

Understanding substorms and associated ion energization processes within the Earth's inner magnetosphere

The ion composition in the Earth's magnetosphere is highly influenced by the interaction between the solar wind and the Earth's magnetic field. This interaction gives rise to various geomagnetic events, such as storms and substorms. Geomagnetic storms are large scale disturbances that results from impact of typical interplanetary conditions whereas substorms are associated with the sudden release of energy stored in the Earth's magnetotail. Understanding the particle dynamics during these geomagnetic phenomena is important as it provides us with the important information on the process of transport, energization and loss of the particles. The different mechanisms triggering substorms and proposed mechanisms that generate energetic populations during substorms will be discussed in the talk.