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Model of the Si IV emission at the loop footpoints heated by an electron beam

We model Si IV emission originating at footpoints of loops heated by an electron beam. Time dependent plasma parameters (temperature, density, non-Maxwellian beam electron distribution function...) in the transition region are modeled using radiation-hydrodynamical simulations via the FLARIX code for a wide range of the beam parameters. The ionization stages of Si are shown to be out of ionization equilibrium, and also dependent on the electron beam parameters. The Si IV intensities and their evolution are then modelled using a 16-level ion model. The results are compared with Si IV emission observed by IRIS.

Primary author: Dr DZIFCAKOVA, Elena (Astronomical Institute of the Czech Academy of Sciences)

Co-authors: Dr KASPAROVA, Jana (Astronomical Institute of the Czech Academy of Sciences); Dr DUDIK, Jaroslav (Astronomical Institute of the Czech Academy of Sciences)

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