

## **Advances in peridynamics and other nonlocal models**

Florin Bobaru, *University of Nebraska-Lincoln*

Olaf Weckner, *Boeing Co.*

Ebrahim Askari, *Boeing Co., Phantom Works*

Stewart A. Silling, *Sandia National Laboratories*

Peridynamics is becoming an important method for solving challenging problems in dynamic fracture, fragmentation, damage in composites, and other areas where spontaneous generation of strong discontinuities in the solution takes place. Recent results show that peridynamics is capable of producing convergent numerical solutions for dynamic crack branching that match experimental observations, as well as able to capture material length-scale effects in mixed-mode crack propagation. Significant progress in peridynamics and other nonlocal models has been achieved in modeling of crack propagation and damage in laminated composites, polycrystalline ceramics, phase-transformations, nanofiber networks, and multiscale phenomena. At the same time, important advances in the mathematical and numerical analysis of the properties of nonlocal methods have been made. This symposium invites contributions on peridynamics and other nonlocal models and computations, and applications of such methods to damage and dynamic fracture mechanics, multiscale modeling, modeling of deformation and damage of composite materials, multiphysics phenomena, etc.