

## An Approach To Flatten The Gain Of Fiber Raman Amplifiers With Multi-Pumping

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**Abstract :** The effects of the pumping wavelength and their power on the gain flattening of a fiber Raman amplifier (FRA) are investigated. The multi-wavelength pumping scheme is utilized to achieve gain flatness in FRA. It is proposed that gain flatness becomes better with increase in number of pumping wavelengths applied. We have achieved flat gain with 0.27 dB fluctuation in a spectral range of 1475-1600 nm for a Raman fiber length of 10 km by using six pumps with wavelengths with in the 1385-1495 nm interval. The effect of multi-wavelength pumping scheme on gain saturation in FRA is also studied. It is proposed that gain saturation condition gets improved by using this scheme and this scheme is more useful for higher spans of Raman fiber length.

**Keywords :** FRA, WDM, pumping, flat gain

**Conference Title :** ICCSCN 2015 : International Conference on Communication Systems and Computer Networks

**Conference Location :** New York, United States

**Conference Dates :** June 04-05, 2015