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Gallium Nitride Materials and Devices VIII

Jen-Inn Chyi
Yasushi Nanishi
Hadis Morkoç
Joachim Piprek
Euijoon Yoon
Hiroshi Fujioka
Editors

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Introduction

GaN based electronic and optoelectronic devices continue to develop rapidly as reflected by the advances reported at the meeting. Today, the GaN based light emitters adorn the automobiles, traffic lights, moving signs, outdoor displays, handheld electronics, and back lighting in many consumer electronic devices. LED outdoor lighting applications are already in full swing. Indoor lighting is also gaining tremendous momentum as the price of LED luminaires has become appealing to consumers in large.

The SPIE symposium on GaN Materials and Devices is annually organized to disseminate the latest advances and provide an opportunity for researchers from around the world to engage in far reaching and probing discussions. Many world renowned invited speakers from Asia, Europe and the United States set the stage with wide ranging formal discussions. Not to be underestimated is the fact that the meeting serves the purpose of getting experts and newcomers together for friendship and informal discussions on issues relevant to GaN and related materials and devices, and also to develop collaborations. Such exchanges will undoubtedly play an invaluable role in propelling the field forward in general and addressing pivotal issues such as determination and improvement of quantum efficiency of LEDs as well as realizing the full potential of GaN power devices for energy efficiency products in particular.

Papers contained in this volume cover the areas of material growth and characterization, novel devices, and device physics. Subject areas are focused on the preparation of GaN substrates, including semi-polar and nonpolar orientations; epitaxial growth of InN-rich InGaN alloys; growth of GaN on large area substrates, including sapphire and Si; mechanisms of defect generation and the role of defects in device characteristics, techniques for LED efficiency retention and improvement, including UV emitters down to about 260 nm; fabrication and physics of nano-cavity light emitters; and last but not least progress of GaN-based FETs for power and microwave applications.

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