

SONDERSEMINAR/SPECIAL SEMINAR
LMU/MPQ

am: Friday, May 6, 2016

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

spricht: Mr. Navid S o l t a n i

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Thema: **Whispering-Gallery Mode Shifts with Dielectric Materials
in the Evanescent Field of a Resonator**

Ort: **Chair Professor Theodor W. Hänsch,
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gez. Prof. T.W. Hänsch

**Whispering-Gallery Mode Shifts with Dielectric Materials
in the Evanescent Field of a Resonator**

Abstract:

The resonance frequencies of whispering gallery mode resonator (WGMR) are affected by various parameters such as temperature, pressure or an interaction of a dielectric material with the evanescent of the WGMs.

Here, we investigate a frequency detuning method based on moving a dielectric substrate towards the WGMR. As long as the dielectric substrate has not touched the resonator, the detuning will undergo an exponential change as the distance decreases. This technique can be used for dielectric material analysis and sensing due to the shifts of the whispering gallery modes.

Furthermore, if the dielectric substrate applies a pressure on the WGMR, it can change the mode frequency in the range of few GHz. We characterize this tuning method and its potential use as a continuous frequency tuning mechanism for nonlinear optical processes in the WGMR.