Physical Research Laboratory
Ahmedabad
Area Seminar

(Space & Atmospheric Sciences Division)

Title: **"Cosmic rays and global lightning activity"**

Speaker: **Dr. S. P. Gupta**

Date: **21 November 2016**

Venue: **Ground Floor Lecture Hall**

Time: **16:00 hrs**

Highlight of the talk:

In May 1752, Benjamin Franklin has performed a famous kite experiment where he proved that lightning is an electrical phenomenon. This was a fundamental discovery and this was the beginning of atmospheric electricity research. More than 160 years later, another discovery was made by Victor Hess in August, 1912. He carried an electroscope and flew on board a balloon. He found that the rate of discharge of electroscope voltage decreases with altitude. Thus, he concluded that conductivity of air increases with altitude and the source of ionisation is somewhere in space. He called this source as "Kosmische Stralung" (a German word cosmic ray). Later Millikan coined the term cosmic rays. In recent years, a new source of ionisation in troposphere and stratosphere has been discovered. During thunderstorm activity and lightning activity, it is observed that gamma rays and high energy charged particles are emitted from the thundercloud. These high energy particles give rise ionisation in troposphere and stratosphere and, therefore, modulate the conductivity in these regions. These aspects will be discussed in this presentation.

All interested are welcome.