

1171-45-178

Nicole Buczkowski* (nbuczkowski@huskers.unl.edu), **Mikil Foss**, **Michael Parks**, **Jeremy Trageser** and **Petronela Radu**. *Comparing and Contrasting two Nonlocal Biharmonic Operators.*

Nonlocal models have gained interest due to their flexibility in handling discontinuities, in particular for systems that model higher-order phenomena. We consider the biharmonic operator in the nonlocal setting and discuss its derivation as it appears in modeling deformations and damage in beams and plates. The nonlocal formulations of the biharmonic operator may be expressed through a single integral or as an iterated Laplacian, leading to a doubly nonlocal operator. In this talk we study properties of these operators, including continuous dependence, convergence to the classical biharmonic, and also consider numerical aspects, such as asymptotic compatibility. (Received August 10, 2021)