**Title of the talk: Solar storms and their impacts on the Earth**

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**Abstract:**

SpaceX company lost 40 new satellites due to a solar storm that occurred on 4th February 2022. These Starlink satellites aim to improve and provide global access to broadband service. Solar storms (or geomagnetic storms) are triggered by coronal mass ejections (CMEs) from the Sun which are more frequent during the active phase of the 11-year solar cycle. CMEs are the main drivers of the solar storms which affect the space weather. Solar storms could cripple the global communication infrastructure, endanger the lives of the astronauts in space and disable worldwide electrical power grids. Starting with a brief introduction to solar storms, the talk will discuss
the significant threats posed by them and some details about the 4th February 2022 event. The GRAPES-3 experiment at the Cosmic Ray Laboratory in Ooty, Tamil Nadu is home to the world’s largest muon telescope.

It had discovered a transient weakening of Earth’s magnetic shield caused by a severe solar storm. The potentials of the GRAPES-3 experiment in studying solar storms and providing accurate predictions on their arrival will be discussed.