Susanne C. Brenner, Peter B. Monk and Jiguang Sun* (jiguangs@mtu.edu). $C^{0}$IPG Method for Biharmonic Eigenvalue Problems.

We investigate the $C^{0}$ interior penalty Galerkin ($C^{0}$IPG) method for biharmonic eigenvalue problems with the boundary conditions of the clamped plate, the simply supported plate and the Cahn-Hilliard type. We prove the convergence of the method and present numerical results to illustrate its performance. We also compare the $C^{0}$IPG method with the Argyris $C^{1}$ finite element method, the Ciarlet-Raviart mixed finite element method, and the Morley nonconforming finite element method. (Received January 15, 2015)