

Abstract Submitted
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MMI based Electro-Absorption Modulator Design A. SALA, Baker College, Y. SIKORSKI, Kettering University — Electro-Absorption Modulators (EAM) are among the most important components of high-speed WDM optical communications devices and systems. During the last decade, multiple EAM designs were proposed and fabricated as stand alone devices, as part of Electro-Absorption Modulated Lasers (EML), and as part of multi component Planar Lightguide Circuits (PLC). Vast majority of all designed and fabricated EAMs employ a straight section of single mode waveguide. In this work, we present a new approach for EAM design which is based on the use of 1*1 Multimode Interference structure (MMI). We demonstrate improvements in the extinction ratio of the EAM based on a combination of electro-absorption and optical interference effects in the MMI structure. The increase in extinction ratio is not accompanied by an increase in insertion loss or chirp, nor does it lead to higher drive voltage or lower bandwidth. The MMI based EAM devices can be easily fabricated using current InP based fabrication technologies and, in-fact, allow for less stringent tolerance requirements than currently used for traditional EAM devices.

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