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Coronal spectroscopy of pre-flare and active regions

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Spectroscopy of active regions reveals details of physical processes through measurement of a variety of plasma parameters. The Hinode EUV Imaging spectrometer (EIS) and the NASA IRIS instruments continue to provide spectroscopy from the chromosphere through to the corona. In 2020 the Solar Orbiter mission launched with the SPICE spectrometer onboard. Plans are well underway for a new spectrometer on the next Japanese solar mission, Solar-C. In this review, we will look at results on the behaviour of active regions in non-flaring states and in the build-up to flares. Plasma diagnostics have been used to probe how the active regions loops stay hot and how the flows seen at the edges of active regions can contribute to the slow solar wind - and indeed create energetic particles. In the pre-flare phase, measurements have been made that indicate an increase in non-thermal velocity before the flare begins. We discuss these results and look towards the future of coronal spectroscopy.

Student poster?

Do you want to be considered for a student poster prize?

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