# Preface

The appearance of solid-state silicon oxide high-power devices has been a cornerstone in the evolution of modern power electronics, enabling efficient processes of power conversion and power management in a wide array of applications. As these devices become increasingly integral to both consumer and industrial objects and technologies, ensuring their operational reliability and functional stability is paramount. This special edition delves into the critical aspects of these devices, exploring the factors that influence their performance, longevity, and consistency under various operating conditions.

Through examination of cutting-edge research and practical case studies, this edition aims to provide engineers, researchers, and industry professionals with a deeper understanding of the challenges and solutions associated with maintaining the reliability and stability of solid-state power devices. By addressing both theoretical and practical decisions, the articles offer valuable insights into the mechanisms that drive device degradation, the methods for predicting failure, and the strategies for enhancing device robustness in harsh applications.

Whether you are engaged in the development of new technologies in high-power electronics or the optimisation of existing systems, this collection will be an essential resource for navigating the features of solid-state high-power devices.