Anderson transition in the cold atom kicked rotor

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I will discuss the first microscopic theory of transport in driven chaotic environments ('kicked rotors'), as realized in recent atom optic experiments. The behavior of these systems depends sensitively on the value of the dimensionless Planck constant $\tilde{h}$: for irrational values of $\tilde{h}/(4\pi)$ they fall into the universality class of disordered electronic systems and I will discuss the corresponding localization phenomena. In contrast, for rational values the rotor-Anderson insulator acquires an infinite (static) conductivity and turns into a 'super-metal'. This implies the existence a metal/super-metal quantum phase transition.