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Modelling of Crystal Growth Processes

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Message from the Guest Editor

This Special Issue is devoted to the numerical modelling and simulation of crystal growth processes from the melt. The main goals of the modelling are to understand the physics of the process and to support its development. The simulation considers important physical effects that connect the process parameters to the quality and shape of crystals and the yield of the process. Although the simulations are carried out for decades, the continuously growing requirements for crystal quality force us to develop more precise models and to consider further effects. Besides hot zone design, the precise control of melt flow is important for the optimal crystal growth conditions, controlled incorporation of impurities and point defects as well as prevention or control of dislocation density.

The topics include, but are not limited to: Czochralski (Cz) process, Floating zone (FZ) process, new growth concepts, semiconducting materials (Si, Ge, GaAs), oxide crystals, melt flow, dopant transport, magnetic fields, defect dynamics, dislocations, facet growth, experimental verification of models, and use of high performance computing (HPC).

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Message from the Editor-in-Chief

Welcome to *Crystals*, the journal dedicated to the fascinating world of crystallographic research! Crystals are more than mere decorative elements; they hold the key to understanding the fundamental structure of matter. Our mission is to explore the crucial significance of this research across various fields. From medicine to technology, chemistry to geology, crystals play a vital role. Their structure provides insights into new advanced materials, innovative drugs, and groundbreaking technologies. Through *Crystals*, we delve into the microscopic world to discover solutions that will shape the future. Join us on a journey through the *Crystals*, where science merges with beauty and innovation.

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