

Shaped Crystal Growth

The monograph "Shaped Crystal Growth" by V. A. Tatarchenko is the first systematic of the macroscopic crystallization theory. The theory is based on the stable statement growth conception, which means that self-stabilization is present in the system, with growth parameter deviations occurring under the action of external perturbations attenuating with time. The crystallization rate is one of the parameters responsible for crystal defect formation. Steady-state crystal growth means that crystallization rate internal stabilization is present, thus allowing more perfect crystals to grow. Most important is the fact that the crystal shape (an easily observed parameter) is one of the stable-growth characteristics when growing crystals without any contact with the crucible walls. This means that constant-cross-section crystal growth is to a certain extent evidence of crystallization process stability. The principles of the stable crystal growth theory were developed by the author of the monograph in the early 1970s. Due to the efforts over the past 20 years of V. A. Tatarchenko, his disciples (V. A. Borodin, S. K. Brantov, E. A. Brenner, G. I. Romanova, G. A. Satunkin et al) and his followers (B. L. Timan, O. V. Kolotiy et al) the theory has been completed, which is demonstrated by this monograph. The characteristic feature of the theory is its trend towards solving practical problems that occur in the process of crystal growth.

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