

CodeScientific

OCSim Modules

Modern Fiber Optic Communication Systems Simulations

Advanced Level Matlab Modules

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OCSim Modules**

Modern Fiber Optic Communication Systems Simulations with Advanced Level
Matlab Modules

Package Includes

Version (2014-15).a

Version 2016.a

Version 2016.b

R&D Level

Quality Research Papers by PhD Students and the University Faculties

Quality Research Papers and Projects by Government Lab Researchers

Quality R&D Usages by Company Researchers and Engineers

Use or Modify the Existing Modules for Implementation into Companies Software
and Hardware Products

Teaching Level

Under / Post Graduate Teachings, Exercises and Projects

Allowed to install in Under / Post Graduate Labs for Simulation Experiments,
Exercises and Projects

** OCSim modules are the proprietary products of CodeSScientific.

OCSim Modules Details

Version (2014 - 15).a

Module 1: Electromagnetic Waves

- (1) Propagation of Rectangular Waves
- (2) Propagation of Cosine Waves
- (3) Simulation of Standing Waves

Module 2: Optical Fibers

- (1) LP Modes in an Optical Fiber
[click to see the module's details](#)
- (2) Dispersion in an Optical Fiber
[click to see the module's details](#)
- (3) Optical Field Envelope / Total Field Propagation in an Optical Fiber
[click to see the module's details](#)

Module 3: Lasers

- (1) Carrier Density and Optical Power of Laser Diodes for DC Currents
[click to see the module's details](#)
- (2) Carrier Density and Optical Power of Laser Diodes for Pulsed Currents
[click to see the module's details](#)

Module 4: Modulation Schemes

- (1) OOK Optical Transmitters
[click to see the module's details](#)
- (2) PSK Optical Transmitters
[click to see the module's details](#)
- (3) QPSK Optical Transmitters
[click to see the module's details](#)
- (4) QPSK – Nyquist Optical Transmitters
[click to see the module's details](#)

Module 5: Optical Receivers

- (1) Shot Noise, Thermal Noise and Signal-to-Noise Ratio of Direct Detection Optical Receivers
[click to see the module's details](#)

Module 6: Optical Amplifiers

- (1) EDFA Gains in Optical Fibers using Nonlinear Coupled Differential Equations
[click to see the module's details](#)
- (2) Raman Gains in Optical Fibers using Nonlinear Coupled Differential Equations
[click to see the module's details](#)

Module 7: Fiber Optic Transmission System Design

- (1) Intensity Modulated (IM) Fiber Optic Direct Detection Communication Systems
[click to see the module's details](#)

Module 8: Performance Analysis

- (1) Error Probability of OOK and PSK data for Optical Homodyne Receivers
[click to see the module's details](#)
- (2) Error Probability of OOK, PSK and FSK data for Optical Heterodyne Receivers
[click to see the module's details](#)
- (3) Error Probability of OOK, FSK and DPSK data for Optical Direct Detection Receivers
[click to see the module's details](#)

Module 9: Channel Multiplexing Techniques

- (1) WDM Fiber Optic Direct Detection Communication Systems
[click to see the module's details](#)
- (2) Coherent QAM-OFDM Fiber Optic Communication Systems
[click to see the module's details](#) : [click to see the simulation details](#)

Module 10: Nonlinear Fiber Optics

- (1) Nonlinear Pulse Propagation in Optical Fibers
[click to see the module's details](#)

Module 11: Digital Signal Processing

- (1) QPSK Fiber Optic Communication Systems with Laser Phase Noise Compensation through Digital Signal Processing (DSP)
[click to see the module's details](#) : [click to see the simulation details](#)
- (2) Multi-Span QPSK Fiber Optic Communication Systems with Chromatic Dispersion (CD) Compensation through Digital Signal Processing (DSP)
[click to see the module's details](#) : [click to see the simulation details](#)

Version 2016.a

Module 12: Optical PAM-M Transmitters

- (1) PAM-M Optical Transmitters for High Bandwidth Fiber Optic Networks and Data Centres
[click to see the module's details](#) : [click to see the simulation details](#)

Version 2016.b

Module 13: Long Haul Nonlinear Coherent QPSK Communication Systems with Digital Signal Processing

- (1) Long Haul Nonlinear QPSK Fiber Optic Communication Systems with Chromatic Dispersion (CD) and Self Phase Modulation Compensations (SPM) through Digital Signal Processing
[click to see the module's details](#) : [click to see the simulation details](#)

Features and Advantages

1. Type of Licenses: (i) Academic Researchers, (ii) Government Lab Researchers, (iii) Company Researchers and (iv) Teaching & Lab Simulations
2. Modules Type: Matlab (.m) files.
3. Manuals with well explained related theory, formulas and descriptions.
4. Email support on scientific and programming level questions on OCSim modules by our experts who are PhDs in Photonics and Optical Communication Systems is [free for two years](#).
5. Updates on existing modules (2014-15).a) and existing Add-ons (2016.a and 2016.b) [are free for two years](#).
6. Any new Add-on released in future will cost extra amount as the modules are continuously upgraded every year with incorporating latest research and new topics.

Additional Information

OCSim Modules' Applications with Selected Simulation Results

OCSim Modules Latest Brochure – 2016

Selected Publications wherein OCSim Modules Used for Simulations

Follow the Expert

“We have been using the Fiber Optic Communication Systems Matlab Modules for the last 12 years for publishing research papers, theses, laboratory simulation experiments, teaching and exercises. In these modules, the underlying complex theories and equations of fiber optic communication systems have been converted into matlab programs giving the insight into the concepts involved and more understanding of the subject. Starting from the first principles, academicians, engineers and researchers in universities and companies can go up to the most modern fiber optic communication systems including the latest analog and digital modulation techniques like BPSK, QPSK, PM – QPSK or DP-QPSK, QAM and PAM-M.”



Professor Shiva Kumar (Ph.D., Osaka University, Japan), now with the Electrical and Computer Engineering Department, McMaster University, Canada,

and

The author of the book, “Fiber Optic Communications: Fundamentals and Applications” John Wiley and Sons, 2014

Contact Us

For more information and Quotes

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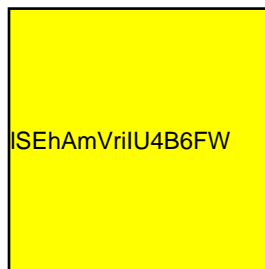
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