# Joint DESY and University of Hamburg Accelerator Physics Seminar

## Monday, 30.09.2013

### (16:00 in Room 459/30b)

Transverse Phase Space Studies with the New CDS Booster Cavity at PITZ
(PhD defense)

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**Abstract**

To produce high quality laser light with a short wavelength free electron lasers like the European XFEL and FLASH require electron beams with a high charge and low transverse emittance. The photo injector test facility at DESY, Zeuthen site, was built with the aim to develop and characterize electron sources for future usage at aforementioned facilities. The emittance of the produced electron beam plays a key role as it influences the final brilliance and the minimum achievable wavelength of the produced laser light. This work is devoted to investigations of the emittance of electron beams having different charges with the new CDS booster cavity at PITZ. The emittance of the electron beam depends on many machine parameters such as UV laser pulse shape and its size, solenoid focusing current and accelerating cavities settings. Methodical studies of the emittance dependencies on these parameters were done in simulations using a particle tracking code as well as experimentally.

**NOTE THE UNUSUAL DATE**

J.Roßbach (Univ. HH) and M.Vogt (MFL).

Visit our web site at `http://www-mpy.desy.de/AccPhySemDESY/index.html`