Title: Observation of Ionospheric Alfven Resonator with Double Spectral Resonance Structures

Presented by: Adhitya Pavithran

Abstract:

Ionospheric Alfven Resonator (IAR) is the spectral resonance structures (SRS) in the frequency range of 0.1-10 Hz, as observed in the geomagnetic field variations. It is widely considered that the Alfven waves trapped in ionospheric cavity bounded by the conductive E layer and F2 layer constitute standing wave, which can resonate in presence of suitable driver. This phenomenon is termed as IAR. Characteristics of SRS depend on local ionospheric conditions and hence can serve as diagnostic tools to probe the ionospheric cavity. The analysis of the magnetic data of induction coil magnetometer at Shillong reveals the presence of double spectral resonance structures (SRS), with large spectral resonance structures appearing along with fine spectral resonance structures. The altitudinal variation of refractive index is examined using IRI 2016 model to understand the role of local ionospheric conditions in the formation of double spectral resonance structures. Our study reveals that the excitation of double SRS is related to the E-region to F-region variability of refractive index of the ionosphere.