



# Institutskolloquium

Am 20. April 2005, 16:00 Uhr spricht:

**Prof. Dr. Karl-Heinz Meiwes-Broer**  
**Universität Rostock**

über

## “ Metal clusters in intense laser fields ”

The interaction of metal clusters with intense laser light fields leads to a giant up-charging and a subsequent Coulomb explosion. Most interestingly, it has been shown that for free metal clusters the highest charge states of the ionic fragments are not produced with the shortest laser pulses (and hence the highest intensity of  $1.5 \times 10^{16}$  W/cm<sup>2</sup>) but with pulses having a width of 600 fs to 1000 fs. This phenomenon we currently attribute to plasmon enhanced ionization.

Studying the charging dynamics using the femtosecond dual-pulse technique gives a much higher time resolution and simplifies the interpretation. Applying this method to free clusters and those which are embedded in helium droplets, reveals a significant influence of charge transfer processes [1]. The experimental findings will be discussed in view of Vlasov simulations [2, 3].

- [1] T. Döppner, S. Teuber, Th. Diederich, Th. Fennel, P. Radcliffe, J. Tiggesbäumker, and K.H. Meiwes-Broer, *Euro. Phys. J. D24* (2003) 157.
- [2] Th. Fennel, G. Bertsch, and K.H. Meiwes-Broer, *Euro. Phys. J. D29*, 367(2004)
- [3] T. Döppner, Th. Fennel, Th. Diederich, J. Tiggesbäumker, K.H. Meiwes-Broer, *Phys. Rev. Lett.* 94, 13401 (2005)

**Ort: Max-Born-Saal, MBI, Max-Born-Str. 2a**

Interessenten sind herzlich eingeladen.

Prof. Dr. I. V. Hertel