

SONDERSEMINAR

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Ultrafast phenomena of atom and solid under strong field: counter rotating wave effect and semimetalization

Light-matter interaction has been long-standing topic of intensive research since 1930s, when modern physics was founded and thriving. For instance, controlling properties of a material using light has also drawn interest. With advance of laser technology in both intensity and pulse duration, nonlinear phenomena can be induced as well as probed dynamically.

Among many topics, in this talk, I will discuss the counter rotation effect in atom and the semi-metalization in insulator, which have been investigated utilizing isolated attosecond pulses and few cycle laser pulses,

Using attosecond transient absorption spectroscopy, asymmetric Autler-Townner effect has been observed in Xe atom and ultrafast oscillation due to counter rotation wave effect was clearly revealed for the first time.

Using few-cycle visible pulses, we demonstrated that insulators such as SiO₂, CaF₂ etc. can be made metal for a brief moment. Such field-induced current can be switched in one femtosecond or sub-femtosecond time scale.

Der Gast wird betreut von Prof. Dr. M. Aeschlimann

GÄSTE SIND HERZLICH WILLKOMMEN!