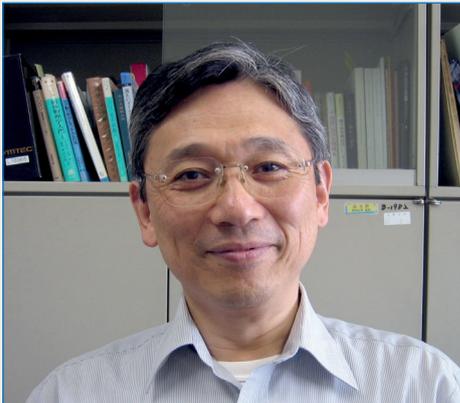


SYNERGY OF EXPERIMENTAL AND NUMERICAL STUDIES FOR CRYSTAL GROWTH OF BULK SEMICONDUCTORS

Berlin, November 30 - December 02, 2020

Lecturer



Prof. Koichi Kakimoto
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Prof. Dr. Koichi Kakimoto

from Kyushu University, Japan is one of the world's most renowned scientists in the field of crystal growth.

Koichi Kakimoto is currently a professor at three universities: Miyazaki University (since 2009), Tohoku University (since 2004), and Kyushu University (since 2003). In addition, he is director of the Research Institute of Applied Mechanics at Kyushu University and Chairman of the IOCG (International Organization for Crystal Growth). He is the author of over 350 scientific papers with H-factor 30.

Prof. Kakimoto's research focuses on the application of magnetic fields in the growth of semiconductors, in particular Si and GaAs. His current research topics also include the development of a super high-efficiency solar cell, the development of a crystal growth process for high-purity silicon for power electronics, and the development of a low-temperature crystal growth process for a range of semiconductors.

Organization

Contact (organization):

Stefanie Grüber
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Venue:

Leibniz-Institut für Kristallzüchtung (IKZ)
Max-Born-Str. 2
12489 Berlin, Germany
www.ikz-berlin.de/en

Winter School details:

www.ikz-berlin.de/en/winter-school

Registration:

Please send an email to winter.school@ikz-berlin.de with details of your institution and position. As space is limited the number of attendees is limited to 50.

Registration deadline: November 22, 2020

Participation fees:

Students and PHDs:	50,- Euro
Academic researchers:	250,- Euro
Industrial employees:	500,- Euro

Accommodation:

All participants are asked to organize their accommodation by themselves. There are several hotels in the area. A timely reservation is recommended.

The LEIBNIZ-INSTITUT FÜR KRISTALLZÜCHTUNG (IKZ)

is a unique research institution in Europe. Our mission is to explore the scientific and technological fundamentals of crystal growth, from basic research to pre-industrial development.

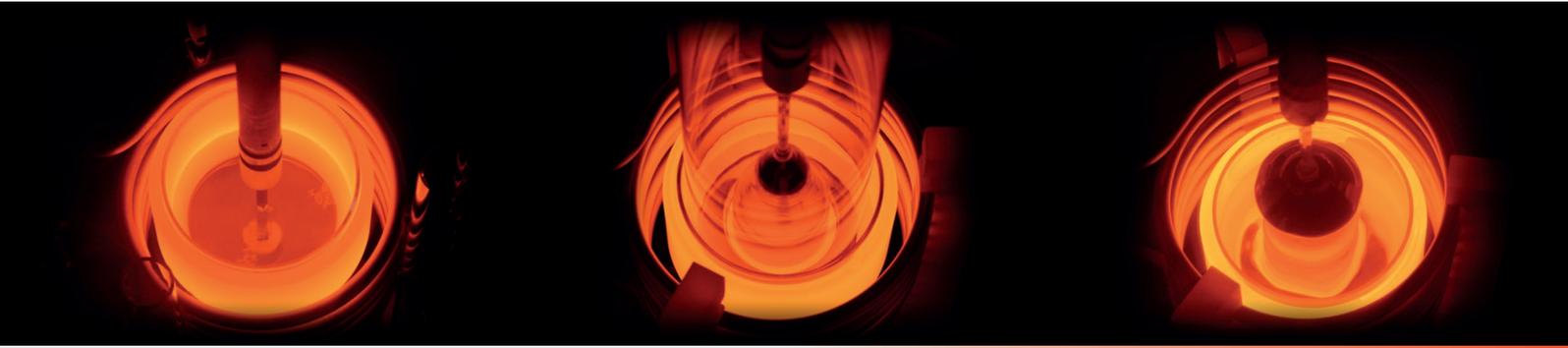
Furthermore, we provide scientific services for research institutions and industry. This includes, in particular, the growth of specific crystals for research purposes, the characterization of crystalline materials or industry-oriented technology development.

Synergy of Experimental and Numerical Studies for Crystal Growth of Bulk Semiconductors

Lecturer: Prof. Koichi Kakimoto

Monday, November 30 - Wednesday, Dezember 02, 2020

Morning Session: 10 a.m.-12 p.m. / Afternoon Session: 1 p.m.-3 p.m.



Session 1:

- ◆ Requirements of semiconductor crystals from device and system community
- ◆ Melt, solution, physical vapor transport (PVT), CVD methods
- ◆ Heat and mass transfer in a furnace: convection, conduction, radiative heat transfer
- ◆ Thermo-physical properties

Session 2:

- ◆ Thermodynamics and atomic scale calculation
- ◆ Solid-vapor and liquid-vapor, solid-solid, solid-liquid equilibrium
- ◆ Chemical reaction in a furnace

Session 3:

- ◆ Artificial intelligence in crystal growth: numerical modeling
- ◆ Steady and unsteady, 2D and 3D numerical calculation
- ◆ Measurement technology: temperature, velocity, chemical species
- ◆ 1D, 2D, 3D defects, impurity analysis
- ◆ Nucleation in 2D and 3D: polytype control

Session 4:

- ◆ State of the art in industry (particularly in Asia/ Japan and China); semiconductor technology
- ◆ New approach of semiconductor growth
- ◆ Crystal growth of new devices
- ◆ Free discussion

