

# Preface

This special edition is devoted to recent advances in the control, monitoring, and effects analysis of structural defects in silicon carbide, which is a critical challenge for providing the performance and reliability of wide-bandgap semiconductor devices. Articles address fundamental and applied aspects of defect inspection methods and the impact of defects such as micropipes, bipolar degradation, lattice damage, and forward bias degradation on the power devices' functionality.

Attention was also paid to bonded substrate technologies and ion implantation technique and their influence on carrier mobility and long-term device performance.

This special edition provides a focused overview of the state of the art in the areas of control, analysis of characteristics, and effect compensation of silicon carbide structure defects, highlighting the scientific foundations and technological solutions that underpin the development of high-quality SiC devices.