

M04b

Diagnostics of coronal rain in the UV spectral window with IRIS

P. Antolin (NAOJ), Y. Katsukawa (NAOJ), T. Okamoto (JAXA), Y. Kato (NAOJ), B. De Pontieu (LMSAL)

The recently launched IRIS solar mission has the capability to observe upper chromospheric to low transition region plasmas. This represents an ideal window for observation of thermally unstable plasmas such as coronal rain, cooling down from coronal to chromospheric temperatures in coronal loops. Here we present a first view on the dynamics and thermodynamics of coronal rain in this yet unknown spectral window, and compare to previously obtained statistics in cooler chromospheric lines. We show that thermally unstable loops exhibit a multi-temperature structure with emission in C II, Si IV and Mg II lines, co-spatial with AIA-304 emission and surrounded by hotter coronal emission in AIA-171 and AIA-193. This multi-temperature picture suggests longitudinal and transverse fine-scale density structure in the corona. Furthermore, longitudinal and transverse blob oscillations are ubiquitously present, implying a close interaction with the magnetic field via MHD waves. We discuss these results in the context of coronal heating and coronal seismology.