Speaker: **Tim Ehret, University of Freiburg**

Title: **Dipole-dipole interaction of Floquet states**

Date: **Thursday, June 12th, 11:00 am**

Place: **Seminar room 915**

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We formulate a Floquet-Markov master equation, which combines an open quantum system approach with Floquet theory, for two spatially separated two-level atoms driven by a strong electromagnetic field and coupled to a common electromagnetic bath. This equation features a modified form of dipole-dipole interactions compared to the case of weakly driven atoms, giving rise to new, previously undescribed shifts of the Floquet quasienergies. We provide a detailed physical interpretation of the modified dipole-dipole interactions of two-level atoms, discuss their manifestations in two-atom resonance fluorescence, and extract the distance dependence of the dipole-dipole force between the atoms. The extensive discussion of two-level atoms is complemented by a brief study of one-dimensional hydrogen atoms, with focus on the dipole-dipole interactions of periodically driven atoms whose electronic degrees of freedom are locked in non-dispersive wave packet states.