Scaling limits of lattice quantum fields by wavelets

Yoh Tanimoto

University of Rome "Tor Vergata" (Italy)

We present a renormalization group scheme for lattice quantum field theories in terms of operator algebras. The renormalization group is considered as an inductive system of scaling maps between lattice field algebras, and lattice fields are identified with the continuum field smeared with Daubechies' scaling functions. We show that the inductive limit of free lattice ground states exists and extends to the vacuum state on the continuum field.