

# Scanning X-ray Diffraction Microscopy of Unconventional Non-Cubic Gold Microcrystallite

Bulk gold usually crystallizes in face-centered cubic crystal structure. Recently, we have stabilized Au microcrystallites in unconventional body-centered orthorhombic and body-centered tetragonal (together referred to as bc(o,t)) lattices. These bc(o,t) microcrystallites exhibit excellent catalytic properties and nobler behavior in aqua regia and mercury, in clear contrast to the celebrated properties of the conventional Au. Quantifying the presence of strain within individual crystallite is important for understanding their growth. For this, scanning X-ray diffraction microscopy of a single gold microcrystallite has been done at P06 beamline. Currently, we are analyzing the generated data. The project student can take part in the analysis of the diffraction data and understand the strain distribution within the microcrystallite body.

## Group

FS-PETRA

## Project Category

A1. Solid-state physics and nanoscience

## Special Qualifications

## DESY Site

Hamburg

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