



# SFB1242

Nichtgleichgewichtsdynamik kondensierter  
Materie in der Zeitdomäne

UNIVERSITÄT  
DUISBURG  
ESSEN

*Open-Minded*

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## **Ultrafast structural dynamics in an organic molecular crystal**

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Research on functional organic materials is driven by their chemically tuneable optoelectronic properties which have led to many commercial applications, notably including molecular semiconductors such as organic light emitting diodes (OLEDs) and organic photodetectors. Comprised of molecules with strong internal covalent bonds which determine the optical characteristics, the macroscopic electronic properties of such crystals are predominantly set by the structural order, which is in turn determined by weak intermolecular forces. This hierarchy of forces opens two approaches for structural dynamics investigations: making use of the crystalline phase of organic molecules to study photo-induced chemical reactions (within the limitations of the confinement), and, looking beyond the unit cell, observing the ultrafast microscopic dynamics responsible for photo-induced macroscopic phase transitions in the entire organic crystal. We will introduce the intriguing properties of organic molecular crystals and present a recent example of an ultrafast Peierls-Transition in an organic conductor, observed with time resolved electron diffraction.

**Für diese Zeit steht eine Kinderbetreuung nach vorheriger Anmeldung zur Verfügung.**

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