

Realization of a long-range antiferromagnet in the Hubbard model with ultracold atoms

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With quantum gas microscopy we are now able to take the control of ultracold quantum gases in an optical lattice to the next and ultimate level of high fidelity addressing, manipulation and readout of single particles. In my talk I will first give an introduction to this field of research and present an overview of recent experiments, including the first observation of an anti-ferromagnetic phase of Fermions in an optical lattice.