

1077-VG-1691

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A Posteriori Error Analysis of Finite Element Method for Linear Nonlocal Diffusion and Peridynamic Models.

In this paper, we present some results on a posteriori error analysis of finite element methods for solving linear nonlocal diffusion and bond-based peridynamic models. In particular, we aim to propose a general abstract frame work for a posteriori error analysis of the peridynamic problems. A posteriori error estimators are consequently prompted, and the connection between non-local a posteriori error estimation and classical local estimation is studied. Numerical experiments are also given to test the theoretical conclusions. (Received September 20, 2011)