

# **Abstract**

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## **Employing multiple wavelengths for an input packet to achieve uniform SOA gain for high speed optical applications**

In this paper, we propose using an input packet with multiple wavelengths to achieve semiconductor optical amplifier (SOA) gain uniformity for high speed optical applications. Rapid SOA gain recovery is a key factor to minimise the output gain standard deviation which results in reducing the system penalties. The SOA is modelled using a segmentation scheme and its theoretical analysis is presented. The output gain standard deviation of an input packet of Gaussian pulses using single wavelength is compared.