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Characterizing the spectral profiles of Mg II, C II and Si IV in solar flares

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Solar flares are the most energetic phenomena in the solar atmosphere with consequences for space weather through the generation of solar energetic particles and/or CMEs. Despite tremendous advances in understanding their characteristics, the complete physics of their origin and response to plasma in various layers of the solar atmosphere is not developed. Here, we study the characteristics of the spectral line profiles during different stages of flares as a function of photospheric magnetic flux density and compare those with the characteristics observed in quiescent active regions and quiet Sun. For this purpose, we use archival observations from the Interface Region Imaging Spectrograph (IRIS). For context purposes, we used the full disk observations from Atmospheric Imaging Assembly (AIA). We use the line-of-sight (LOS) magnetograms obtained by the Helioseismic and Magnetic Imager (HMI). We compare the flare results with those obtained for active regions (ARs) as well as quiet Sun (QS). Some preliminary results will be presented.

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