

**APPLICATION OF THE INVERSE ANALYSIS TO DETERMINE THE PARAMETERS
OF THE WEIGHTED-MULTI-POINT-SOURCE MODEL FOR TURBULENT
DIFFUSION FLAMES**

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ABSTRACT. The weighted-multi-point-source (WMP) model uses point sources with different weights to estimate the radiative heat flux emanating from a flame. This paper applies the inverse analysis to obtain the fraction of radiated heat and the weights of the point sources to minimize the deviation between the WMP model and a set of experimental data of turbulent diffusion flames of natural gas in air. As will be shown, the inverse method can estimate and correlate those parameters, leading to more accurate results than the commonly employed linear variation in the weights.