



Contribution ID: 361

Type: **Poster**

Coronal forbidden lines in the DKIST era

Monday, 6 September 2021 15:56 (13 minutes)

Coronal forbidden lines in the visible and near infrared (NIR) provide a range of plasma diagnostics to probe the solar corona.

They have not been explored much, but this is changing, with several facilities coming into operation, primarily DKIST.

We briefly review the importance of accurate atomic rates and proper modelling for these forbidden lines.

We provide examples of new calculations for a few ions which are being made available via the CHIANTI database.

We then present the results of two eclipse observations, in 2017 and 2019, where we have combined NIR AIR-Spec observations with EUV observations by Hinode EIS. AIR-Spec is a pathway mission for DKIST: a NIR spectrometer designed to observe eclipses from an aircraft flying at an altitude of 14 km. We have obtained new measurements of temperatures, densities from line ratios, and elemental abundances. These plasma parameters are in overall agreement with our previous results. Most notably, that the quiet corona has a sulphur abundance close to the photospheric one.

Primary author: DEL ZANNA, Giulio (University of Cambridge (UK))

Co-authors: Dr SAMRA, Jenna (CfA, SAO, USA); Dr DELUCA, Ed (Cfa, SAO, USA); Dr MADSEN, Chad (CfA, SAO, USA); Dr BRYANS, Paul (HAO, NCAR, USA); MASON, Helen (University of Cambridge)

Presenter: DEL ZANNA, Giulio (University of Cambridge (UK))

Session Classification: Poster Session 2.4

Track Classification: Session 3 - Fundamental Plasma Processes in the Solar Atmosphere: Magnetic Reconnection, Waves, Emission, Particle Acceleration