1030-35-18 **Eitan Tadmor*** (tadmor@cscamm.umd.edu), CSCAMM, CSIC Bldg. #406, University of Maryland, College Park, MD 20742, and **Terence Tao** (tao@math.ucla.edu), Math Sciences Building 6363, UCLA, Los Angeles, CA 90095. *Kinetic Formulations and Regularizing Effects in Quasi-Linear PDEs.*

We quantify the regularizing effects in a general family of quasi-linear scalar PDEs, using velocity averaging of their underlying kinetic formulations. The PDEs are first and second order equations which involve nonlinear transport and (possibly degenerate) diffusion. In particular, we improve previous regularity statements for multi-dimensional conservation laws, and we derive completely new regularity results for related convection-diffusion and elliptic equations driven by degenerate, non-isotropic diffusion. (Received June 10, 2007)