



Take
15%
off

In Celebration of the International
Year of Light, SPIE is offering 15% off
all print books until the end of 2015*

NEW AND FEATURED PUBLICATIONS



April 2015

www.spie.org/publications

*Cannot be combined with other discounts or offers. Resellers not eligible for discount.



*of prices shown
for all print books
until the end of 2015*

SPIE is celebrating the International Year of Light with 15% off all print books until the end of 2015*.

www.spie.org/publications

Join us in celebrating the International Year of Light

The International Year of Light is a global initiative highlighting to the citizens of the world the importance of light and light-based technologies in their lives, for their futures, and for the development of society.



INTERNATIONAL
YEAR OF LIGHT
2015



SPIE.

For more information on how you and your organization can participate, visit www.spie.org/IYL

To be successful this year and in the future, you need information about the latest science and technology that will bring your ideas to life. Take advantage of SPIE publications for the latest in optics and photonics.

See complete descriptions, tables of contents, and sample pages at www.spie.org/publications—use the volume numbers for searching.

NEW AND FEATURED SPIE PUBLICATIONS

SPIE Spotlights · 1
Monographs and Handbooks · 2-4
Tutorial Texts · 5-9
Field Guides · 10-11
Journals · 12-13
Recent Best Sellers · 14-15
Digital Library · 16-17

New eBook Series

SPIE Spotlights

CONCISE, FOCUSED, AND PEER REVIEWED

Series Editor: Robert D. Fiete

Spotlights get straight to the point
and serve a specific need.

Each Spotlight is

- **20-40 pages** of concise, focused material
- **Rapidly published** using a streamlined submission and production process
- **Peer reviewed**
- **Included in the eBooks program** on the SPIE Digital Library, with a large number of major subscribing institutions worldwide
- **Available for mobile devices**—Kindle, nook, and iOS/Android
- **A source of author royalties** like our traditional books—get paid for your eBook sales and downloads

Join these distinguished authors
in this exciting new series:

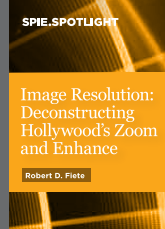


Image Resolution: Deconstructing Hollywood's Zoom and Enhance

Robert Fiete

Vol. SLO1

SPIE Member \$25
Nonmember \$31



How to Set Up a Laser Lab

Ken Barat

Vol. SLO2

SPIE Member \$25
Nonmember \$31

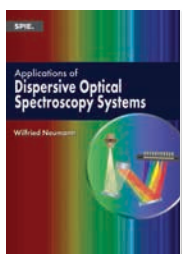
Be in the spotlight. Become an author.

Contact SPIE Press Manager Tim Lamkins (timl@spie.org).

MONOGRAPHS & HANDBOOKS

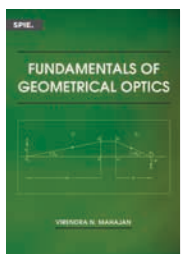
Monographs and handbooks are authoritative, professional reference books, textbooks, and handbooks covering theory, state-of-the-art applications, and outlooks on topics of special interest to scientists and engineers.

eBook formats are available for many of these texts.
Visit the book detail page for formats and pricing.



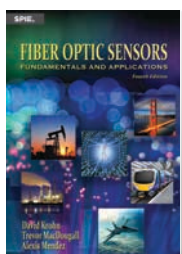
Applications of Dispersive Optical Spectroscopy Systems

Wilfried Neumann
Vol. PM253
March 2015
220 pages · Softcover
ISBN: 9781628413724
SPIE Member \$53
Nonmember \$62



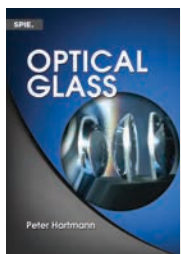
Fundamentals of Geometrical Optics

Virendra N. Mahajan
Vol. PM245
June 2014
472 pages · Softcover
ISBN: 9780819499981
SPIE Member \$75
Nonmember \$88



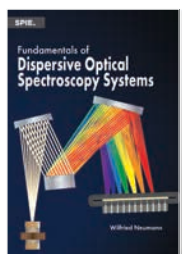
Fiber Optic Sensors: Fundamentals and Applications, Fourth Edition

