

عنوان مقاله:

Nonlinear Applications of Compact Bismuth Erbium Doped Fiber Amplifier

محل انتشار:

شانزدهمین کنفرانس اپتیک و فوتونیک ایران (سال: 1388)

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خلاصه مقاله:

A CW Multi & dual-wavelength laser comb is demonstrated using a nonlinear effect in a 215cm long highly nonlinear Bismuth-based Erbium-doped fiber (Bi-EDF). This report is based on methods for determination of nonlinear properties of Bi-EDF assisted by Four-wave mixing (FWM) effect. The laser generates more than 10 lines of optical comb with a line spacing of approximately 0.41nm at 1615.5nm region using 146mW of 1480nm pump power for determination of dispersion. We also estimated the nonlinear parameter, nonlinear index coefficient n_2 and n_2/A_{eff} in 1612 nm input signal as 59.16 (W-1km-1), 4.40×10^{-19} (m²/W) and 1.51×10^{-8} (W-1) for Bi-EDF, respectively. Empirical comparison shows that the values found by theoretical model are both in good agreement and much higher than that of silica.

کلمات کلیدی:

Nonlinear parameter, Bi-EDF, Fourwave mixing, Efficiency, Multi-wavelength

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