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# Spectroscopic Results with the Ultraviolet Coronagraph Spectrometer on the Solar and Heliospheric Observatory

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**Abstract.** Recent results, based on the analysis of the ultraviolet coronal emission during the years of minimum solar activity 1996 and 1997, have allowed the identification of the sources of the slow solar wind. The data are obtained with the Ultraviolet Coronagraph Spectrometer (UVCS) on board the Solar and Heliospheric Observatory (SOHO). The results have been derived by adopting a new diagnostic method based on the spectroscopic analysis of the O VI 1032, 1038 Å lines, that we have developed in order to infer the relevant parameters of the coronal plasma. This diagnostics fully accounts for the expansion factor of the magnetic field lines in the regions where the solar corona expands. The coronal layer studied is in the range from 1.5 and 3.5 solar radii. The physical conditions of the plasma flowing along the open field lines with origin in the core and at the edges of coronal holes are compared with the plasma in the closed magnetic field line regions characterizing streamers and close to the heliospheric current sheet. There is evidence for two regions where the slow coronal wind is observed: the edges of the large polar coronal holes characterizing solar minimum and the region along the streamer axis at heights above 2.7 solar radii, where the heliospheric current sheet forms. This conclusion and the fact that the fast wind is originating in the core of coronal holes, as shown in previous papers, suggest that the plasma conditions, in particular the outflow velocity and the preferential heating across the magnetic field, are related to the magnetic topology, namely, to the expansion factor of the flux tubes that changes from the edge to the core of coronal holes. The present results also indicate that also the degree of energy dissipation in the open field region might be related to and regulated by the local magnetic topology.

**Key words.** Solar Corona, Solar Wind, Sun

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