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| **Title:** | Photon-Photon Resonance in Active Multimode Interferometer Laser Diode | | |
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| **Published Journal Name:** | The 2014 Institute of Electronics, Information and Communication Engineers (IEICE) Society Conference, Tokushima, Japan, 2014 | | |
| **Type of Publication:** | Conference | | |
| **Volume:** | 1 | Issue |  |
| **Publisher:** | IEICE, JAPAN | | |
| **Publication Date:** | 2014 | | |
| **ISSN:** |  | | |
| **DOI:** | <https://www.ecio-conference.org/2014-proceedings/> | | |
| **URL:** |  | | |
| **Other Related Info.:** | vol. 1, Paper No. C-4–6, p. 160. | | |
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| **Abstract:** |  |
| Active multimode interferometer laser diode (MMI-LD) with split pump section have been fabricated to achieve high 3 dB bandwidth. Higher photon density using split pump scheme and high-frequency photon-photon resonance has been exploited to extend the direct modulation bandwidth. The split pump active MMI design allows interaction between the lasing mode and a second mode used as catalyst in the pumping section to achieve PPR peak along with the higher photon density delivered by the MMI pumping section towards the modulation section, which allowed us to reach a more than 15.2 GHz of extended 3 dB bandwidth for the active MMI LD | |