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Quantum gases out of balance.

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The trapping of an ultracold gas of atoms in the periodic potential of a three-dimensional optical lattice is a simple experimental concept. However, the physics accessible with such a system stretches out to a unique variety of directions, including quantum phase transitions, low-dimensional systems, Hubbard models and the physics of few particle systems. In particular, dynamic and non-equilibrium phenomena have become experimentally accessible. In this talk I will report on experiments investigating transport and non-equilibrium phenomena in quantum gases.