Prof. Motoaki Iwaya

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Motoaki Iwaya is a Professor in the Faculty of Science and Technology at Meijo University, Nagoya, Japan. He received his Ph.D. in Engineering from Meijo University in 2003 and has since been engaged in research and education in semiconductor materials and devices. Over the course of his academic career, he has contributed to the advancement of nitride semiconductor science and the development of ultraviolet optoelectronic devices, while supervising graduate and undergraduate students and promoting collaborations with academic and industrial partners.

His research focuses on nitride semiconductor materials and optoelectronic devices, particularly III-nitride compounds such as GaN and AlGaN. A central theme of his work is the crystal growth, heterostructure design, and device physics of wide-bandgap semiconductors. He has been involved in the development of ultraviolet light-emitting diodes and laser diodes, addressing key challenges such as carrier injection efficiency, optical confinement, and internal loss in AlGaN-based heterostructures, with the aim of realizing high-efficiency ultraviolet light sources in the UV-B and deep-UV spectral regions.

In recent years, his research has emphasized the realization of high-performance AlGaN-based ultraviolet laser diodes, including heterointerface control, optimization of carrier transport, and improvement of optical gain. These studies are directed toward achieving efficient continuous-wave operation and expanding the accessible emission wavelength range of ultraviolet semiconductor lasers, which are expected to play important roles in medical treatment, environmental monitoring, sterilization, biochemical sensing, and advanced photonic systems.

In addition to ultraviolet laser research, Prof. Iwaya has also worked on various nitride-based optoelectronic technologies, including light-emitting diodes and micro-scale light sources. His interests extend to semiconductor crystal growth, optical and electrical characterization, and the integration of materials science with device engineering to create new functionalities in wide-bandgap semiconductors. He has authored numerous scientific publications, holds multiple patents, and continues to contribute to international collaborations and conferences in the field of semiconductor photonics.