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Yi A Li* (Yi.Li@stevens.edu), Castle Point on Hudson, Hoboken, NJ 07030. *Nonlinear Dispersive Evolution Equations, and Stability of their Solitary Waves.*

We investigate evolution equations as mathematical models for propagation of free surface waves. They include both weakly nonlinear and higher nonlinear model equations. The presence of nonlinearity and dispersion in these equations result in solitary waves which propagate with permanent form and interact elastically. One part of the talk will be concerned with stability of solitary waves. The other issue is the numerical computation to compare approximate physical models with the full water wave problem as a mean to justify the validity of the model equations. (Received March 30, 2010)