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Development of transmitter device using photonic-crystal semiconductor laser for next-generation optical communication

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Background

• Arrival of the high-speed information society.
  – broadband communication using optical system has spread to each office and home

• Communication capacity increases according to Moore's law
  – approaching the shift to 40Gbit/sec generation

• However, difficult in a present laser structure to obtain the following rate.
  – Breakthrough is required!
Aim

• Our IDER unit aims at the new semiconductor laser device for the next generation optical communication
  – using the photonic-crystal structure
  – laser driver circuit is developed synchronously
Member

- Chair: Dr. Hideki Momose, Assistant professor.
- Member: Dr. Toru Ido, Lecturer.
- Member: Mr. Bogoda Indika Udaya Kumara, Master student.
- Member: Mr. Teppei Miyaji, Master student.
- Adviser: Dr. Masahiko Kondow, Professor.
PC semiconductor laser

- Basic structure
Summary

• We are now starting the development of the next generation semiconductor laser.
• In this fiscal year, feasibility study for our project was initiated.