

MULTICOMPONENT TRANSPORT AND SPRAYS

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ABSTRACT In gas or spray flames calculations, multicomponent transport property evaluation is an important and often time consuming task. We present a new class of algorithms based on iterative techniques in order to evaluate the transport coefficients. These algorithms include convergent iterative methods—where coefficients are expanded as convergent series—as well as direct inversion of symmetric positive definite forms of the associated transport linear systems derived from the kinetic theory of gases. Typical examples are given for each transport coefficients needed to model combustive flows. As a typical illustration, we simulate numerically a laminar spray diffusion flames of methanol in a counterflow of helium and oxygen.