**David Krohn,
Trevor MacDougall,
Alexis Mendez**
Vol. PM247
December 2014
332 pages · Hardcover
ISBN: 9781628411805
SPIE Member \$73
Nonmember \$86



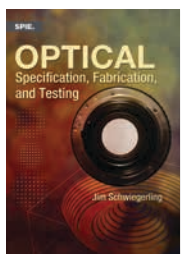
Optical Glass

Peter Hartmann
Vol. PM249
August 2014
180 pages · Softcover
ISBN: 9781628412925
SPIE Member \$53
Nonmember \$62



Fundamentals of Dispersive Optical Spectroscopy Systems

Wilfried Neumann
Vol. PM242
June 2014
296 pages · Softcover
ISBN: 9780819498243
SPIE Member \$56
Nonmember \$66



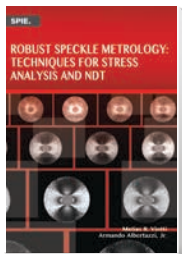
Optical Specification, Fabrication, and Testing

Jim Schwiegerling
Vol. PM252
October 2014
216 pages · Softcover
ISBN: 9781628413663
SPIE Member \$47
Nonmember \$55

Take 15% off of prices shown for all print books until the end of 2015

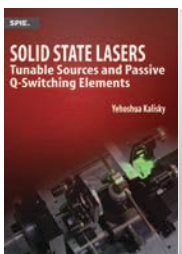
See more books online. Search and browse more than 480 titles.

www.spie.org/publications



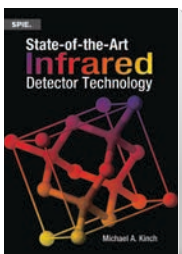
Robust Speckle Metrology: Techniques for Stress Analysis and NDT

Matias R. Viotti and Armando Albertazzi, Jr.
Vol. PM251
 October 2014
 200 pages · Softcover
 ISBN: 9781628413182
 SPIE Member \$50
 Nonmember \$59



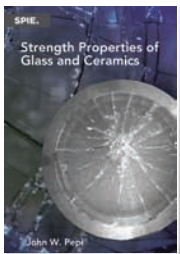
Solid State Lasers: Tunable Sources and Passive Q-Switching Elements

Yehoshua Kalisky
Vol. PM243
 February 2014
 254 pages · Softcover
 ISBN: 9780819498212
 SPIE Member \$47
 Nonmember \$55



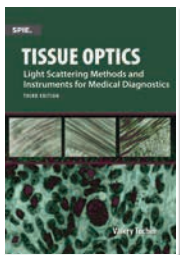
State-of-the-Art Infrared Detector Technology

Michael A. Kinch
Vol. PM248
 October 2014
 280 pages · Softcover
 ISBN: 9781628412895
 SPIE Member \$62
 Nonmember \$73



Strength Properties of Glass and Ceramics

John W. Peppi
Vol. PM244
 May 2014
 186 pages · Softcover
 ISBN: 9780819498366
 SPIE Member \$41
 Nonmember \$48



Tissue Optics: Light Scattering Methods and Instruments for Medical Diagnosis, Third Edition

Valery Tuchin
Vol. PM254
 February 2015
 988 pages · Hardcover
 ISBN: 9781628415162
 SPIE Member \$110
 Nonmember \$129



Translational Research in Biophotonics: Four National Cancer Institute Case Studies

Robert J. Nordstrom
Vol. PM246
 May 2014
 362 pages · Softcover
 ISBN: 9781628410686
 SPIE Member \$63
 Nonmember \$74

COMING SOON

Laser Plasma Physics

by **Heinrich Hora**

Molecular Theory of Lithography

by **Uzodinma Okoroanyanwu**

Analog and Digital Holography with MATLAB®

by **Georges Nemetallah, Rola Aylo, Logan Williams**

NEW TITLES UPDATE

Subscribe to the New Titles Update to be alerted when new books are available.

www.spie.org/ntu

Chemical Vapor Deposited Zinc Sulfide

John S. McCloy, Randal W. Tustison

Vol. PM237 · Aug. 2013 · 192 pages
Softcover · ISBN: 9780819495891
SPIE Member \$56 · Nonmember \$66

Commercialization Basics for the Photonics Industry

David A. Krohn

Vol. PM234 · Jan. 2013 · 178 pages
Softcover · ISBN: 9780819494825
SPIE Member \$47 · Nonmember \$55

