

The role of campfires in the heating of solar coronal plasma observed by Solar Orbiter and Solar Dynamics Observatory

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Accurate detection of brightenings such as campfires (with length scales larger than 400 km and smaller than 4000 km) and bright coronal points is essential to explain the several million degrees of the solar coronal plasma. We develop a machine learning method via the Zernike moments to automatically identify and track brightenings observed by Solar Orbiter/EUI and Solar Dynamics Observatory (SDO)/AIA. The method detected 8678 campfires for a sequence of 50 EUI at 174 Å images. We identify more than two million coronal bright points for ten year of AIA data at 171 Å observations. We show that most of these brightening features are generated at the super granule boundaries, where high concentration magnetic flux is placed.

Presenter: Prof. SAFARI, Hossein