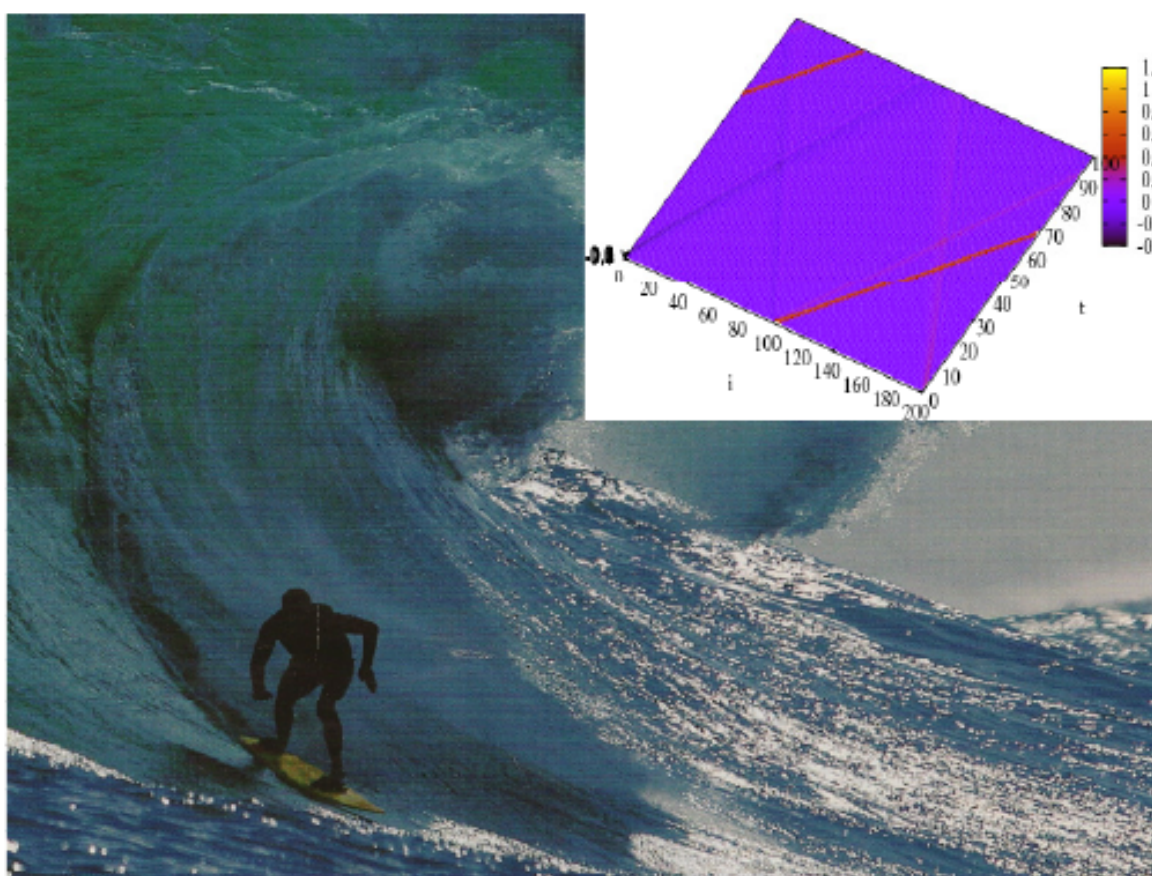


## Solitonic excitations a discussion of motions with low dissipation

Werner Ebeling  
Institute of Physics, Humboldt-University Berlin



First we give several examples of nearly loss-free macroscopic motions as ballistic motions, surface solitons, tsunami's, superfluidity, superconductivity. Then we summarize general principles and ideas about loss-free motions from Landau's idea of side minima, Ginzburg-Landau functionals etc. The Toda theory of mechanic solitons is explained and examples as the Toda rosario and applications are discussed. Finally we discuss the riding of electrons on lattice solitons. Several applications ranging from the control of robot legs to controlling electron dynamics are briefly explained.

