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Dimitri Puhst* (puhst@math.tu-berlin.de), Technische Universität Berlin, Institut für Mathematik, Straße des 17. Juni 136, 10623 Berlin, Germany. *Results on the well-posedness of nonlinear peridynamics.*

Nonlocal phenomena in elastic materials taking into account effects of long-range interaction have been studied for a long time. Nevertheless, nonlocal theories have gained more and more interest recently. In particular peridynamics, a nonlocal continuum theory based on an in general nonlinear integro-differential equation without spatial derivatives, is a current matter of research both analytical and numerical. In this talk we will show well-posedness of the nonlinear multi-dimensional peridynamic initial value problem under the assumption of Lipschitz-type continuity of the pairwise force function in its second argument.

This is a joint work with Prof. Dr. Etienne Emmrich. (Received August 30, 2012)