

## **The Dynamical Cluster Approximation**

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The Dynamical Cluster Approximation (DCA) includes short-ranged corrections to local approximations such as the Dynamical Mean Field or the Coherent Potential by mapping the thermodynamic lattice problem onto a self-consistently embedded periodic cluster of size  $N_c$ . It is a fully causal and systematic approximation to the full lattice problem, with corrections  $\mathcal{O}(1/N_c)$ . The effective cluster problem can be solved with a variety of methods including Quantum Monte Carlo, the Non-Crossing Approximation, Exact Enumeration, etc. The DCA formalism for both ordered and disordered systems will be introduced, and results for the one-particle and two-particle properties of the Hubbard and Anderson models will be shown.