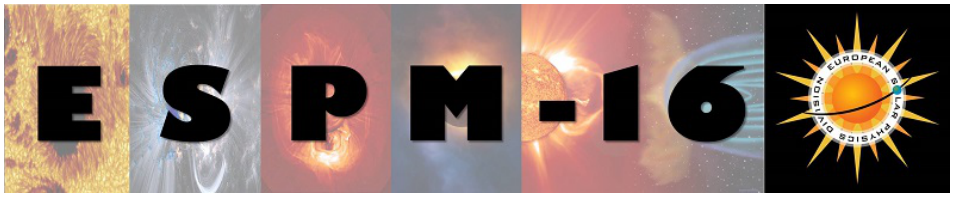

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Hydrodynamic modeling of coronal loops reconstructed tomographically

Thursday, 9 September 2021 11:26 (13 minutes)

The magnetically dominated solar corona is structured in the form of loops or flux tubes. To observe this structure during minimum solar activity epochs (or in the quiescent corona) is a difficult task because density and temperature inhomogeneities between loops and their surroundings are relatively low, making them not easily distinguishable in EUV images. Differential emission measure tomography, combined with a global potential model of the coronal magnetic field (DEMT-PFSS), allows us to characterize physical parameters of the coronal plasma along reconstructed loops. In this work, we tomographically reconstruct Carrington Rotation (CR) 2082 that ocurred at the minimum between Solar Cycles 23 and 24 and we statistically analyze the thermodynamic properties of coronal loops. These results are compared with the 1D model, Hydrodynamics and Radiation Code (HYDRAD), for constant and impulsive heating regimes.

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