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## **Documents**

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Enhanced gain saturation model of non-linear semiconductor optical amplifiers (2018) IET Optoelectronics, 12 (6), pp. 263-268.

DOI: 10.1049/iet-opt.2018.5029

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## **Abstract**

This study proposes an enhanced gain saturation model of non-linear semiconductor optical amplifiers (SOAs) by incorporating material-dependent gain compression factor. The rate equations are utilised with the extra gain compression term for Indium-Gallium-Arsenide material-based SOA to account for the steep relaxation oscillations behaviour of nonlinear SOAs. The proposed gain saturation model is verified with experimental results that showed very good agreements with a mean square error of 0.094. © The Institution of Engineering and Technology 2018.

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Publisher: Institution of Engineering and Technology

ISSN: 17518768

Language of Original Document: English Abbreviated Source Title: IET Optoelectron

**Document Type:** Article Publication Stage: Final

Source: Scopus



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