

Speaker: Dr. Pankaj K. Soni

Title: Particle dynamics in the Earth's magnetosphere & some basic tools to understand it.

Abstract: - The Near-Earth environment hosts various processes like energetic particle dynamics, wave-particle interaction, particle acceleration/deceleration/loss, etc. These activities make this a subject of scientific interest and practical importance like space exploration or satellite communication etc. In this context, the Earth's magnetosphere is an excellent natural laboratory for studying particle dynamics and their interaction with plasma waves. To probe the various magnetospheric phenomena, tools like theoretical analysis, simulations, and satellite or ground-based observations can be used based on the requirement. In this talk, I will be discussing some of the basic magnetospheric phenomena and a few of the fundamental tools to probe them.

Reference:

[1]. **Tsurutani & Lakhina, 1997**, *Some basic concepts of wave-particle interactions in collisionless plasmas*, Reviews of Geophysics, <https://doi.org/10.1029/97RG02200>,

[2]. **Soni et al., 2022**, *Simulation study of motion of charged particles trapped in Earth's magnetosphere*, Advances in Space Research, <https://doi.org/10.1016/j.asr.2020.10.020>.

[3..] **Kakad et. al, 2022**, *An audit of geomagnetic field in polar and south atlantic anomaly regions over two centuries*, Advances in Space Research, <https://doi.org/10.1016/j.asr.2021.12.011>.