



## Improved nearest-nodes finite element method with field-consistent shape functions

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In this paper, the recently developed nearest-nodes finite element method (NN-FEM) was improved by introducing field-consistent shape functions. Field-consistent shape functions are constructed in two steps. First, general solutions to the homogeneous Euler-Lagrangian equations are obtained; then, the undetermined coefficients in the general solutions are replaced by nodal displacements from a set of nodes that are the nearest to a concerned quadrature point. Numerical results showed that the improved nearest-nodes finite element method has a superior convergence rate compared to the original NN-FEM and the conventional finite element method.

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