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Stability and convergence of the spectral Galerkin method for the Cahn-Hilliard equation  
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*MSC Classification:* 65M70 65M12 65M15

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*Keywords:* Cahn-Hilliard equation; stability; convergence; error estimate

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*Review text:*

The authors give a full analysis for the spectral Galerkin method of the periodic Cahn–Hilliard equation on the time interval  $[0, \infty)$ . Using some techniques in partial differential equation and a known compactness result, it is shown that the spectral Galerkin approximate solution converges towards the weak solution of the considered Cahn–Hilliard equation. An error estimate between the exact solution and the spectral Galerkin approximate solution is given when the exact initial function  $u_0$  satisfies  $u_0 \in H_{per}^4(\Omega)$ .

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1.9 ... the considered Cahn--Hilliard equation.\.

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