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Qichuan Bai*, bai@math.psu.edu, and **Andrew Belmonte** and **Qiang Du**. *Dynamic buckling of elastic materials*. Preliminary report.

We consider the buckling phenomenon of an elastic beam with one end subject to a sudden impact while the other end fixed. We adopt a coupled PDE system in terms of normal (lateral) displacement u and tangential displacement v , which is one hyperbolic equation and an elliptic type problem in some parameter region. We test broad range of parameters in the numerical simulations. We have identified some interesting buckling patterns which have been observed in the lab such as reflective buckling. This is a joint work with Andrew Belmonte and Qiang Du. (Received September 24, 2012)