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OCSim Modules

Fiber Optic Communication Systems Simulations

Advanced Software Modules with Matlab

List of Selected Publications wherein OCSim Modules used for Simulations

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List of Selected Publications wherein OCSim Modules used for Simulations

Dispersion compensation of fiber optic communication system with direct detection using artificial neural networks (ANNs)
M.T. Moghrabi, S. Kumar and M.H. Bakr
Optical Communications, In Press, **2017**

Optical back propagation for fiber optic networks with hybrid EDFA Raman amplification
X. Liang and S. Kumar
Optics Express, vol. 25, issue 5, pp. 5031-4043, **2017**

Optical back propagation for compensating nonlinear impairments in fiber optic links with ROADMS
X. Liang and S. Kumar
Optics Express, vol. 24, issue 20, pp. 22682-22692, **2016**

Stochastic interference in a dispersive nonlinear optical fiber system
S. Kumar and J. Shao
Optics Express, vol. 24, issue 5, pp. 5638-5653, **2016**

Signal processing for fiber optic systems
J. Shao and S. Kumar
Recent Patents on Signal Processing, vol. 5, pp. 3- 15, April **2016**

Stochastic interference in a dispersive fiber excited by a partially coherent source
J. Shao and S. Kumar
Optics Express, vol. 23, issue 22, pp. 29163-29173, November **2015**

Correlated digital back propagation based on perturbation theory

X. Liang and S. Kumar

Optics Express, vol. 23, issue 11, pp. 14655-14665, March **2015**

Multistage perturbation theory for compensating intra-channel impairments in fiber optic links

X. Liang and S. Kumar

Optics Express, vol. 22, pp. 29733-29745, **2014**

Digital compensation of cross-phase modulation distortions using perturbation technique for dispersion-managed fiber-optic systems

X. Liang, S. Kumar, J. Shao, M. Malekiha and D.V. Plant

Optics Express, vol. 22, Issue 17, pp. 20634-20645, **2014**

Analytical modeling of XPM in dispersion-managed coherent fiber-optic systems

X. Liang and S. Kumar

Optics Express, vol. 22, Issue 9, pp. 10579-10592, **2014**

Analytical modeling of cross-phase modulation in coherent fiber optic systems

S.N. Shahi, S. Kumar and X. Liang

Optics Express, vol. 22, pp. 1426-1439, **2014**

Impulse response of nonlinear Schrodinger equation and its implications for pre-dispersed fiber optic systems

S. Kumar, J. Shao and X. Liang

Optics Express, vol. 22, pp. 32282-32292, **2014**

Analytical modeling of cross-phase modulation in coherent fiber optic systems

X. Liang and S. Kumar

Optics Express, vol. 22, Issue 9, pp. 10579-10592, **2014**

Comparison of split-step Fourier schemes for simulating fiber optic systems

J. Shao, S. Kumar and X. Liang

IEEE Photonics Journal, vol. 6, no. 4, 7200515, August **2014**

Optical back propagation with optimal step size for fiber optic transmission systems

S. Kumar and J. Shao
IEEE Photonics Technology Letters, vol. 25, pp. 523-526, **2013**

Digital back propagation with optimal step size for polarization multiplexed transmission

J. Shao, S. Kumar and X. Liang
IEEE Photonics Technology Letters, vol. 25, pp. 2325-2330, **2013**

Ideal optical backpropagation of scalar NLSE using dispersion-decreasing fibers for WDM transmission

X. Liang, S. Kumar and J. Shao,
Optics Express, vol. 21, pp. 28668-28675, **2013**

Optical back propagation with optimal step size for fiber optic transmission systems

S. Kumar and J. Shao
IEEE Photonics Technology Letters, vol. 25, pp. 523-526, **2013**

Comparison of optical back propagation schemes for fiber-optic communications

M. Malekiha, D. Yang and S. Kumar
Optical Fiber Technology, vol. 19, pp.4-9, **2013**

Analytical modeling of single channel nonlinear fiber optic system based on QPSK

S. Kumar, S.N. Shahi and D. Yang
Optics Express, vol. 20, pp. 277740-27755, **2012**

Optical backpropagation for fiber optic communications using optical phase conjugation at the receiver

J. Shao and S. Kumar
Optics Letters, vol. 37, pp. 3012-3014, **2012**

Optical backpropagation for fiber-optic communications using highly nonlinear fibers

S. Kumar and D. Yang

Optics Letters, vol. 36, pp. 1038-1040, **2011**

A fiber optic transmission system based on differential polarization shift keying

Z. Chen and S. Kumar

Optics Communications, vol. 284, pp. 4064-4069, **2011**

Nonlinear phase noise in coherent optical OFDM transmission systems

X. Zhu, and S. Kumar

Optics Express, vol. 18, no. 7, pp. 7347-7360, **2010**

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