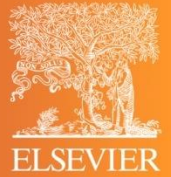


# Handbook of Crystal Growth, 2<sup>nd</sup> edition

## Bulk Crystal Growth

A Volume in the Handbook of Crystal Growth Series.

Edited by: *Peter Rudolph* Crystal Technology Consulting, Schönefeld, Germany



The newly and updated handbook provides a compressive compendium on crystal growth, particularly, the methodical fundamentals and development of technology in the field of bulk crystallization on both industrial and research scales, and is particularly devoted to bulk transport effects, like diffusion and convection, as well as segregation and capillary phenomena, to be optimized by numeric modeling and process automation.

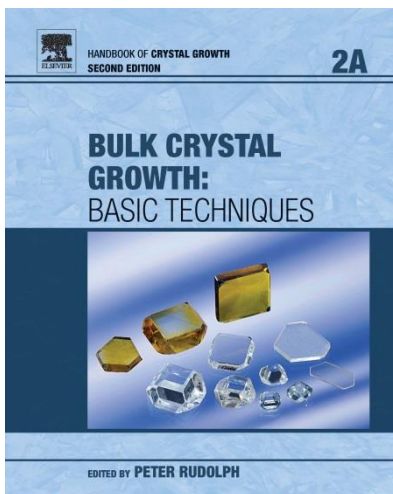
2-Part Set:

ISBN: 9780444633033

PUB DATE: October 2014

PRICE: £280.00/€325.00/\$455.00

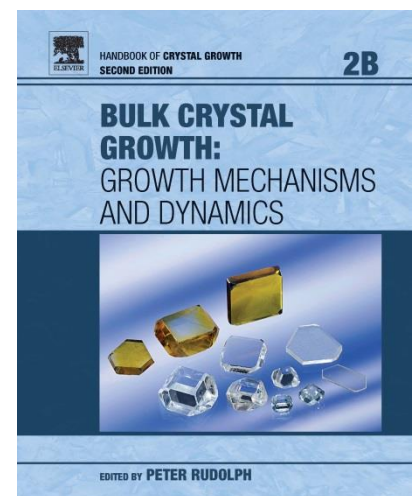
## Handbook of Crystal Growth, 2nd Edition Volume IIA, Basic Technologies



- Investigates basic growth technologies and modern crystal cutting methods.
- Presents the status and future of Czochralski and float zone growth of dislocation-free silicon
- Examines directional solidification of silicon ingots for photovoltaics, vertical gradient freeze of GaAs, CdTe for HF electronics and IR imaging as well as antiferromagnetic compounds and super alloys for turbine blades
- Focuses on growth of dielectric and conducting oxide crystals for lasers and non-linear optics
- Topics on hydrothermal, flux and vapour phase growth of III-nitrides, silicon carbide and diamond are explored

## Handbook of Crystal Growth, 2nd Edition Volume IIA, Growth Mechanisms and Dynamics

- Explores capillarity control of the crystal shape at the growth from the melt
- Highlights modeling of heat and mass transport dynamics
- Discusses control of convective melt processes by magnetic fields and vibration measures
- Includes imperative information on the segregation phenomenon and validation of compositional homogeneity
- Examines crystal defect generation mechanisms and their controllability
- Illustrates proper automation modes for ensuring constant crystal growth process
- Exhibits fundamentals of solution growth, gel growth of protein crystals, growth of superconductor materials and mass crystallization for food and pharmaceutical industries



## PHYSICS

Please contact your Elsevier Sales or Customer Service Representative or order online at <http://store.elsevier.com/9780444633033>