

## **Modulational Instability and Soliton Generation in Nonlinear Evolution Equations**

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### **ABSTRACT**

After a heuristic derivation of KdV equation, the nonlinear Schrödinger equation is obtained from a nonlinear evolution equation using the asymptotic method of multiple scales. Then the modulational instability phenomenon for the NLS eq. is studied using both a deterministic and a statistical approach. A special class of periodic solutions of NLS eq. is obtained by straightforward elementary techniques. The general scheme of IST method is also briefly reviewed.

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