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Mathematical Problems in Engineering

Special Issue on

Advances in Finite Element Method 2016

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Finite element method (FEM) is an important branch of computational mechanics and applied mathematics, and it has been broadly adopted in scientific research and engineering applications. Despite the significant developments in FEM over the past few decades, some key technical challenges remain outstanding, while new challenging problems are continuously emerging with the growth of new explorations in science and technology. These issues attract many researchers to make great efforts in developing novel principles, techniques, algorithms, and schemes to improve precision, efficiency, robustness, and applicability of the conventional FEM.

The main focus of this special issue is on the latest ideas, developments, and applications in the field of FEM, with a special emphasis on how to solve various mathematical problems encountered in the related areas.

Potential topics include, but are not limited to:

- New mathematical fundamentals for the FEM
- Countermeasures for solving mathematical difficulties in the FEM
- New types of FEM such as X-FEM/generalized FEM/PUFEM
- New techniques for developing high-performance finite element method
- Finite element method insensitive to mesh distortion
- Stochastic finite element method
- Advanced finite element models in structural engineering
- Nonlinear finite element modelling
- Innovations in developing FEM software
- Novel engineering applications of the FEM

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