

Abstract Submitted  
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**Kinetic Theory and Fast Wind Observations of the Electron Strahl** KONSTANTINOS HORAITES, Univ of Wisconsin, Madison, STANISLAV BOLDYREV, Univ of Wisconsin, Madison; Space Science Institute, LYNN B. WILSON III, ADOLFO F. VIÑAS, NASA Goddard Space Flight Center, JAN MERKA, NASA Goddard Space Flight Center; University of Maryland, Baltimore County, Goddard Planetary Heliophysics Institute — Measurements of the electron velocity distribution function (eVDF) in the solar wind exhibit a high-energy, field-aligned beam of electrons, known as the “strahl”. We develop a kinetic model for the strahl population, based on the solution of the electron drift-kinetic equation at heliospheric distances where the plasma density, temperature, and the strength of the magnetic field decline as power-laws of the distance along a magnetic flux tube. We compare our model with the eVDF measured by the Wind satellite’s SWE strahl detector. The model is successful at predicting the angular width of the strahl for the Wind data at 1 AU, in particular, the scaling of the width with particle energy and background density. Ref: Horaites et al (2017), ”Kinetic Theory and Fast Wind Observations of the Electron Strahl,” arXiv:1706.03464.

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