Spectral analysis of EUV spectra measured in LHD for Solar-B EIS observations

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The Solar-B satellite will be launched this year. Solar-B will have three kinds of detectors. One of them is EUV Imaging Spectrometer (EIS). The two wavelength regions, 170-210A and 250-290A, will be measured by EIS. Many spectral lines from L and M-shell iron ions are expected in these wavelength ranges. In order to understand the heating mechanism from transition region to corona region using these EUV spectral lines, a collisional-radiative model in non-equilibrium plasma is constructed. We have developed and improved our model. We applied our model to EUV spectra measured from large helical device (LHD) in NIFS. Our model includes energy levels of ions from bare to Ca-like iron ions. We include in our model radiative transition, excitation, ionization / three-body recombination, radiative recombination by electron impact, autoionization / dielectronic capture and dielectronic recombination as atomic processes. We also include excitation by proton impact between fine structure levels. Population densities are calculated assuming a quasi-steady state in order to apply our model to non-equilibrium plasma. We used the wavelengths from the database of NIST in our model. In order to check the reliability of our model, calculated spectra by our model in collisional ionization equilibrium are compared with those calculated by CHIANTI, which is widely used for spectral analysis of the Sun. We obtained similar spectral line intensities with the same plasma parameters. Calculated Spectra with various plasma parameters by our model were used in order to identify the complicated EUV spectral lines measured from LHD. In this presentation, we explain our model and compare our results with CHIANTI's results. We also compare the calculated spectra with different atomic data sets. Furthermore we present the line identification and analysis of observed EUV spectral lines measure in LHD.