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Dynamic model for the joint scalar probability in multi-species turbulent mixing[1] J.R. RISTORCELLI, J. BAKOSI, Los Alamos National Laboratory — We present a probability density function (PDF) model for multi-species scalar mixing in turbulent flows. In the proposed model the scalars are governed by a system of stochastic differential equations, discretized and integrated in a Monte-Carlo fashion. The model is local in composition space, accounts for different scalar mixing rates and Schmidt numbers and can represent a variety of PDF shapes, including a multiple-delta in the unmixed and a joint (bounded) Gaussian in the fully mixed states. The method is intended for passive, active or reactive scalars in shear-driven and/or variable-density pressure-gradient-driven turbulence.

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