

# **Abstract**

**Moustafa Hussein Aly**

## **ASE Noise in Raman Amplifiers: Pump Depletion Impact**

This paper provides a detailed analysis for the effect of pump depletion on amplified spontaneous emission (ASE) noise power, optical signal to noise ratio (OSNR), and noise figure (NF) in forward pumped distributed Raman fiber amplifier (DRFA). The optimum pump power for high OSNR, low NF, and better gain is obtained ~ 256 mW at input signal power of  $10^{-6}$  W, fiber length of 120 km, fiber loss of 0.2 dB/km, and optical filter bandwidth of 0.5 nm. The obtained results are compared with the previously published ones showing a good agreement.