Title:- Introduction to Geomagnetic Storms

Abstract: Understanding of "Space Weather: Sun-earth interactions and geomagnetic storms" forms a key research area among the scientific world because of their adverse impact on different technological systems. This lecture aims to briefly outline different key elements of space weather beginning at the sun and impacting us as the geomagnetic storms. We discuss different channels of solar radiation outburst and plasma ejection, mechanism of geomagnetic storm, different approaches of magnetic reconnection, key geophysical parameters used to represent the geomagnetic activity, effects of storms on different technological systems and so on. A glimpse of latest geomagnetic superstorm and variability of a few geophysical parameters shall be presented. One of the beautiful outcomes of the strong solar wind-magnetosphere-ionosphere coupling during geomagnetic storms is the colorful display of light termed Aurora. We briefly discuss aurora with a word on some of future projections on its dynamics and associated changes in the mesosphere-lower thermosphere-ionosphere region using a grating-cum-prism based airglow and auroral spectrograph (installed at the Indian Antarctic Station Maitri).