Quantum simulators: a pointilist perspective on many-body physics

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This talk will review recent progress in optical lattice emulators of correlated electron systems. These experiments feature high tunability of the microscopic Hamiltonians and come with novel snapshots of many-body states with single particle resolution. We'll delve into experiments that use mixed-dimensional systems to demonstrate magnetically mediated pairing. We will discuss how experiments with cold atoms help us understand a new type of magnetism discovered in moire materials.