

S-11

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

H. Momose

Graduate School of Engineering, Osaka University

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

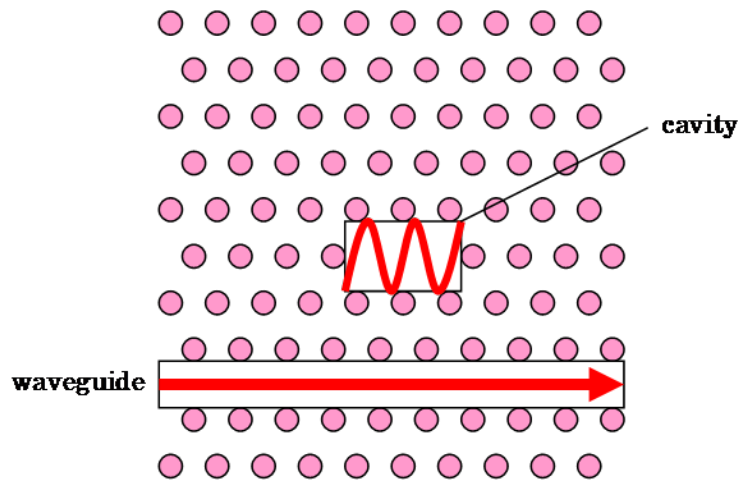
- Our IDER unit aims at the new semiconductor laser device for the next generation optical communication
 - using the photonic-crystal structure
 - laser driver circuit is developed synchronously

Member

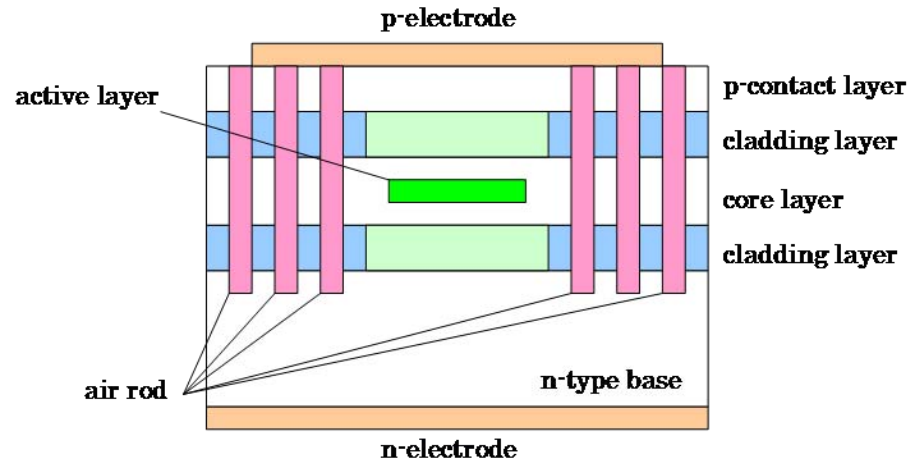
- Chair: Dr. Hideki Momose, Assistant professor.
- Member: Dr. Toru Ido, Lecturer.
- Member: Mr. Bogoda Indika Udaya Kumara, Master student.
- Member: Mr. Teppei Miyaji, Master student.
- Adviser: Dr. Masahiko Kondow, Professor.

PC semiconductor laser

- Basic structure



Top view



Cross section view

Summary

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