CodeSScientific

OCSim Modules

Fiber Optic Communication Systems Simulations

Advanced Software Modules with Matlab

List of Selected Publications wherein OCSim Modules used for Simulations

© CodeSScientific – February 2020
**OCSim Modules**
Fiber Optic Communication Systems Simulations
Advanced Software Modules with Matlab

**List of Selected Publications wherein OCSim Modules used for Simulations**

* A Raman-pumped dispersion and nonlinearity compensating fiber for fiber optic communications
  E. Bidaki and S. Kumar

* Adjoint sensitivity analysis approach for the nonlinear Schrodinger equation
  M.T. Moghrabi, M.H. Bakr and S. Kumar
  *Optics Letters*, vol. 44, pp. 3940-3943, *2019*

* Nonlinear phase noise reduction using digital back propagation and midpoint optical phase conjugation
  S. Rahbarfam and S. Kumar
  *Optics Express*, vol. 27, issue 5, pp. 8968-8982, *2019*

* Optimal operation conditions for a push-pull dual-ring silicon modulator from a viewpoint of dispersion engineering and linearity
  A.P. Knights, Z. Wang and S. Kumar

* 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*, vol. 409, pp. 109-116, *2018*

* 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 Schrödinger 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

Digital back propagation with optimal step size for polarization multiplexed transmission
J. Shao, S. Kumar and X. Liang

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
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

Optical backpropagation for fiber optic communications using optical phase conjugation at the receiver
J. Shao and S. Kumar

Optical backpropagation for fiber-optic communications using highly nonlinear fibers
S. Kumar and D. Yang

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