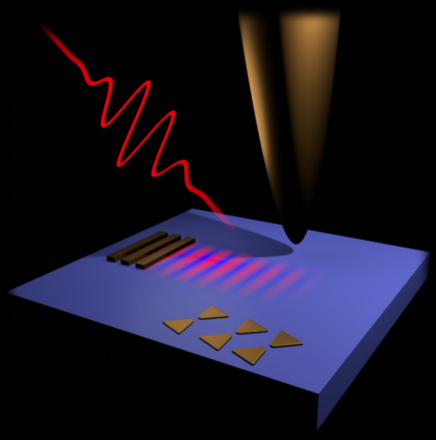
Virtual DPG-Frühjahrstagung (DPG Spring Meeting) of the Surface Science Division
March 1st – 4th, 2021

Mini-Symposium

Infrared nano-optics



Nano-optics builds on light confinement to dimensions much smaller than its free space wavelength. This enables to probe material properties at nanoscopic dimensions, and provides the opportunity to miniaturize optical elements well beyond the conventional Abbe diffraction limit. Traditionally, these approaches were pursued in the visible using plasmonics in metallic nano-structures. With the dawn of two-dimensional materials, the new field of infrared nano-optics has recently gained momentum. This is owing to the unique properties in these material systems, unravelling intriguing phenomena ranging from topological graphene plasmonics to natural hyperbolicity in 2D dielectrics. This mini symposium will discuss the latest ground-breaking results and future prospects in the field of infrared nano-optics.

The symposium will contain two key elements to provide high-level scientific content and lively interactions between the participants: Paper discussions and a contributed poster session. Additionally, the three most promising submissions will be provided the opportunity to present a contributed talk.

Paper discussions

Leaning on the concept of the Faraday discussions, one invited speaker will present a specific high-impact paper in a concise way in each session (15 min). This presentation is then followed by a critical discussion within a panel of experts with up to 4 designated experts for each paper (25 min) and a short Q&A session with the audience (5 min).

Time	Thursday 4th (Morning session, O107)	Time	Thursday 4th (Afternoon session, O108)
10:30	**Paper discussion 1** "Watching in situ the hydrogen diffusion dynamics in magnesium on the nanoscale", Sci. Adv. **6,** eaaz0566 (2020) **Harald Gießen** Universität Stuttgart, Germany **Stefan Maier**, LMU München **Julian Karst**, Universität Stuttgart **Oleg Mitrofanov**, UCL, London **Pernille Klarskov Pedersen**, Aarhus University, DK	13:30	**Paper discussion 2** "Broad spectral tuning of ultra-low-loss polaritons in a van der Waals crystal by intercalation", Nat. Mater. **19,** 964 (2020) **Pablo Alonso-González** University of Oviedo, Spain **Stephanie Law**, University of Delaware, USA **Markus Raschke**, JILA, CU Boulder, USA **Yohannes Abate**, University of Georgia, USA **Lukas Wehmeier**, TU Dresden
11:30	The Role of Polarization in Resonant s-SNOM, **F. G. Kaps et al.**	14:15	Configure phonon polaritons in van der Waals materials, **S. Dai**
11:45	Vector Microscopy - Nonlinear Photoemission Microscopy Reveals Plasmonic Fields, **D. Janoschka et al.**	14:30	Charge-transfer plasmon polaritons at graphene/α-RuCl3 interfaces, **D. J. Rizzo et al.**
12:00	Amplitude- and phase-resolved infrared nanoimaging and nano-spectroscopy of polaritons in liquid environment, **D. Virmani et al.**	14:45	**Paper discussion 3** "Far-field excitation of single graphene plasmon cavities with ultracompressed mode volumes", Science **368,** 1219 (2020) **Frank Koppens** ICFO, Spain **Joshua Caldwell**, Vanderbilt University, USA **Jacob Khurgin**, Johns Hopkins University, USA **Simone De Liberato**, University of Southampton, UK **Mengkun Liu**, Stony Brook University, USA
12:15	Tunable s-SNOM for nanoscale infrared optical measurement of electronic properties of bilayer graphene, **K. G. Wirth et al.**		
12:30	**Poster sessions** • Poster session 1: Di 10:30 – 12:30 (O40) • Poster session 2: Di 13:30 – 15:30 (O52) • Poster session 3: Mi 10:30 – 12:30 (O69) • Poster session 4: Mi 13:30 – 15:30 (O83) Further information can be found in the official program of the conference via https://www.dpg-verhandlungen.de/year/2021/conference/surfacescience/part/o?lang=en		

Organizers

Alexander Paarmann, Fritz-Haber-Institute, Berlin & Markus A. Huber, Universität Regensburg, Regensburg