



Münchner Physik- Kolloquium

sommer
2018

PicoPhotonics: Extreme nano-optics with single molecules and monolayers

Prof. Dr. Jeremy F. Baumberg, *Cavendish Laboratory, University of Cambridge, UK*

Monday, 9 July 2018, 17:15 h

Hörsaal 2, Physik-Department der TUM, Garching

Coupling between coinage metal 'plasmonic' nano-components generates strongly red-shifted optical resonances combined with intense local light amplification on the nanoscale. I will show how we now create ultralow volume plasmonic cavities trapping light to $< 1 \text{ nm}^3$, and are routinely able to watch individual molecules and bonds vibrating. Using DNA origami we couple 1–4 dye molecules together optomechanically, and produce strong-light matter coupling that changes their quantum emission properties. We also watch redox chemistry in real time, watching single electrons shuttle in and out of single molecules, as well as 2D materials confined in the same gap. Prospective applications range from (bio)molecular sensing to fundamental science.

Student event: Meet the speaker

We invite you to a **student-only** discussion-round with Prof. Dr. Jeremy F. Baumberg before his Munich Physics Colloquium talk.

Be curious and feel free to ask any question.

Monday, 9 July 2018, 16:00 h

Seminar room PH 3076 (upper floor), Physik-Department der TUM, James-Franck-Straße 1, Garching

