



ADVANCED MATERIALS AND DEVICES LABORATORIES
SCHOOL OF ENGINEERING, UNIVERSITY OF TOKYO

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SEMINAR ANNOUNCEMENT

Craig L. Walker

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“QUANTUM WELL INTERMIXING FOR HIGH POWER SEMICONDUCTOR LASERS”

DATE: Wednesday, July 26, 2000

TIME: 3:00 pm-4:00 pm

PLACE: Rm. 340

3rd Floor, Engineering Building 10

ABSTRACT

Opto-electronic integration of active and passive components on a single chip requires a means of lateral bandgap control. Quantum Well Intermixing (QWI) is such a technology, being particularly useful because of its simplicity and lack of complex growth processing. Intermixing a quantum well (QW) with its barriers changes the QW composition and profile, resulting in a bandgap increase. The approach at Glasgow University uses vacancies created at the surface by sputtering with SiO_2 to diffuse through the QW region at high temperatures, causing intermixing. Lateral bandgap control is achieved by patterning and masking the sputtered SiO_2 deposition. Passive Multi-Mode Interferometers (MMIs) can be integrated with amplifier arrays to create novel high power laser configurations. Integrating passive sections at the ends of high power lasers can reduce facet heating, resulting in increased power capability and lifetime. Research is being conducted at 860 nm (GaAs QWs) and 980 nm (InGaAs QWs) to supply future demands for high power lasers.

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Refreshments will be provided.

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