospheric Convection and Auroral Responses to Solar Wind Driving"

When the interplanetary magnetic field is orientated southward it reconnects with the Earth's magnetosphere, meaning that part of the Earth's magnetic field is directly connected to the Sun's. This "open flux" must eventually close on the nightside of the Earth, which is a poorly understood process. When dayside reconnection is dominant over nightside reconnection, the amount of flux which is directly connected to the solar wind increases, such that the polar cap, the area where it meets the Earth's surface, and with it, the auroral oval, will move towards the equator. When nightside reconnection is dominant, the opposite happens and the auroral oval contracts towards the pole.

The resulting ionospheric plasma convection is measurable by the purpose-built Super Dual Auroral Radar Network (SuperDARN). The Earth's environment responses differ depending on time-history of the system and level of solar wind driving, for example enhanced and prolonged southward interplanetary magnetic fields lead to steady magnetospheric convection and more extreme levels of driving, to events such as geomagnetic storms. Using a combination of datasets from ground-based radars to spacecraft in the solar wind, I explore the spectrum of magnetospheric and ionospheric responses to solar wind drivers.

Wednesday, January 16th at 2 pm in Physics LTD