1043-49-77   **Thomas I. Seidman*** (`seidman@math.umbc.edu`) and **Kathleen A. Hoffman**. *A hyperelastic rod model with nonlocal potential.*

For a hyperelastic rod model we introduce a physically significant nonlocal term ensuring the avoidance of self-intersection. The principal results are: existence of a stable solution in each homotopy class (interpreting 'homotopy' as including the rod frame) and regularity of the solution. (Received August 20, 2008)