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Newark, NJ 07102. *Spectral formulation for nonlinear ocean waves and reduced models.*

The spectral formulation of Zakharov (1968) for nonlinear ocean waves is revisited to explore its relationship with a pseudo-spectral formulation based on unsteady Stokes expansion. Hamiltonian structures under high-order nonlinear approximations are discussed and further reductions are made to describe the evolution long-crested waves and resonant four-wave interactions. (Received September 26, 2017)