Contribution ID: **5** Type: **not specified**

Transport through periodically driven systems

Tuesday 2 July 2019 16:45 (15 minutes)

Periodic drives have been receiving renewed attention as the building blocks of new phases of matter such as topological non-trivial states and time crystals. The dynamics of these new non-equilibrium phases is quite different from their equilibrium counterparts. When isolated, the evolution is strongly dependent on its initial condition. Yet, it is hard to imagine that such a regime can be experimentally probed in electronic systems, due to their short decay-times. In practice, it is expected that the state created after a long period of driving will be determined by the system's environment. We will consider electronic systems whose main thermalization mechanism is due to the contact with metallic leads. We will use this setup to probe transport through periodically driven systems in particular when the Floquet band structure acquires a non-trivial topology.

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