Seminarankündigung

Dienstag, 10.12.2019, 12:00 Uhr
CP-E0-139

“Adiabatic approximation for the dynamics of excitons in cuprous oxide”

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Abstract:

A complete theoretical description of absorption spectra for excitons in cuprous oxide can be achieved by diagonalizing a Hamiltonian, including band structure terms, using a complete basis set. These calculations are limited to low principal quantum numbers due to increasing numerical complexity. On the other hand, experimental data is also available for higher energy ranges. In atomic physics this area has been successfully described using semiclassical theory, connecting properties of classical orbits to absorption spectra. In this talk I will introduce an adiabatic approximation, which allows for the calculation of classical exciton orbits and their parameters, laying down the foundations for a semiclassical description of excitons in cuprous oxide.

Furthermore I will talk about the numerical calculation of autoionizing resonances obtained by the complex-coordinate-rotation method. Applications are excitons in combined electric and magnetic fields with the possible occurrence of exceptional points and the green exciton series.