

Preface Editors

Gallium nitride (GaN) has emerged as one of the most important semiconductors in modern technology. Its future shines even brighter as we see the advances towards solid state lighting and high-power electronics. What was mainly pushing, actually creating this entirely new sector of GaN-based device technology, was the success in achieving reliable p-type doping and consequently, the ability for fabrication of light emitter devices (LEDs and LDs). A pioneer in the field, Shuji Nakamura, has summarized this work in S. Nakamura, G. Fasol, *The Blue Laser Diode*, Springer-Verlag, 1st edition, 1997.

Much has been done, since then, in the development of better and more efficient GaN-based devices, already creating a multibillion dollar market. This is even more astounding in the light of the relatively underdeveloped technology for lattice and thermally-matched substrates for GaN-based devices. Only since around the year 2000, has the crystal growth technology of GaN been developed to a now widely recognized field in academia and industry.

This book is designed to bring to the readership for the first time, a comprehensive overview of the state-of-the-art GaN crystal growth technology, reflecting the tremendous progress made particularly over the last decade, drawing the possible path we still have to cover to realize our common goal: large-size, dislocation-free GaN crystals to fabricate non-polar, semi-polar, and polar GaN wafers in sufficient quantity and at reasonable price.

A good number of recognized leaders from industry and academia have contributed to this book for which the editors are very grateful. We sincerely hope that this book will be a unique resource for engineers, researchers, and students dealing with the crystal growth of GaN, processing, and device fabrication, both in industry and academia.

Last but not the least, we are grateful to everyone who was involved in preparing this book. In particular, D.E. is indebted to Prof. T. Fukuda for the collaboration over the last few years; he also thanks his wife, Yumiko, for her patience and support while he was working on this book.

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