

Simulation and Analysis Effect's on Hybrid Optical Amplifier (HOA) some parameters of each RAMAN and EDFA amplifiers.

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Abstract : As light pulses propagate along the optical fiber, their energy dissipates. Beyond a certain distance the number of photons in pulses becomes too small to be detected. The optical pulses in fibers are energized by utilizing optical fiber amplifiers. In this thesis the parts of a hybrid amplifier such as erbium doped fiber amplifier, single-pump raman amplifier and ... are simulated with software and the total gain was optimized by genetic and PSO optimization algorithm. The simulation and optimization are performed by MATLAB software. The results was that in high power pumps, the gain and the doping of erbium were increasing and also the optimized system shows 0.7 db better performance in PSO rather than genetic algorithm. **Keywords :** Hybrid fiber amplifier , raman amplifier , EDFA amplifier , genetic algorithm , PSO algorithm .

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