

**PHYSICAL COLLOQUIUM  
INVITATION**

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Monday, 15.01.2024, **2.15 p.m.**, Room No. W02 1-148

speaks

**Prof. Dr. Jan M. Rost,**  
**Max Planck Institute for the Physics of Complex Systems, Dresden, Germany**

about

**“Ultrashort light pulses coupled to carbon based assemblies”**

Carbon based assemblies in special geometries are known to have peculiar properties and are therefore prime candidates to study interaction and energy transfer between light and matter. We will discuss first an experiment at the FLASH FEL in Hamburg, where fullerenes were illuminated with two intense, time delayed pulses of XUV photons depositing more than half a keV energy into the system within time spans short on the timescale of atomic dynamics. Measured spectra of light carbon fragments exhibit unusual characteristics which point to an intriguing interplay of slow electrons and atoms in the dissemination of the absorbed energy and find a consistent explanation within a simple model.

In the second part of the talk very short intense pulses driving coherent electron dynamics in pristine graphene will be addressed. In contrast to common belief, we will show that linearly polarized pulses are ideal to achieve large valley polarization with little damage to graphene, that is, low excitation.

All interested persons are cordially invited.

Prof. Dr. Christoph Lienau