Research in Astrophysics from Space (E)
The Challenge of the Hidden Scales in Solar Dynamic Phenomena (E21)

PROMINENCE FINE STRUCTURES AND CORRESPONDING DIFFERENTIAL EMISSION MEASURES

Stanislav Gunar, stanislav.gunar@gmail.com
Astronomical Institute AS CR, Ondrejov, Czech Republic

Petr Heinzel, pheinzel@asu.cas.cz
Astronomical Institute AS CR, Czech Republic

Ulrich Anzer, ula@mpa-garching.mpg.de
Max Planck Institute for Astrophysics, Germany

We use the temperature and density structure resulting from multi-thread prominence fine-structure models (consisting of individual 2D vertical threads) to compute the differential emission measures (DEM). We derive the DEM at various positions along the length of the foremost thread of the multi-thread model and also for various angles between the line-of-sight and the magnetic field. We compare the calculated DEM values with those obtained by inversions from the observed intensities of the transition-region UV lines. We show that the unresolved fine-structuring of quiescent prominences along a particular line-of-sight has considerable effect on shape of the DEM curve due to fracturing of the prominence-corona transition region into many thin layers corresponding to individual prominence fine structures.