Physical Research Laboratory
Ahmedabad

Special Seminar

(Space & Atmospheric Sciences Division)

Title: **"What happened to the daytime 150-km echoing riddle?"**

Speaker: **Dr. A. K. Patra**
National Atmospheric Research Laboratory, Gadanki

Date: **31 August 2016**

Venue: **Ground Floor Lecture Hall**

Time: **14:30 hrs**

Highlight of the talk:

The daytime 150 km echoes were detected more than five decades ago using the Jicamarca radar, but their origin still remains elusive. Most of the 150 echoes, characterized by narrow spectral features (spectral width <15 m/s), were detected in the direction perpendicular to earth's magnetic field and were believed to be due to field-aligned plasma irregularities generated by interchange instability. Subsequent measurements made by the Jicamarca radar in directions a few degrees away from perpendicularity displayed spectral width >1000 m/s and echo power 10-20 dB higher than that expected from incoherent scattering and were attributed to 'naturally enhanced incoherent scattering'. Recent discovery of two distinct types of 150 km echoes, namely type-A and type-B, and subsequent progress in the large-scale kinetic simulation of photoelectron induced plasma waves have begun a new era in resolving the five decades long 150 km echoing riddle.
More recent observations from Gadanki, which show unexpected behavior of these echoes, however, cannot be account for by the new theory. This talk is meant to discuss various observational facts gathered by various radars including the latest ones from Gadanki and the current thinking in resolving the 150-km echoing riddle.

All interested are welcome.