Xiaozhe Hu* (hu_x@math.psu.edu), Department of Mathematics, Penn State University, University Park, PA 16802, and Youngju Lee, Jinchao Xu and Chensong Zhang. On Adaptive Eulerian–Lagrangian Method for Linear Convection–Diffusion Problems.

In this talk, we consider the adaptive Eulerian–Lagrangian method (ELM) for linear convection–diffusion problems. Unlike the classical a posteriori error estimations, we estimate the temporal error along the characteristics and derive a new a posteriori error bound for the ELM semi-discretization. Furthermore, by combining this error bound with a standard residual-type estimator for the spatial error, we obtain a posteriori error estimators for a fully discrete scheme. Numerical tests are presented to demonstrate the efficiency and robustness of our adaptive algorithm. (Received February 10, 2014)