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**Kelsey Wells\*** ([kelsey.wells@huskers.unl.edu](mailto:kelsey.wells@huskers.unl.edu)) and **Petronela Radu**. *Properties and convergence of state-based Laplacians.*

Motivated by the state-based peridynamic framework we introduce a new nonlocal Laplacian operator. This operator is a double integral operator with two kernels with interaction horizons of radius  $\delta$  and  $\epsilon$  respectively. We study the connections between this state-based Laplacian and the nonlocal bond-based and classical Laplacians. We also show convergence of the operator to the classical Laplacian with rates dependent on  $\delta$  and  $\epsilon$ . (Received September 25, 2017)