

Overview – Service & Knowledge Transfer for Industrial Partners

MACHINE TECHNOLOGY

design & prototyping of industrial growth furnaces

4 inch & 6 inch

process automation

in-situ growth monitoring tools

2D/3D low dose x-ray visualization

PROCESSING

bulk single crystal SiC growth

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

6 inch in development)

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

R & D contracts on SiC crystal growth

SiC seed development

doping (Al, B, N, P)

anything special / non-standard

SiC powder synthesis & test

validation for PVT bulk growth

3C-SiC epitaxy on Si

high temperature crystal growth

melt temperature up to 2700°C

thin films from PVD processing and

nano-particulate ink deposition

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

FAU Crystal Growth – Knowledge & Technology Transfer ... Services for Industrial Partners

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

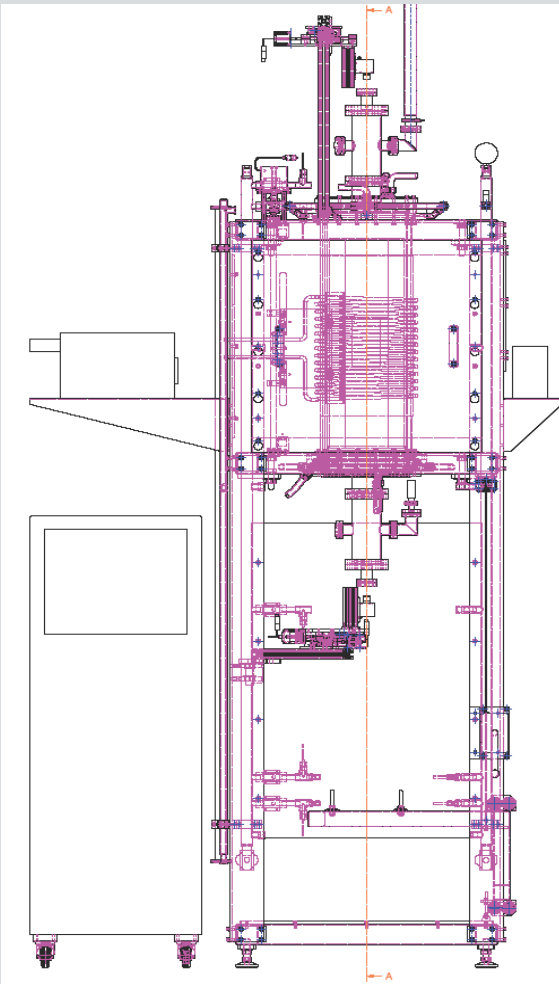
- R & D contracts
- growth machine design & prototyping
- process development
- support / consulting of industrial crystallization
- training of industrial staff

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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Machine Technology & Processing



4inch SiC PVT reactor designed & manufactured at the machine shop of FAU

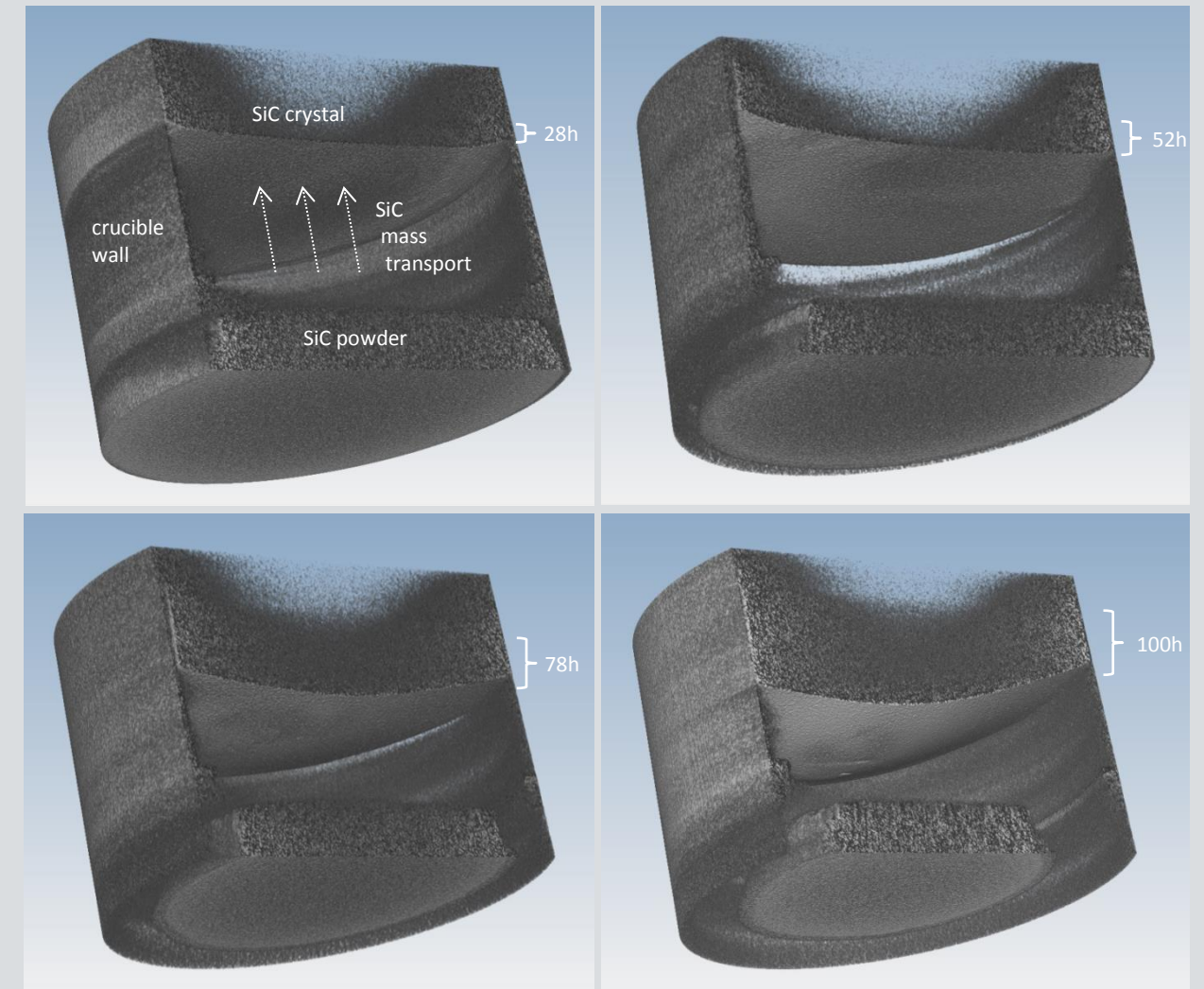
MACHINE TECHNOLOGY

design & prototyping of industrial growth furnaces
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PROCESSING

R & D contracts on SiC high temperature bulk crystal growth
SiC powder synthesis & test
3C-SiC epitaxy on Si

Materials Testing & Training Courses for Industry



live view computed tomography of SiC PVT bulk growth at ca. 2200°C

MATERIALS TESTING

electrical ~
optical ~
structural ~
"chemical" analysis

TRAINING COURSES FOR INDUSTRY

crystal growth schools (theory & lab)
long-term R & D lab stays
teaching language English, on demand translation into other languages