

Theoriekolloquium

Am **17. November 2016** um **14.15 Uhr** in **W2 1-143** hält

Herr Dr. Daniel Pagel (Greifswald)

einen Vortrag mit dem Titel

Dynamic Stark effect and light emission in a laser-driven quantum optical system

The time-evolution of a laser-driven quantum system is generated by a Hamiltonian with a periodic time-dependence. In order to compute the emission characteristics of such a system, the simultaneous consideration of this periodicity and also of the coupling to environmental degrees of freedom is necessary. Therefore, the (Markovian) master equation describing the dissipative dynamics of the driven system has time-dependent coefficients. To obtain a simpler differential equation with constant coefficients, the Floquet states have to be chosen as the computational basis. This procedure will be demonstrated in this talk for the example of few emitters strongly coupled to a cavity mode and driven by an external laser. As an evidence for the dynamical Stark effect, shifted peaks are observed in the emission spectra for different laser intensities. The emission of nonclassical light is analyzed with the Glauber function, which determines the statistics of emitted photons. Clearly distinguished parameter regimes of super- and sub-Poissonian light emission are found and the additional features appearing for finite laser intensity are explained in terms of the quasienergy spectrum of the driven emitter-cavity system.

Interessierte sind herzlich eingeladen.

gez. Prof. Dr. Martin Holthaus