physikalisches Kolloquium

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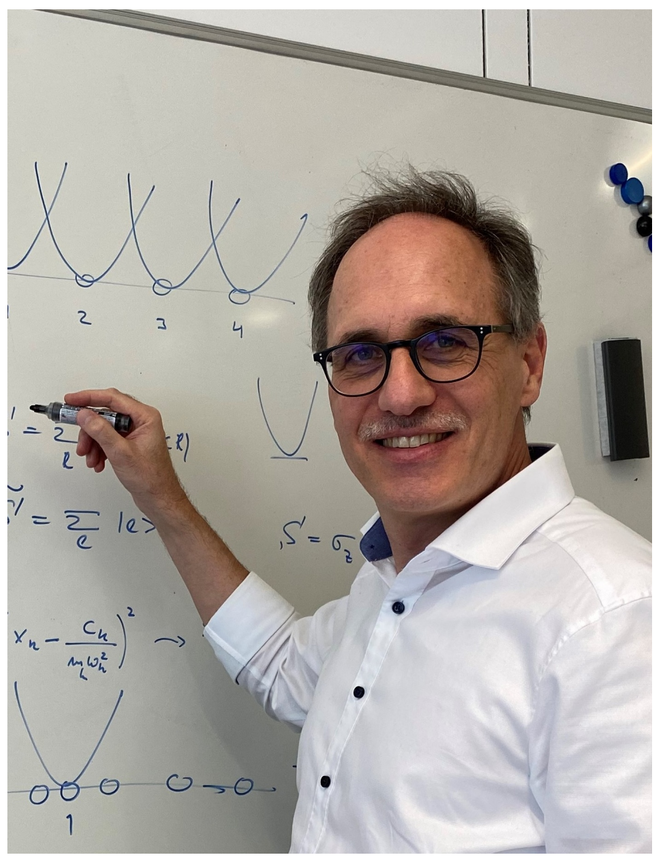
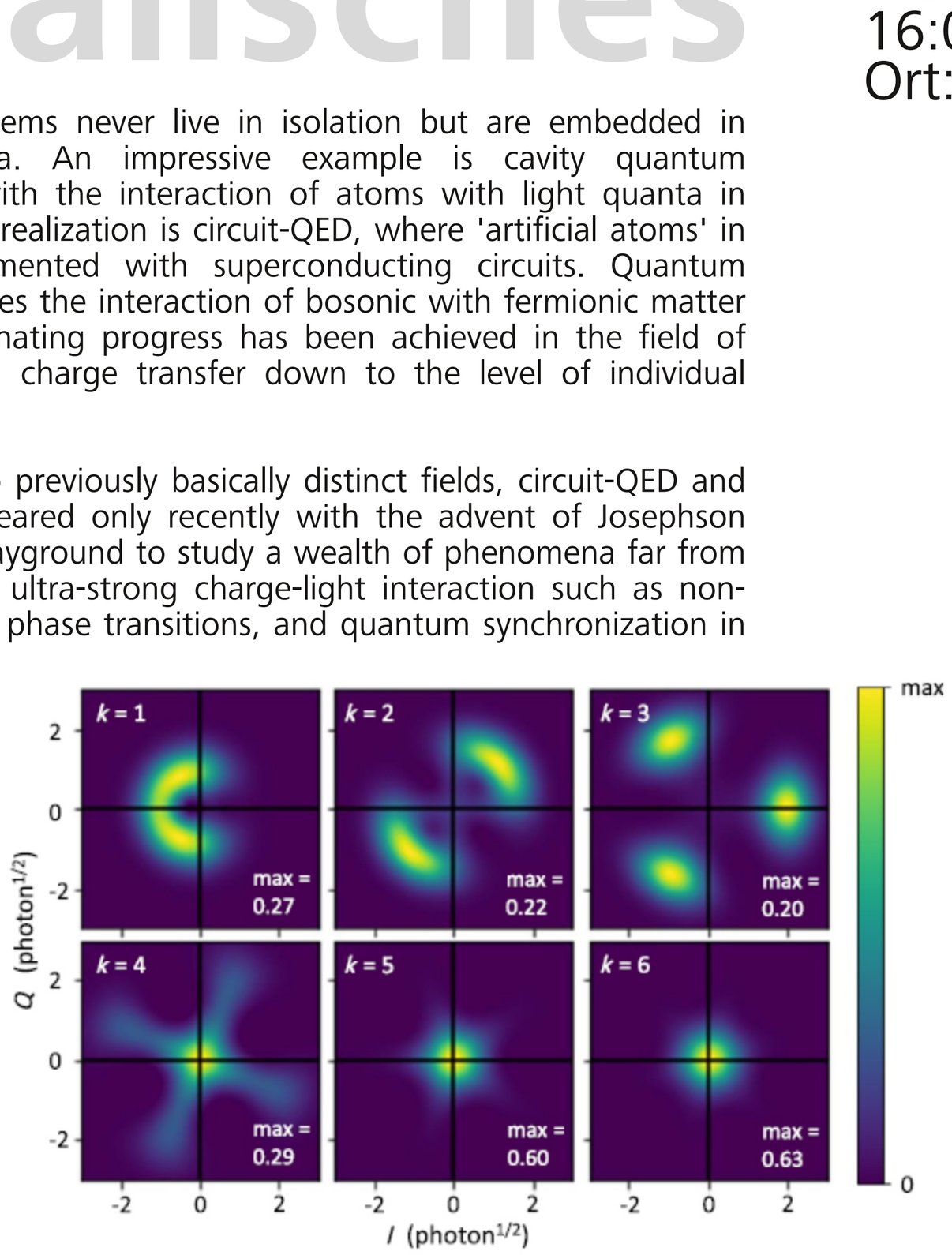


Charge transfer meets quantum electrodynamics – From strong matter-light interaction to quantum synchronization

Mo. 11.12.23
16:00 Uhr
Ort: H34

Real quantum systems never live in isolation but are embedded in surrounding media. An impressive example is cavity quantum electrodynamics which deals with the interaction of atoms with light quanta in optical cavities. Its more recent realization is circuit-QED, where 'artificial atoms' in microwave cavities are implemented with superconducting circuits. Quantum electrodynamics, however, implies the interaction of bosonic with fermionic matter in general. For the latter, fascinating progress has been achieved in the field of quantum electronics to control charge transfer down to the level of individual charge carriers.

Activities to combine these two previously basically distinct fields, circuit-QED and quantum electronics, have appeared only recently with the advent of Josephson photonics. This opens a new playground to study a wealth of phenomena far from equilibrium and in presence of ultra-strong charge-light interaction such as non-classical light sources, quantum phase transitions, and quantum synchronization in steady state. In this talk I will discuss experimental developments in line with the theoretical background.



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