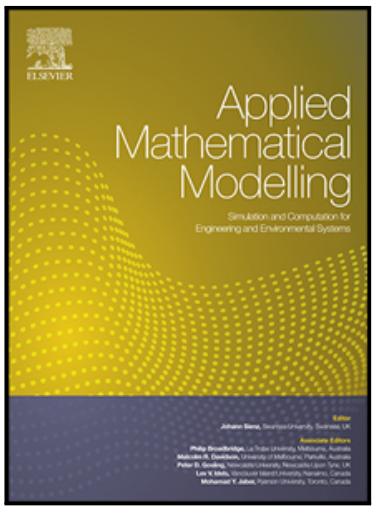

An edge-based smoothed finite element method for nonlinear magnetostatic and eddy current analysis

She Li , Xiangyang Cui

PII: S0307-904X(18)30248-8
DOI: 10.1016/j.apm.2018.06.003
Reference: APM 12302

To appear in: *Applied Mathematical Modelling*

Received date: 18 August 2017
Revised date: 7 May 2018
Accepted date: 4 June 2018

Please cite this article as: She Li , Xiangyang Cui , An edge-based smoothed finite element method for nonlinear magnetostatic and eddy current analysis, *Applied Mathematical Modelling* (2018), doi: 10.1016/j.apm.2018.06.003

Highlights

- The Smoothed Galerkin Weak form is presented based on edge-based smoothing domains.
- Magnetic vector potential $\mathbf{A}$ and electric scalar potential φ are combined for solving Maxwell's equations.
- The simple update method with relaxation is adopted in nonlinear iteration.
- ES-FEM based on unstructured meshes improved the accuracy of standard linear FEM.
- The ES-FEM performs well in solving TEAM Workshop Problems.