

Großes Physikalisches Kolloquium an der Universität zu Köln

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Quantum technologies and quantum control

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16⁴⁵ Uhr / HS III



The control of quantum states is essential both for fundamental investigations and for technological applications of quantum physics. In quantum few-body systems, decoherence arising from interaction with the environment hinders the realization of desired processes. In quantum many-body systems, complexity of their dynamics further makes state preparation via external manipulation highly non-trivial. An effective strategy to counter these effects is offered by quantum optimal control theory, exploiting quantum coherence to dynamically reach a desired goal with high accuracy even under limitations on resources such as time, bandwidth, and precision.

