

Novel Probes of Many-Body Correlations with Ultracold Atoms

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I will discuss two novel methods to probe quantum correlations in many-body systems. One method uses the controlled dissipation as a probe tool and the other method utilizes the non-adiabatic response during ramping dynamics. I will talk about both theoretical framework and the experimental measurements in cold atom systems about these two methods. I will show that both methods can distinguish whether the quantum state possesses well-defined quasi-particle or not.