

# Quantum dynamics on networks - the interplay of structure, indistinguishability, and interactions

A. Buchleitner<sup>1</sup>

(1) University of Freiburg (Germany).

We discuss some fundamental aspects of quantum transport in structured materials, in physical settings which reach from photosynthetic light harvesting to photonic circuitry and cold atoms. We identify finite networks with variable structural properties - from dominant symmetries to dominant disorder - as a versatile framework to assess nontrivial quantum dynamical effects which allow to characterize and/or control transport on complex structures. In particular, we seek to disentangle the role of the network structure, of particle statistics and (in-) distinguishability, and of interactions for the actual dynamical evolution.