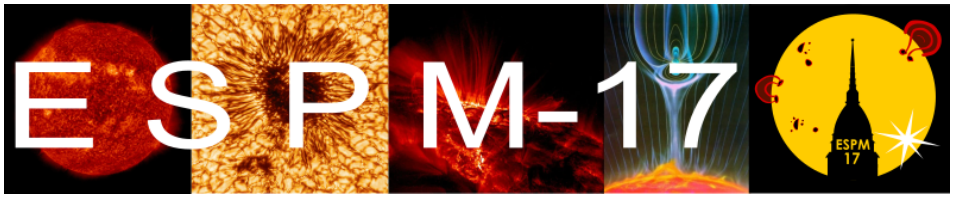

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Parameters' Maps Generated by Intensity of the Lyman-beta and Lyman-gamma Lines from SPICE Data and Non-LTE Modeling

An observation of a prominence on the solar limb took place on April 15, 2023, by several instruments including the Spectral Imaging of the Coronal Environment (SPICE) and the Extreme Ultraviolet Imager (EUI) on board Solar Orbiter. We aim to create parameter maps on the prominence region, including temperature, pressure, and column mass, by studying the integrated intensity of the Lyman-beta and Lyman-gamma lines from SPICE data.

After constraining the altitude and radial velocity in this event, we use a 1D non-LTE radiative transfer code to generate 1000 random models and compute the Lyman-beta and Lyman-gamma line profiles. The computed intensities are compared with observed integrated intensities from SPICE. Then, we find models which simultaneously give a reasonable match with the observed intensities in both the two lines. This enables us to generate models from pixels on the prominence region and use this information to generate parameter maps. We will discuss the results obtained and the potential for future research.

Primary authors: Mr ZHANG, Yong (University of Glasgow); Dr LABROSSE, Nicolas (University of Glasgow); Dr PARENTI, Susanna (Université Paris Saclay); Dr KUCERA, Therese (NASA Goddard Space Flight Center)

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