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Abstract for an Invited Paper
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The Roads to Quantum Simulation: Ultra-low Temperatures Regime and "Quantum Many Body Precision Measurement"[1]

TIN-LUN HO, The Ohio State University

The current worldwide effort to use cold atoms in optical lattices to simulate strongly correlated electron systems, referred to as Quantum Simulation, is a highly ambitious program in cold atom physics. Its success requires reaching temperatures far below nano Kelvin. Cooling to such low temperatures is the greatest challenge confronting this program. At the same time, to realize the full power of Quantum Simulation, one needs to find ways to deduce the equilibrium properties of homogenous systems from the data of trapped gases. In this talk, we shall discuss methods to achieve these goals.

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