Computer-Aided Cancer Detection and Diagnosis: Recent Advances

Jinshan Tang, Sos S. Agaian (Editors)

Vol. PM240 · Dec. 2013 · 360 pages
Softcover · ISBN: 9780819497390
SPIE Member \$63 · Nonmember \$74

Electro-Optical System Analysis and Design: A Radiometry Perspective

Cornelius J. Willers

Vol. PM236 · Aug. 2013 · 528 pages
Hardcover · ISBN: 9780819495693
SPIE Member \$83 · Nonmember \$98

High Dynamic Range Imaging: Sensors and Architectures

Arnaud Darmont

Vol. PM214 · Jan. 2013 · 138 pages
Softcover · ISBN: 9780819488305
SPIE Member \$47 · Nonmember \$55

Modeling the Optical and Visual Performance of the Human Eye

Pier Giorgio Gobbi

Vol. PM225 · Jan. 2013 · 430 pages
Hardcover · ISBN: 9780819492548
SPIE Member \$73 · Nonmember \$86

Multimodality Breast Imaging: Diagnosis and Treatment

E. Y. K. Ng, U. Rajendra Acharya, Rangaraj M. Rangayyan, Jasjit S. Suri (Editors)

Vol. PM227 · Mar. 2013 · 572 pages
Hardcover · ISBN: 9780819492944
SPIE Member \$114 · Nonmember \$134

Optical Imaging and Aberrations, Part III: Wavefront Analysis

Virendra N. Mahajan

Vol. PM221 · Aug. 2013 · 448 pages
Hardcover · ISBN: 9780819491114
SPIE Member \$78 · Nonmember \$92

Optical Satellite Data Compression and Implementation

Shen-En Qian

Vol. PM241 · Nov. 2013 · 416 pages
Hardcover · ISBN: 9780819497871
SPIE Member \$78 · Nonmember \$92

Optical Satellite Signal Processing and Enhancement

Shen-En Qian

Vol. PM230 · Nov. 2013 · 554 pages
Hardcover · ISBN: 9780819493286
SPIE Member \$89 · Nonmember \$105

The Proper Care of Optics: Cleaning, Handling, Storage, and Shipping

Robert Schalck

Vol. PM233 · Mar. 2013 · 236 pages
Softcover · ISBN: 9780819494573
SPIE Member \$46 · Nonmember \$54

Pyroelectric Materials: Infrared Detectors, Particle Accelerators, and Energy Harvesters

Ashok K. Batra, Mohan D. Aggarwal

Vol. PM231 · Sep. 2013 · 202 pages
Softcover · ISBN: 9780819493316
SPIE Member \$56 · Nonmember \$66

Stray Light Analysis and Control

Eric Fest

Vol. PM229 · Mar. 2013 · 228 pages
Softcover · ISBN: 9780819493255
SPIE Member \$47 · Nonmember \$55

Windowed Fringe Pattern Analysis

Qian Kemao

Vol. PM239 · Aug. 2013 · 300 pages
Softcover · ISBN: 9780819496416
SPIE Member \$56 · Nonmember \$66

The Wonder of Nanotechnology: Quantum Optoelectronic Devices and Applications

Manijeh Razeghi, Leo Esaki, Klaus von Klitzing (Editors)

Vol. PM238 · Nov. 2013 · 1000 pages
Hardcover · ISBN: 9780819495969
SPIE Member \$123 · Nonmember \$145

Take 15% off of prices shown for all print books until the end of 2015



TUTORIAL TEXTS

Series Editor: **James A. Harrington**

Learn at your own pace! Tutorial Texts are stand-alone tutorials covering fundamental topics in optical science and technology—at introductory and intermediate levels.

All Tutorial Texts are softcover.

eBook formats are available for many of these texts. Visit the book detail page for formats and pricing.

