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**Pei Pei\*** ([s-ppei1@math.unl.edu](mailto:s-ppei1@math.unl.edu)), University of Nebraska–Lincoln, Department of Mathematics, 203 Avery Hall, Lincoln, NE 68588. *Well-posedness and decay of energy for Mindlin-Timoshenko plate equations.*

This is a study of semilinear Reissner-Mindlin-Timoshenko (RMT) plate equations. This PDE system represents an extension of the Timoshenko beam model to plates and accounts for shear deformations. The primary feature of the considered model is the interplay between nonlinear viscous interior damping and nonlinear source terms. We begin by verifying local and global existence and uniqueness of solutions as well as their continuous dependence on the initial data in appropriate function spaces. Moreover, a blow-up result is proved for solutions with negative initial energy. Next, by developing the potential well theory for the RMT system, we first prove global existence for potential well solutions without restricting the source exponents, and then derive explicit energy decay rates dependent on the order of the damping exponents, in the end, we verify a blow-up result for positive “total” initial energy. (Received August 26, 2013)