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Bruce A. Wade* (bruce.wade@louisiana.edu), Department of Mathematics, PO Box 43568, Maxim Doucet Hall 217, University of Louisiana, Lafayette, LA 70504-3568. *Smoothing Properties and Dimensional Splitting with Exponential Time Differencing Schemes for Advection-Diffusion-Reaction Systems*. Preliminary report.

Exponential Time Differencing (ETD) schemes for advection-diffusion-reaction systems are introduced and analyzed for their smoothing properties when applied to systems with nonsmooth or mismatched data. Several dimensional splitting strategies are presented, with an analysis of speedup. Robust performance under a variety of types of problems is empirically developed. (Received September 17, 2019)