Regularity results for solutions to nonlocal problems

motivated by peridynamic models

Mikil Foss* and Petronela Radu[†]

*University of Nebraska-Lincoln Lincoln, NE 68588 USA <u>mfoss3@unl.edu</u>

[†]University of Nebraska-Lincoln Lincoln, NE 68588 USA pradu@math.unl.edu and http://www.math.unl.edu/~pradu3/

ABSTRACT

I will present some recent work that establishes higher-order differentiability and higher integrability of solutions to some nonlocal variational problems. The primary motivation for the structure of the functionals considered are models developed within the framework of peridynamics. In particular the problems involve integral operators with weakly singular kernels.