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Maximally fast coarsening algorithms MOWEI CHENG, Center for Theoretical and Computational Materials Science, National Institute of Standards and Technology, ANDREW RUTENBERG, Department of Physics and Atmospheric Science, Dalhousie University — We present maximally-fast numerical algorithms for conserved coarsening systems that are stable and accurate with a growing natural time-step $\Delta t = A t_s^{2/3}$. We compare the scaling structure obtained from our maximally-fast conserved systems directly against the standard fixed-timestep Euler algorithm, and find that the error scales as $\sqrt{A}$ — so arbitrary accuracy can be achieved. For non-conserved systems, only effectively finite timesteps are accessible for similar unconditionally stable algorithms.

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