

SONDERSEMINAR/SPECIAL SEMINAR
LMU/MPQ

am: Wednesday, December 10, 2015

Uhrzeit: 10:00 a.m. s.t.

spricht: Andreas Buchheit
Research Group Prof. Giovanna Morigi
Universität des Saarlandes
Theoretische Physik
Campus E 26
D-66041 Saarbrücken

Thema: Interference in Photon Absorption and Emission
by a Single Atom

Ort: Chair Professor Theodor W. Hänsch,
Faculty of Physics LMU, Schellingstr. 4/IIIrd Floor
Discussion Room H 311

gez. Prof. T.W. Hänsch

ABSTRACT

The quest for systematically determining the fundamental constants requires new levels of precision in atomic spectroscopy. Frequency shifts of the order of a few hundred Hertz can be relevant for verifying the predictions of quantum electrodynamics such as the prediction for the proton radius.

Here, we will discuss the derivation of a master equation for the spontaneous decay of a multilevel atom and set our focus on interference effects such as processes which can lead to the decay of a pairs of levels into a single state both giving an overview of the research that has been done so far in the field and presenting our current results. These processes are represented by additional damping terms, usually called 'cross-damping terms', which are typically neglected, but are present in the systematic derivation of the master equation of a multilevel atom.

During this talk we will both discuss their physical origin and their effect on the evolution of an atomic system.