Universität Regensburg

FAKULTÄT FÜR PHYSIK
Lehrstuhl für Experimentelle und Angewandte Physik

Prof. Dr. Rupert Huber

Seminar

Thursday, November 17, 2022, 14:00 PM, PHY 5.1.01

Dr. Eva A. A. Pogna

Institute of Photonics and Nanotechnology CNR-IFN
Department of Physics, Milan, Italy

Ultrafast and Near-field Imaging of Low-Dimensional Materials

The ability to spatially and spectrally resolve the optical properties of low-dimensional (low-D) materials often proves crucial for identifying the physical processes underlying their optoelectronic response.
In this talk, I will first discuss about femtosecond microscopy studies of low-D materials in the near-infrared and visible ranges, focusing on hot electrons cooling dynamics in graphene based heterostructures [1-4] (Fig.1A), and Mie resonances in dielectric nanoantennas [5-6].

Then, I will discuss about near-field nanoscopy studies in the far-infrared range [7-10] (Fig.1B), focusing on THz collective excitations in topological insulators [11] and black phosphorus.

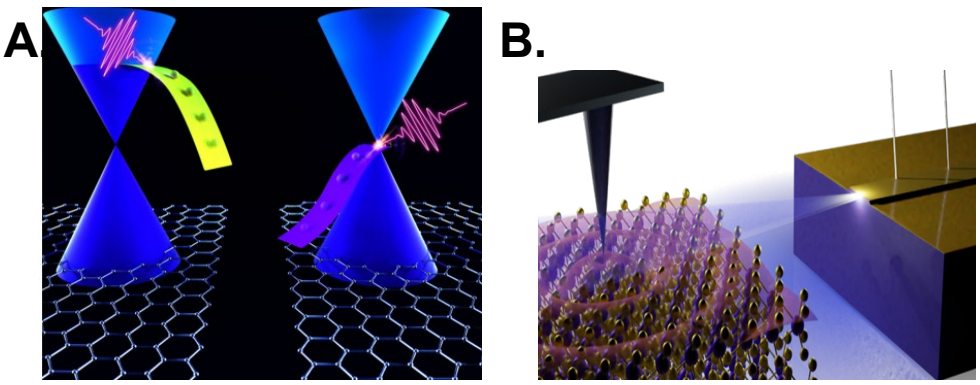

Fig.1 a) Sketch of Dirac electrons cooling after photoexcitation in n-doped (left cone) and pristine (right cone) graphene; b) sketch of the THz near-field microscope based on THz quantum cascade laser.

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