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Discontinuous Galerkin Methods for Generalized Cahn-Hilliard Equations.

Fully discrete discontinuous Galerkin methods with variable time steps and adaptive meshes in space are developed for fourth order generalized Cahn-Hilliard equations motivated from material science and biological applications. The methods are formulated and analyzed in both two and three dimensions. Convergence under mesh modification is demonstrated and simulation results in two dimensions are provided. (Received January 30, 2015)