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**Coarsening Simulation with an Energy-Stable, Semi-Implicit Time Step** BENJAMIN VOLLMAYR-LEE, Bucknell University — Coarsening dynamics is effectively described by phase field models, which provide nonlinear field equations of motion that can be integrated numerically. However, these simulations are hampered by a numerical instability that imposes time marching with a fixed-size time step determined by the lattice and not by accuracy considerations. I will present an energy-stable semi-implicit method that removes this time-step restriction, and that has the additional feature of being linear in the implicit fields, allowing for efficient calculation with fast Fourier transforms. Using this method enables simulations to extend decades farther into the coarsening scaling regime. I will report measurements of a variety of coarsening exponents obtained with this method.

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