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Robin C Young* (young@math.umass.edu), Department of Mathematics & Statistics, University of Massachusetts, Amherst, MA 01002. *Wave Interactions in Nonlinear Elastic Strings*.

We study a system modeling the dynamics of a nonlinear elastic string. This is a 6x6 system of hyperbolic conservation laws, which is degenerate in that two wave families have multiplicity two. We construct the wave curves for this problem and solve the Riemann Problem. We then give a detailed analysis of elementary wave interactions, leading to a Glimm theorem, and describe features of the system when the total variation is large. There are complicated wave patterns, including infinitely many interactions in finite time, and both three- and four-resonances may be present. (Received September 19, 2000)