# NEW MODELS OF CORONAL STREAMERS WITH HEAVY IONS

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Spectroscopic observations of coronal streamers with SOHO/UVCS spacecraft have shown that the structure of quiescent streamers is significantly different in heavy ions emission than in hydrogen lines. This suggests that the relative (to hydrogen) abundance of heavy ions varies depending on the streamer location. However, the exact mechanism that leads to abundance variation is still being studied. Ofman (2000, 2004) developed 2.5D three-fluid polytropic model of coronal streamer that includes protons, and $O^{5+}$ heavy ions and showed that the enhancement of $O^{5+}$ is due to the Coulomb friction with the protons of the slow solar wind and gravitational settling in the streamer core. Here, we extend this model by considering additional ions, such as $He^{++}$, $Mg^{9+}$, and the effect of ion heating on the abundance variation of the heavy ions. We show how that preferential heating of heavy ions affects their relative abundance, and find that the abundance enhancement is location dependent in the streamer, modified by slow solar wind outflow.

Solar corona, solarwind, MHD models, multi-fluid models, heavy ions, waves

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