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| **Abstract:** |  |
| 事前公開アブストラクト) Photon-Photon resonance has been applied in many laser diodes to enhance the direct modulation bandwidth. In order to explain the Photon-photon resonance phenomenon inside the active Multimode Interferometer Laser Diode (active-MMI LD), we applied a theoretical model that simulate the small signal frequency response of the active-MMI LD. By introducing a time dependent longitudinal confinement factor, measured small signal response peak on actually implemented active-MMI LD of 15 GHz is explained successfully. The compound cavity inside the active-MMI LD and cavity length difference between them contribute to the PPR peak. Further more, Suggestions of designs targeting more than 40 Gbps 3 dB bandwidth active-MMI LD was given. | |