Aberration Theory Made Simple, Second Edition

Virendra N. Mahajan

Vol. TT93 · Aug. 2011 · 208 pages
ISBN: 9780819488251
SPIE Member \$50 · Nonmember \$59

Analysis and Evaluation of Sampled Imaging Systems

**Donald A. Reago, Jr., Richard H.
Vollmerhausen, Ronald G. Driggers**

Vol. TT87 · Mar. 2010 · 304 pages
ISBN: 9780819480774
SPIE Member \$59 · Nonmember \$69

Analysis of Sampled Imaging Systems

**Richard H. Vollmerhausen,
Ronald G. Driggers**

Vol. TT39 · Apr. 2000 · 194 pages
ISBN: 9780819434890
SPIE Member \$44 · Nonmember \$52

Artificial Neural Networks: An Introduction

Kevin L. Priddy, Paul E. Keller

Vol. TT68 · Aug. 2005 · 180 pages
ISBN: 9780819459879
SPIE Member \$47 · Nonmember \$55

Basic Electro-Optics for Electrical Engineers

Glenn D. Boreman

Vol. TT31 · Mar. 1998 · 108 pages
ISBN: 9780819428066
SPIE Member \$44 · Nonmember \$52

Basics of Code Division Multiple Access (CDMA)

Raghuveer Rao, Sohail Dianat

Vol. TT67 · Aug. 2005 · 120 pages
ISBN: 9780819458698
SPIE Member \$47 · Nonmember \$55

The Basics of Spectroscopy

David W. Ball

Vol. TT49 · July 2001 · 142 pages
ISBN: 9780819441041
SPIE Member \$44 · Nonmember \$52

Bioluminescence and Fluorescence for In Vivo Imaging

Lubov Brovko

Vol. TT91 · Dec. 2010 · 162 pages
ISBN: 9780819482471
SPIE Member \$56 · Nonmember \$66

Bioluminescence for Food and Environmental Microbiological Safety

Lubov Brovko

Vol. TT74 · Mar. 2007 · 88 pages
ISBN: 9780819466433
SPIE Member \$44 · Nonmember \$52

Computational Fourier Optics: A MATLAB® Tutorial

David G. Voelz

Vol. TT89 · Jan. 2011 · 250 pages
ISBN: 9780819482044
SPIE Member \$56 · Nonmember \$66

Copper Interconnect Technology

Barry L. Chin, Christoph Steinbruechel

Vol. TT46 · Jan. 2001 · 134 pages
ISBN: 9780819438973
SPIE Member \$44 · Nonmember \$52

Design and Mounting of Prisms and Small Mirrors in Optical Instruments

Paul R. Yoder, Jr.

Vol. TT32 · July 1998 · 268 pages
ISBN: 9780819429407
SPIE Member \$44 · Nonmember \$52

The Design of Plastic Optical Systems

Michael P. Schaub

Vol. TT80 · July 2009 · 226 pages
ISBN: 9780819472403
SPIE Member \$56 · Nonmember \$66

Diazonaphthoquinone-based Resists

Ralph R. Dammel

Vol. TT11 · Feb. 1993 · 216 pages
ISBN: 9780819410191
SPIE Member \$44 · Nonmember \$52

Diffraction Optics: Design, Fabrication, and Test

Alan D. Kathman, Dennis W. Prather, Donald C. O'Shea, Thomas J. Suleski

Vol. TT62 · Dec. 2003 · 260 pages
ISBN: 9780819451712
SPIE Member \$56 · Nonmember \$66

Digital Converters for Image Sensors

Kenton T. Veeder

Vol. TT97 · Dec. 2014 · 160 pages
ISBN: 9781628413892
SPIE Member \$47 · Nonmember \$55

Digital Image Compression Techniques

Majid Rabbani, Paul W. Jones

Vol. TT07 · Feb. 1991 · 240 pages
ISBN: 9780819406484
SPIE Member \$44 · Nonmember \$52

Direct-Detection LADAR Systems

Richard D. Richmond, Stephen C. Cain

Vol. TT85 · Mar. 2010 · 156 pages
ISBN: 9780819480729
SPIE Member \$47 · Nonmember \$55

An Engineering Introduction to Biotechnology

J. Patrick Fitch

Vol. TT55 · Jan. 2002 · 144 pages
ISBN: 9780819444974
SPIE Member \$44 · Nonmember \$52

Evolutionary Computation: Principles and Practice for Signal Processing

David B. Fogel

Vol. TT43 · July 2000 · 184 pages
ISBN: 9780819437259
SPIE Member \$44 · Nonmember \$52

Field Mathematics for Electromagnetics, Photonics, and Materials Science: A Guide for the Scientist and Engineer

