

Inductive limits of quantum systems, equilibrium states and dynamics

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Several limits of quantum theory can be understood from a simple framework in which some of the basic features of these limits can be established by abstract general results. Often the limit may have a very different structure from its approximants, so one cannot simply let some parameter go to a limiting value. We focus on the unified definition of the limit theory with its states and observables, its dynamics and its equilibrium states.

Examples that will be mentioned are (1) the mean field with or without tagged particles, (2) The classical limit ($\hbar \rightarrow 0$), (3) the limit of infinite lattice systems, (4) Some continuum limits/renormalization theories.