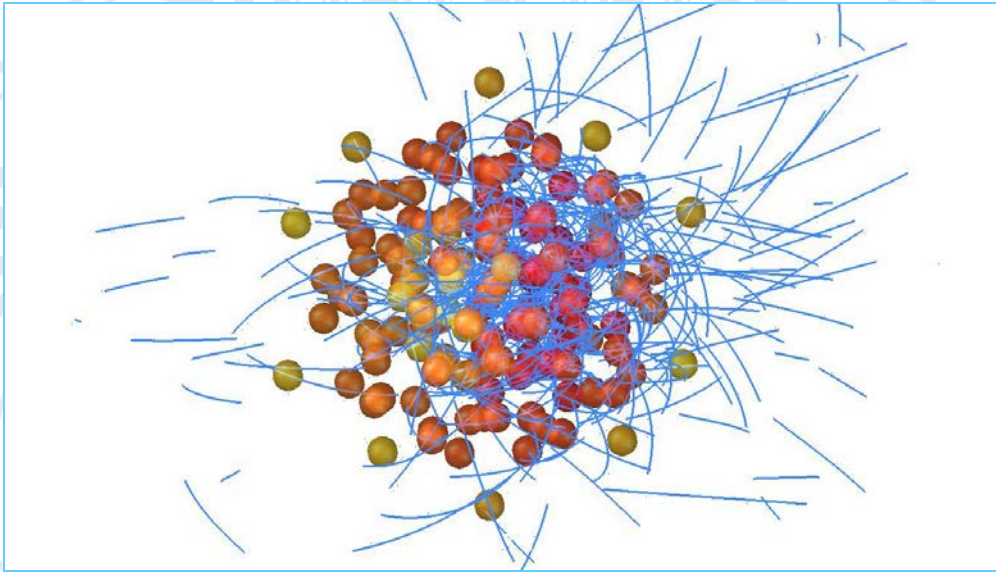


# PHYSIKALISCHES KOLLOQUIUM

AM 20. JUNI 2016 UM 17 UHR C.T.

IM GROßEN HÖRSAAL



## CONTROLLING AND IMAGING ULTRAFAST DYNAMICS IN CLUSTER NANOPLASMAS

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The interaction of intense laser light with condensed matter leads to the ultrafast generation of finite plasmas. Understanding the underlying complex many-particle dynamics promises a fundamental route to controlling laser-driven plasmas – with implication for a broad spectrum of application. Atomic clusters provide an ideal model system to explore the underlying physics in the resulting transient nanoscale plasmas [1].

In this talk the physics of intense laser-cluster interactions in intense IR and x-ray laser fields will be discussed [1]. It will be shown that the combination of long and short wavelength fields open new pathways to control and image ultrafast electron and ion dynamics in laser-driven nanoplasmas via seeded avalanching [2] and time-resolved single-shot x-ray diffraction [3].

- [1] T. Fennel *et al*, *Rev. Mod. Phys.* **82**, 1793 (2010)
- [2] B. Schütte *et al*, *Phys. Rev. Lett.* **116**, 033001 (2016)
- [3] C. Peltz *et al*, *Phys. Rev. Lett.* **113**, 133401 (2014)