Bernard Maxum

Vol. TT64 · Nov. 2004 · 272 pages
ISBN: 9780819455239
SPIE Member \$56 · Nonmember \$66

Fourier-Transform Spectroscopy Instrumentation Engineering

Vidi Saptari

Vol. TT61 · Nov. 2003 · 136 pages
ISBN: 9780819451644
SPIE Member \$44 · Nonmember \$52

Fractal and Wavelet Image Compression Techniques

Stephen Welstead

Vol. TT40 · Dec. 1999 · 254 pages
ISBN: 9780819435033
SPIE Member \$49 · Nonmember \$58

Fundamentals of Antennas: Concepts and Applications

Christos G. Christodoulou, Parveen Wahid

Vol. TT50 · Sep. 2001 · 106 pages
ISBN: 9780819441126
SPIE Member \$44 · Nonmember \$52

Fundamentals of Contamination Control

Alan C. Tribble

Vol. TT44 · July 2000 · 196 pages
ISBN: 9780819438447
SPIE Member \$44 · Nonmember \$52

Fundamentals of Infrared Detector Materials

Michael A. Kinch

Vol. TT76 · Nov. 2007 · 186 pages
ISBN: 9780819467317
SPIE Member \$56 · Nonmember \$66

Fundamentals of Machine Vision

Harley R. Myler

Vol. TT33 · Oct. 1998 · 149 pages
ISBN: 9780819430496
SPIE Member \$44 · Nonmember \$52

Fundamentals of Polarimetric Remote Sensing

John R. Schott

Vol. TT81 · Mar. 2009 · 268 pages
ISBN: 9780819475343
SPIE Member \$62 · Nonmember \$73

Fundamentos de Electro-Óptica para Ingenieros

Glenn D. Boreman

Vol. TT37 · July 1999 · 112 pages
ISBN: 9780819433237
SPIE Member \$28 · Nonmember \$33

Hands-on Morphological Image Processing

Edward R. Dougherty, Roberto A. Lotufo

Vol. TT59 · July 2003 · 290 pages
ISBN: 9780819447203
SPIE Member \$56 · Nonmember \$66

High-Fidelity Medical Imaging Displays

Aldo Badano, Jerzy Kanicki, Michael J. Flynn

Vol. TT63 · Sep. 2004 · 174 pages
ISBN: 9780819451910
SPIE Member \$44 · Nonmember \$52

Image Formation in Low-Voltage Scanning Electron Microscopy

Ludwig Reimer

Vol. TT12 · Feb. 1993 · 160 pages
ISBN: 9780819412065
SPIE Member \$42 · Nonmember \$49

Image Performance in CRT Displays

Kenneth Compton

Vol. TT54 · Apr. 2003 · 130 pages
ISBN: 9780819441447
SPIE Member \$44 · Nonmember \$52

Infrared Design Examples

William L. Wolfe

Vol. TT36 · July 1999 · 180 pages
ISBN: 9780819433190
SPIE Member \$44 · Nonmember \$52

Infrared Fiber Optics

George H. Sigel, Jr., Paul Klocek

Vol. TT02 · Jan. 1989 · 164 pages
ISBN: 9780819402295
SPIE Member \$37 · Nonmember \$44

Infrared Optics and Zoom Lenses, Second Edition

Allen Mann

Vol. TT83 · Mar. 2009 · 182 pages
ISBN: 9780819476678
SPIE Member \$50 · Nonmember \$59

Integration of Lasers and Fiber Optics into Robotic Systems

Elzbieta A. Marszalec,
Janusz A. Marszalec

Vol. TT17 · Apr. 1994 · 144 pages
ISBN: 9780819413130
SPIE Member \$42 · Nonmember \$49

Interferometry for Precision Measurement

Peter Langenbeck

Vol. TT94 · May 2014 · 258 pages
ISBN: 9780819491404
SPIE Member \$56 · Nonmember \$66

Introduction to Adaptive Optics

Robert K. Tyson

Vol. TT41 · Mar. 2000 · 130 pages
ISBN: 9780819435118
SPIE Member \$44 · Nonmember \$52

An Introduction to Biological and Artificial Neural Networks for Pattern Recognition

