

Issues when combining fracture evolution and Gamma-convergence: dangers in phase-field dynamics

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ABSTRACT

Mathematicians have generally not emphasized the difference between Γ -convergence and the convergence necessary for “approximate” dynamic solutions to converge to the correct limiting dynamics. I will discuss what properties limiting dynamic fracture models should have, and how Γ -convergence can fail to deliver them, with an emphasis on phase-field approximations and some surprising problems.