“New Physics in the Quantum Gas Microscope - From Measuring Entanglement Entropy to Fermi-Hubbard Systems”

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With quantum gas microscopy we are now able to take the control of ultra cold quantum gases in an optical lattice to the next and ultimate level of high fidelity addressing, manipulation and readout of single particles. After a general introduction I will introduce very recent experiments in which, for the first time, we are able to directly measure entanglement entropy in a many-body system. I will then report on our recent breakthrough in the fermionic quantum gas microscope, realising Metals, band insulators and Mott insulating phases.

For more information please go to: http://www.physics.harvard.edu