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Thomas Bellsky* (bellskyt@msu.edu). *Nonlinear Asymptotic Stability for Semi-Strong Pulse Interactions.*

This paper shows the nonlinear asymptotic stability in the semi-strong regime of two-pulse interactions in a general activator-inhibitor setting. We prove results for a general non-linearity that includes more specific equations such as the Gierer-Meinhardt model. In the semi-strong regime, the pulse amplitudes and speeds change as the pulse separation evolves on algebraically slow time scales. We use renormalization group techniques to prove the nonlinear asymptotic stability. We achieve this by examining the eigenvalue problem and proving semigroup estimates. (Received July 26, 2010)