A \( C^0 \) Interior Penalty Approximation of the Cahn-Hilliard Equation in Phase Separation.

\( C^0 \) Interior Penalty method is an attractive alternative for the numerical approximation of fourth order problems. It is based on \( C^0 \) finite element spaces and an interior penalty on the jumps of the normal derivatives over the skeleton of the finite element mesh. In this talk, I will present some theoretical and numerical results related to the numerical approximation of the Cahn-Hilliard equation by a \( C^0 \) interior penalty method. This is joint work with Professor Susanne C. Brenner and Professor Li-yeng Sung. (Received September 16, 2008)