1023-35-813   **Thanasis Fokas**, Department of Applied Mathematics, and Theoretical Physics, University of Cambridge, CB3 0WA, England, and **Laihan Luo*** (`lluo@nyit.edu`), Department of Mathematics, New York Institute of Technology, 1855 Broadway, New York, NY 10023.
Asymptotic Linearization of Some Nonlinear Partial Differential Equations. Preliminary report.

The initial value problem of a certain generalization of the nonlinear, dispersive wave equations with dissipation is rigorously studied. The solutions of the equations can be found exactly up to $O(\epsilon^2)$ in certain norms. The essential use is made of the fact that this equation is asymptotically linearizable to $O(\epsilon^2)$, i.e., the equations can be mapped to an equation which differs from a linearizable equation only in terms which are of $O(\epsilon^2)$. An application of the equations to unidirectional small amplitude acoustic waves is discussed. The general methodology used here can also be applied to other asymptotically linearizable equations. (Received September 21, 2006)