

# Disordered bosonic systems

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I will report on experiments with ultracold quantum gases addressing the problem of disordered, interacting bosons close to  $T=0$ . A subtle interplay of kinetic, interaction and disorder energies determines whether a quantum system shows insulating, metallic or superfluid properties. On the one side, we are studying one-dimensional systems, where the competition between disorder and a strong repulsive interaction drives a continuous crossover between an Anderson insulator, a finite- $T$  Bose glass, and a superfluid-like phase. On the other side, we are investigating how the Anderson localization problem in three dimensions is affected by a weak interaction. The large control of our ultracold atomic systems allows to perform unprecedented measurements of critical quantities that can be compared to advanced theoretical results.

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