

**MONTE CARLO MODELING OF RADIATIVE TRANSFER IN A PULVERIZED
COAL JET FLAME**

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ABSTRACT. A Monte Carlo ray tracing (MCRT) based radiation model is developed, accounting for both gray and nongray spectral properties of coal-gas mixtures. A laboratory-scale pulverized coal flame is simulated using the developed model. The gas phase is coupled with solid phase through a Eulerian-Lagrangian framework. Results obtained with and without the MCRT radiation model are compared to quantify the effects of gray and nongray radiative emission and absorption. The influence of radiation on the ignition properties of pulverized coal flame is quantified. Preliminary results show that detailed radiation model is necessary to be included to correctly predict the radiative source terms.