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The composition and tail activity of Sun-grazing comets

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Sun-grazing comets dive into the low corona to reveal the ambient plasma and field conditions with its very active EUV and X-ray radiation patterns. In this study we model the charging-balanced cometary plasma, and its transportation in the solar magnetic field. We study the comet C/2011 W3 (Lovejoy) event seen by SDO, Stereo and SOHO. Our model provides line-of-sight integrated emission intensity calculated via each emission lines of each charge state of O, and Fe ions. Such intensity is then compared with the observed EUV and X-ray images. Typical structures of the coronal magnetic field are studied to investigate their effects on the comet tail, and to model the observed tail activity.