

# FAU Crystal Growth – Knowledge & Technology Transfer

## ... Services for Industrial Partners

The **Crystal Growth Lab** at the Materials Department 6 (University of Erlangen-Nuremberg) offers in conjunction with the University Knowledge and Technology Transfer Office **services for industrial partners** in the field of **high temperature crystal growth & technology**.

- R & D contracts
- growth machine design & prototyping
- process development
- supply of research grade materials
- training for industrial staff

In particular, high temperature **crystal growth and epitaxy** of wide band-gap semiconductors like **silicon** carbide and related materials belong to the key competences.

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## Overview – Service & Knowledge Transfer for Industrial Partners

### MACHINE TECHNOLOGY

#### design & prototyping of industrial growth furnaces

4 inch (6 inch in development)

#### process automation

#### in-situ growth monitoring tools

low dose x-ray visualization

### PROCESSING

#### bulk single crystal SiC growth

4H-/6H-SiC (3 inch, 4 inch)

15R-/3C-SiC (small pieces)

#### R & D contracts on SiC crystal growth

SiC seed development

doping (Al, B, N, P)

anything special / non-standard

#### epitaxy of SiC thin films

3C-SiC on Si

#### high temperature crystal growth

melt temperature up to 2700°C

#### PVD processing

CIGSSe and CZTSSe systems

#### nano-particulate thin films

transparent conductive oxides

### MATERIALS TESTING

#### electrical

resistance measurements

Hall mobility & charge carrier density

#### optical

photoluminescence (-topography)

cathodoluminescence (-topography)

optical absorption topography

UV-VIS-IR-Absorption

Raman spectroscopy, FTIR

#### structural

scanning electron microscopy

x-ray analysis

surface analysis , confocal microscopy

#### “Chemical”

differential scanning calorimetry

energy dispersive x-ray fluorescence

### TRAINING COURSES FOR INDUSTRIAL STAFF

crystal growth schools with theoretical and practical training

teaching language English, on demand translation into other languages may be provided