

Future Scaled Devices

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Device scaling has continually formed the basis to improve performance, to increase the number of elements on a chip and to realize complex functions. Over the past 15 years, the design rule has changed from $10\mu\text{m}$ to $\approx 1\mu\text{m}$ and the total bits on a RAM chip have increased from 1 K to 1 M.

Furthermore, reliability of devices has been improved by various process innovations based on reliability physics. However, it is impossible to apply the scaling law directly to actual devices for several reasons. At some critical design rule, we will be forced to lower the standard power supply voltage of 5 volts. Considering these things, this rump session will cover performance trends with scaling (breakdown voltage, power supply, speed, etc.), reliability of scaled devices and new device structures.

R-E

Optoelectronic Devices

— Future Trend for Monolithic Integration —

This Rump Session will focus on the latest advance and future trend of optoelectronic integrated circuits (OEIC's), and novel optical devices of III-V compound semiconductors, especially AlGaAs and InGaAsP systems.

Several speakers are invited to initially present the following topics for stimulating and promoting the discussions with the attendants:

- OEIC's such as lasers and field effect transistors, lasers and heterojunction bipolar transistors, photodetectors and field effect transistors etc;
- Characteristics of mode-controlled lasers, surface-emitting lasers, laser-transistors, optical bistable and novel devices etc, and possibility toward the integrations.

You are welcome to attend and encourage the discussions.