ON THE DYNAMIC NATURE OF A QUIESCENT PROMINENCE OBSERVED BY IRIS AND MSDP SPECTROGRAPHS

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Quiescent solar prominences are generally considered to have a stable large-scale structure. However, they consist of multiple small-scale structures that are often significantly dynamic. To understand the nature of prominence plasma dynamics we use the high spatial, temporal and spectral resolution observations obtained by IRIS during a coordinated campaign with the MSDP spectrograph at the Meudon Solar Tower. Detailed analysis of the IRIS observations of Mg II lines, including the analysis of Dopplershift and line width obtained with two different methods (quantile method, Gaussian-fit method) are discussed in the frame of the dynamic nature of the structures. Large-scale coherent blue and redshift features are observed in Mg II lines and H$\alpha$ exhibiting a slow evolution during 1:40 hour of observations. We explain the presence of several significantly asymmetric peaks in the observed Mg II line profiles by the presence of several prominence fine structures moving with different velocities located along the line of sight. In such a case, the decrease of the intensity of individual components of the observed spectra with the distance from the central wavelength can be explained by the Doppler dimming effect. We show that C II line profiles may be used to confirm the existence of multi-components along the line-of-sight.