

TEMPERATURE AND OPTICAL DEPTH DEPENDENCE OF O VII LINE  
RATIOS WITH REFERENCE TO SOLAR CORONAL OBSERVATIONS

By

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The intensity ratio of the sum of forbidden ( $^3S - ^1S$ ) and intersystem ( $^3P - ^1S$ ) lines to the resonance ( $^1P - ^1S$ ) line of helium-like ions can serve as a useful measure of optical depth due to resonance scattering. The temperature dependence of this ratio for a low density, optically thin plasma, is examined in detail for the case of O VII. Collisional excitation rates with exchange contributions as well as cascades and the effect of unresolved satellite lines resulting from dielectronic recombination are included. These results are compared to spatially resolved measurements of the solar O VII spectrum and the difference interpreted in terms of resonance scattering into or out of the line of sight.