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Quantum Optics,  
Quantum Nanophysics  
& Quantum Information

## INVITATION

to a **TALK** by

### **Amit Samanta & Jochen Küpper**

Controlled Molecule Imaging

Center for Free-Electron Laser Science

Lead Scientist, Deutsches Elektronensynchrotron DESY

Professor in the Department of Physics, Universität Hamburg  
and Center for Ultrafast Imaging, Universität Hamburg

### **Imaging controlled molecules and nanoparticles**

**Wednesday, May 10<sup>th</sup> 2023, 14:00 h**

**Location:** Christian Doppler Lecture Hall, 3<sup>rd</sup> floor, Boltzmannngasse 5

**Hosted by:** Markus Arndt

#### **Abstract:**

Imaging the dynamics of molecules and nanoparticles with atomic resolution promises to disentangle the elementary steps underlying transformations in, e.g., chemistry, biology, and materials science. We've developed techniques to provide well-defined and controlled reactants and to probe the products with high resolution and specificity.

Here, we'll present selected experimental results on the imaging of dynamical quantum-mechanical processes, including details on our approaches to control molecules and nanoparticles using external fields as well as on the imaging of specific dynamical processes. This ranges from the imaging of the quantum carpet of a rotational wavepacket to the disentangling of ultrafast chemical transformations and to the imaging of structural dynamics in nanoparticles.