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Computational Methods for Fracture

Guest Editor:

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Deadline for manuscript submissions:
closed (31 January 2019)

Message from the Guest Editor

Computational modeling of fracture and failure of engineering systems and materials has been the focus of research for many years, and there has been tremendous advancement in the past two decades with methods such as the Extended Finite Element Method (XFEM) developed in 1999, peridynamics (2000), the cracking particles method (2004) or phase field models (2009). There has been also a great deal of effort in developing multiscale methods for the design of new materials, such as the Extended Bridging Domain Method or the MAD method.

The main focus of this Special Issue is on computational methods for fracture. However, articles submitted to this Special Issue about validation, uncertainty quantification, large-scale engineering applications and constitutive modeling are also welcome. Potential topics include, but are not limited to:

- New computational methods for fracture
- Advances in partition of unity methods
- Meshfree methods
- Isogeometric analysis
- Efficient remeshing techniques
- Phase-field and screened-Poisson models for fracture
- Peridynamics
- Multiphysics problems such as hydraulic fracturing
- Computational methods for crack detection
- Large-scale engineering applications
- Multiscale methods for fracture
- Validation and uncertainty quantification

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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