

Preface

This special edition presents recent results and advances in evaluating functional characteristics and designing silicon carbide (SiC) devices, which have growing applications in modern power electronics and integrated circuits.

The investigations cover a wide range of SiC-structures, including MOSFETs, bipolar junction transistors, PiN diodes, Schottky barrier diodes, etc., emphasising switching tests, analysis channel density and planar gate cell topologies.

Special attention is given to using advanced methodologies such as optical beam induced current (OBIC) analysis and TCAD for device operation modelling, performance evaluation, and design optimisation.

This special edition comprehensively overviews state-of-the-art technologies for designing structures and analysing functional characteristics of SiC-based devices and integrated circuits, which, in modern conditions of scientific and technological progress, have wide applications in many engineering and manufacturing fields.