COMPARISON BETWEEN THE VARIATIONAL EQUATIONS OF THE AVERAGED LAGRANGIAN METHOD AND A NONLINEAR SCHRÖDINGER EQUATION FOR WAVES ON THE SURFACE OF A FLUID LAYER

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S u m m a r y

By the example of waves on the surface of a fluid layer, the variational equations obtained in the averaged Lagrangian method of Whitham are demonstrated to become equivalent to a nonlinear Schrödinger equation, if the construction of the Lagrangian involves a term related to fundamental harmonic in addition to the terms from the second and zero harmonics considered by Whitham to get linear corrections to the field functions.