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from the intermixed InGaAs/GaAs quantum-well has been found to be achieved by applying a cycle-annealing at 800 °C which is below activation temperature. I. INTRODUCTION Quantum well intermixing (QWI) methods has been successfully implemented to engineer the optical and material properties of semiconductor quantum

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History. The semiconductor quantum well was developed in 1970 by Esaki and Tsu, who also invented synthetic superlattices. They suggested that a heterostructure made up of alternating thin layers of semiconductors with different band-gaps should exhibit interesting and useful properties. Since then, much effort and research has gone into studying the physics of quantum well systems as well as ...

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Keywords: quantum well intermixing, impurity free vacancy disordering, semiconductor laser, stress engineering, quantum efficiency (Some figures may appear in colour only in the online journal) 1. Introduction Even though record high output powers have been demonstrated for semiconductor lasers [1-4], one of the limitations

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The selective intermixing of semiconductor quantum well heterostructures will produce significant changes in the optical and electrical properties of the semiconductor crystal. In this work, SiO<sub>2</sub> encapsulation and rapid thermal annealing have been used to selectively intermix different III-V semiconductor quantum well heterostructures. Specifically, four different material systems have been ...

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### **Semiconductor Quantum Well Intermixing Material**

Abstract: Intermixing processes in quantum wells have been extensively studied in order to modify characteristic of semiconductor devices such as LEDs. Controlling the band gap of material by introducing intermixing process can be used to enable broadband and controllable emission of LEDs. *Conservation of quantum efficiency in quantum well ...*

1998), Semiconductor Quantum Well Intermixing—Material Properties and Optoelectronics Applications (Gordon & Breach, 1998), and Intermixed Quantum Wells for Photonics (New York: Wiley). Prof. Li is a “Distinguished Lecturer” of the IEEE Electron Devices Society (ED-S) since 1997.

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