

**LINE-BY-LINE CALCULATIONS OF THE THERMAL RADIATION FIELD IN A
TWO-DIMENSIONAL AXISYMMETRIC ENCLOSURE COMPOSED OF NON-GRAY
SOOTING MEDIA FOR THE EVALUATION OF THE WSGG MODEL**

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ABSTRACT. This paper presents the computation of radiative heat transfer in a 2D axisymmetric enclosure using the WSGG model to compute radiation in a media composed of H₂O, CO₂ and soot. The WSGG correlations are based on HITEMP2010 database. Test cases consider typical conditions found in sooting flames, with steep variations in the temperature field and in the species concentrations. To assess the accuracy of the WSGG method, the results are compared with a solution obtained with the line-by-line (LBL) integration of the spectrum.