

NONLINEAR WAVES: FROM OCEANS TO “OPTICAL GRAPHENE”

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The study of localized waves has a long history dating back to the discoveries in the 1800s describing water waves in shallow water. In both fluid dynamics and nonlinear optics there has been considerable interest in various aspects of localized waves. This lecture will discuss a novel formulation of water and interfacial waves and some of their properties and nonlinear waves in photonic lattices including honeycomb lattices where novel discrete nonlinear systems can be derived. Honeycomb lattices appear widely in physics, a notable case being graphene.