Contribution ID: **198** Type: **Poster**

3D structures and heating mechanism of a microflare revealed by radiative magnetohydrodynamic simulation

Wednesday, 8 September 2021 14:52 (13 minutes)

Structures and heating mechanism of microflares have been unclear, but which is promising to be resolved with coming Solar Orbiter data combined with other ground-based telescopes of ultrahigh temporal and spatial resolution observations. Here, we analyze 3D magnetic structures and heating mechanism of a microflare based on three-dimensional radiative magnetohydrodynamic simulation of a solar quiet region. The simulation is conducted with MURaM code in a box including the upper convection zone, the photosphere, the chromosphere, and the low corona. We find that the microflare is produced above the polarity inversion line between a small negative polarity and a dominant positive polarity. The locations of the strongest EUV emissions are identified to be cospatial with that of the fast energy release rate. With a magnetic topology analysis, a 3D fan-spine magnetic topology is found to be a possible reason to allow the energy release. Moreover, the microflare is also companied with obvious flux cancellation, however, which is found not to play an important role to cause this confined flare.

Primary author: LI, Zhuofei (Nanjing University)

Co-authors: CHENG, Xin (Nanjing University); CHEN, Feng (Nanjing University); DING, Ming-de (Nanjing University)

Presenter: LI, Zhuofei (Nanjing University)

Session Classification: Poster Session 7.3

Track Classification: Session 2 - The Solar Atmosphere: Heating, Dynamics and Coupling