1015-35-82   **Hongqiu Chen*** (`hchen1@memphis.edu`), Department of Mathematical Sciences, The University of Memphis, Memphis, TN 38152. *Long-period limit of nonlinear dispersiver waves: the BBM-equation.*

The focus of the present study is the standard BBM-equation $\eta_t + \eta_x + \eta\eta_x - \eta_{xxt} = 0$ which models unidirectional propagation of small amplitude long waves in dispersive media. The equation is posed on the entire real line and the interest here is the relationship between two different types of solutions. The problem has been studied with initial data in various Sobolev spaces defined on $\mathbb{R}$ and for periodic initial data, say of period $2l$. The principal new result is an exact theory of convergence of the periodic solutions to the solutions in Sobolev spaces as $l \to \infty$. (Received January 26, 2006)