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On existence and like results for a modified BBM equation that is applied to unidirectional propagation of long waves in certain nonlinear dispersive systems, with viscosity considered.

The modified BBM equation is considered with a new term which introduces viscosity into the physical modeling for propagation of long waves. Analytical methods are utilized to address the conditions necessary for existence and uniqueness of the solution; moreover, certain estimates for the solution are provided and a direction towards an exact analytical solution is offered. Time permitting the topics of well-posedness and stability will also be discussed. (Received October 22, 2007)