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**PERFORMANCE PARAMETERS OF THERMOELECTRIC
CRYSTAL ENGINEERING AND DESIGN**

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ABSTRACT

Good quality crystals free from flaws have great demand for application in thermoelectric (TE), microelectronics, optoelectronics, and various other fields, which cannot be met by natural resources. The development of science and technology for the production of tailor-made superior semiconducting (SC) crystals constitutes the root of materials research. The building blocks are geometrically arranged orderly in the space lattice of single crystals and they possess good thermal stability with high mechanical strength. In the growth process, a controlled phase transformation takes place from a disordered fluid to solid state where the atomic constituents can be mixed perfectly by thermal convection. The important steps in the synthesis are attaining the required degree of supersaturation/supercooling, formation of defect free nuclei and control of various parameters. Appropriate growth technology is to be adopted for achieving the desired characteristics of the semiconductor crystals.