



# Halbleiter-Nanophotonik

## SFB 787

### Einladung

- Es spricht: **Dr. Arash Rahimi-Iman**  
Department of Physics and Material Sciences Center,  
Philipps-Universität Marburg
- Zeit: **Donnerstag, 10. Dezember 2014, 10:15 Uhr**
- Ort: **Technische Universität Berlin  
Institut für Festkörperphysik  
Hardenbergstraße 36, 10623 Berlin  
Raum EW 431**
- Thema: **„Recent advances in the field of Vertical-External-Cavity Surface-Emitting Lasers“**

#### Abstract:

Owing to the vertical-external-cavity surface-emitting lasers' (VECSELs) design and features, these versatile lasers serve as an excellent platform for the realization of various emission schemes. These include high-power multi-mode [1] or single-frequency [2] continuous-wave operation, dual-color [3] as well as mode-locked emission [4, 5]. Moreover, intra-cavity frequency conversion, such as second-harmonic or difference-frequency generation, allows for an extension of the achievable radiation wavelength from the UV to the THz range. Here, emphasis is put on the demonstration of self-mode-locking (SML) VECSELs with sub-ps pulses up to the third harmonic at peak powers up to 1kW. The presented SML studies have not only been performed for quantum-well VECSELs [4], but also for quantum-dot VECSELs [5].

[1] B. Heinen et al., IET Electr. Letters, **48**, 516 (2012)

[2] F. Zhang et al., Opt. Express **22**, 12817 (2014)

[3] M. Wichmann et al., Opt. Express **21**, 31940 (2013)

[4] M. Gaafar et al. Electron. Lett. **50**, 542 (2014).

[5] M. Gaafar et al. Opt. Lett. **39**, 4623 (2014).

Gäste sind herzlich willkommen!  
Prof. Dr. S. Reitzenstein