



Contribution ID: 496

Type: Poster

Formation of the IRIS OI and CI lines in a flare

Wednesday, 8 September 2021 11:26 (13 minutes)

The OI 135.56 nm line and CI 135.58 nm line are weak lines that are covered by NASA's Interface Region Imaging Spectrograph (IRIS) mission which studies how the solar atmosphere is energized. The emission in the OI 135.56 nm line is dominated by a recombination cascade. This line is optically thin and provides powerful diagnostics of unresolved velocity fields in the chromosphere. The CI line is optically thick and is dominated by a recombination cascade. Normally, the oxygen line is stronger than the carbon line but in flares, the ratio is opposite. The line intensities of oxygen and carbon peak at different times. The change in the ratio of CI/OI is due to an increase in the electron density in flares. We study the formation of the OI and CI lines in a 1D RADYN simulation of a flare to find out the cause of the change in ratio. For studying the line formation in a 1D atmosphere, we use the radiative transfer code RH to get a non-LTE solution with hydrogen, carbon and oxygen solved simultaneously.

Student poster?

Primary author: BHATNAGAR, Aditi (Rosseland Centre for Solar Physics, ITA, UiO)

Co-author: Prof. CARLSSON, Mats (Rosseland Centre for Solar Physics, ITA, UiO)

Presenter: BHATNAGAR, Aditi (Rosseland Centre for Solar Physics, ITA, UiO)

Session Classification: Poster Session 6.1

Track Classification: Session 2 - The Solar Atmosphere: Heating, Dynamics and Coupling