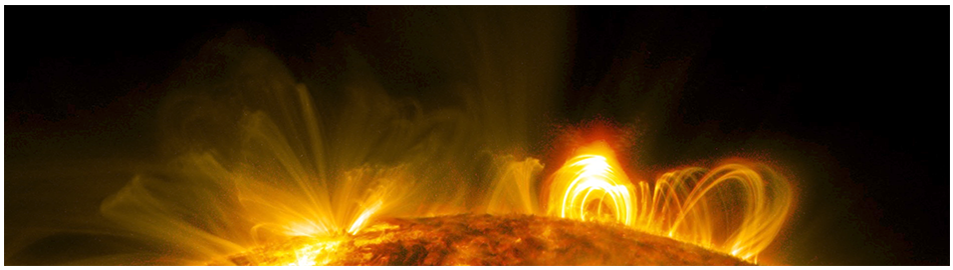

Contribution ID: **35** Type: **Poster**

Soft X-ray Spectral Diagnostics of Multi-thermal Plasma in Solar Flares with Chandrayaan-2 XSM

Thursday 18 November 2021 09:45 (1 hour)

Solar flares result from impulsive energy release due to magnetic reconnection in the solar atmosphere. Observational evidence suggests that the flaring plasma consists of a thermal distribution of particles heated to higher temperatures during the process and a non-thermal distribution of particles. As this hot plasma emits copiously in the X-ray wavelengths, X-ray spectral measurements provide a wealth of information on the physical conditions of the flaring plasma providing insights into the particle acceleration process in magnetic reconnection. Solar X-ray Monitor (XSM) onboard Chandrayaan-2 mission provides broad-band disk integrated soft X-ray solar spectral measurements in the energy range of 1-15 keV with high resolution and time cadence. We model the X-ray spectra obtained with XSM to investigate the evolution of the plasma parameters during a sample of C and M class flares. Using the soft X-ray spectra consisting of the continuum and well-resolved line complexes of major elements like Mg, Si, and Fe, we investigate the consistency of isothermal and multi-thermal assumptions on the higher temperature components of the flaring plasma. We will also discuss the diagnostic potential of combined analysis of soft to hard X-ray spectra of solar flares using XSM along with other instruments in the context of plans for future solar X-ray observatories.

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