

SONDERSEMINAR MPQ/LMU

am: Mittwoch, 18. Juli 2012

Uhrzeit: 14:00 Uhr s.t.

spricht: Dr. Elke Neu
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Thema: Silicon Vacancy Centers in Diamond:
New Insights into promising Solid State
Single Photon Sources

Ort: Lehrstuhl Prof. T.W. Hänsch
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gez. Prof. T.W. Hänsch

Silicon Vacancy Centers in Diamond: New Insights into promising Solid State Single Photon Sources

Silicon vacancy (SiV) color centers in diamond are promising candidates for solid state single photon sources. The talk presents extensive investigations of single SiV centers hosted by synthetic diamonds in which they are created during the growth due to the incorporation of silicon impurities. The observed SiV centers display outstanding spectral properties including bright zero-phonon-lines (ZPLs) with linewidths as narrow as 0.7 nm together with a distinct concentration of the fluorescence (approx. 70%) in the ZPL.¹ With single photon count rates up to 6 Mcps under continuous excitation, SiV centers are the brightest single color centers at present. Detailed studies of photoluminescence spectra and photon correlations provide new photophysical details of the SiV center, such as internal population dynamics, dipole orientation² and previously unobserved electronic transitions in the near-infrared spectral range.³

¹E. Neu et al. New. J. Phys. **13**, 025012 (2011)

²E. Neu et al. Phys. Rev. B **84**, 205211 (2011)

³E. Neu et al. Arxiv Preprints 1204.4994v1 (2012)