



Seminar/Talk

Quantum control by effective counterdiabatic driving

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Host: Mikhail Lemeshko / Artem Volosniev

We present a scheme for the systematic design of quantum control protocols based on shortcuts to adiabaticity. The adiabatic dynamics is accelerated by introducing high-frequency modulations in the control Hamiltonian, which mimic a time-dependent counterdiabatic correction. We present a number of applications for the high-fidelity realization of quantum state transfers and quantum gates based on effective counterdiabatic driving, in platforms ranging from superconducting circuits to Rydberg atoms. We briefly sketch as well related ideas to control many-body interactions in quantum spin systems and evolution errors by compensating terms in the Hamiltonian.

Thursday, April 25, 2024 11:00am - 12:00pm

Mondi Seminar Room 2, Central Building



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