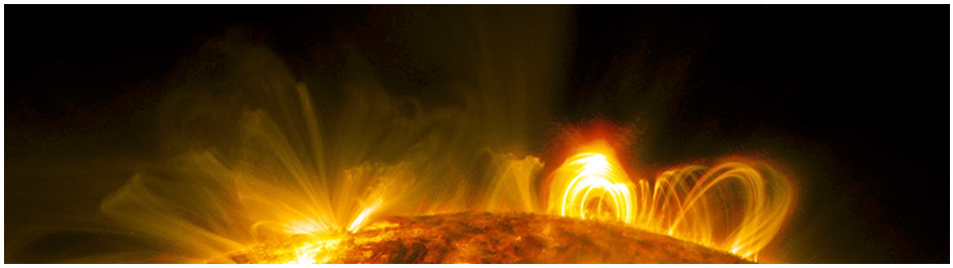

Contribution ID: **26** Type: **Invited talk**

Study of particle acceleration and plasma heating in solar flares with X-ray and EUV data: a progress report

Tuesday, 16 November 2021 08:30 (30 minutes)

Particle acceleration and plasma heating are key aspects of energy release in solar flares. They are closely related to magnetic reconnection process. Evidence of non-thermal emissions are found not only in large flares, but also in microflares and even nanoflares, suggesting that energetic electrons play a central role in energy release and plasma heating in at least a large fraction of flares. However, how plasma is heated in various coronal phenomena, including active regions, flares, coronal loops, hot channels, bright points, and quiet corona, is still an open question. In this talk, I will present recent studies using X-ray and EUV data which revealed new features of energetic electrons and particle acceleration in corona. The calculation of differential emission measure (DEM) for quiet Sun has been further improved recently and was used in the analysis of energetic particles and full corona. I will also introduce a flare detection code (RFD) and new database for studies of long-term coronal evolution and flaring activities during a full solar cycle. The database will provide us with essential info for both statistical studies and case studies. Preliminary statistical results suggest that microflares and nanoflares may help solve the coronal heating problem. The significance of these results for future studies and solar missions is discussed.

Primary author: SU, Yang (Purple Mountain Observatory, CAS)

Co-authors: XIA, Fanxiaoyu; VERONIG, Astrid; LU, Lei; CHEN, Wei; LI, Youping; GAN, Weiqun

Presenters: SU, Yang (Purple Mountain Observatory, CAS); XIA, Fanxiaoyu

Session Classification: Day 2 / Session 1