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An adaptive multiscale phase field method for brittle fracture

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Research Highlights

- Adaptive multiscale phase field method (AMPFM) is proposed to simulate brittle fracture.
- Refined mesh in vicinity of crack can be re-transformed into coarse mesh and vice versa.
- Use of AMPFM lead to the huge saving in memory and CPU time as compared to standard PFM.
- XFEM is used to model the macroscopic discontinuities to avoid conformal meshing.
- AMPFM is successfully used to simulate complex crack growth patterns in heterogeneous materials.

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