Matthew Kabrisky, Steven K. Rogers

Vol. TT04 · Jan. 1991 · 224 pages
ISBN: 9780819405340
SPIE Member \$42 · Nonmember \$49

Introduction to Computer-based Imaging Systems

Divyendu Sinha, Edward R. Dougherty

Vol. TT23 · Dec. 1997 · 332 pages
ISBN: 9780819421050
SPIE Member \$44 · Nonmember \$52

Introduction to Confocal Fluorescence Microscopy, Second Edition

Michiel Mueller

Vol. TT69 · Dec. 2005 · 138 pages
ISBN: 9780819460431
SPIE Member \$47 · Nonmember \$55

Introduction to Image Stabilization

Scott W. Teare, Sergio R. Restaino

Vol. TT73 · Sep. 2006 · 112 pages
ISBN: 9780819464347
SPIE Member \$47 · Nonmember \$55

Introduction to Imaging Spectrometers

William L. Wolfe

Vol. TT25 · Apr. 1997 · 164 pages
ISBN: 9780819422606
SPIE Member \$44 · Nonmember \$52

Introduction to Infrared System Design

William L. Wolfe

Vol. TT24 · Mar. 1996 · 148 pages
ISBN: 9780819421067
SPIE Member \$44 · Nonmember \$52

Introduction to Interpretation of Graphic Images

Sergey V. Ablameyko

Vol. TT27 · July 1997 · 182 pages
ISBN: 9780819423801
SPIE Member \$44 · Nonmember \$52

Introduction to Laser Diode-Pumped Solid State Lasers

Richard Scheps

Vol. TT53 · Jan. 2002 · 120 pages
ISBN: 9780819442741
SPIE Member \$44 · Nonmember \$52

An Introduction to Nonlinear Image Processing

Edward R. Dougherty, Jaakko T. Astola

Vol. TT16 · Feb. 1994 · 192 pages
ISBN: 9780819415608
SPIE Member \$44 · Nonmember \$52

Introduction to Optical Testing

Joseph M. Geary

Vol. TT15 · Sep. 1993 · 170 pages
ISBN: 9780819413772
SPIE Member \$44 · Nonmember \$52

An Introduction to Optics in Computers

Henri H. Arsenaull, Yunlong Sheng

Vol. TT08 · Jan. 1992 · 144 pages

ISBN: 9780819408259

SPIE Member \$42 · Nonmember \$49

Introduction to Radiometry

William L. Wolfe

Vol. TT29 · Apr. 1998 · 200 pages

ISBN: 9780819427588

SPIE Member \$44 · Nonmember \$52

Introduction to Real-Time Imaging

Edward R. Dougherty, Phillip A. Laplante

Vol. TT19 · Dec. 1994 · 198 pages

ISBN: 9780819417893

SPIE Member \$42 · Nonmember \$49

Introduction to Wavefront Sensors

Joseph M. Geary

Vol. TT18 · June 1995 · 168 pages

ISBN: 9780819417015

SPIE Member \$44 · Nonmember \$52

Laser Beam Propagation in the Atmosphere

Hugo Weichel

Vol. TT03 · Oct. 1990 · 108 pages

ISBN: 9780819404879

SPIE Member \$37 · Nonmember \$44

Laser Beam Quality Metrics

T. Sean Ross

Vol. TT96 · Mar. 2013 · 204 pages

ISBN: 9780819492975

SPIE Member \$47 · Nonmember \$55

Lithography Process Control

Harry J. Levinson

Vol. TT28 · Mar. 1999 · 204 pages

ISBN: 9780819430526

SPIE Member \$44 · Nonmember \$52

Logic-based Nonlinear Image Processing

Stephen Marshall

Vol. TT72 · Dec. 2006 · 162 pages

ISBN: 9780819463432

SPIE Member \$47 · Nonmember \$55

Matrix Methods for Optical Layout

Gerhard Kloos

Vol. TT77 · Aug. 2007 · 138 pages

ISBN: 9780819467805

SPIE Member \$47 · Nonmember \$55

Metrics for High-Quality Specular Surfaces

Lionel R. Baker

Vol. TT65 · Nov. 2004 · 166 pages

ISBN: 9780819455765

SPIE Member \$44 · Nonmember \$52

Military Displays: Technology and Applications

Daniel D. Desjardins

Vol. TT95 · Jan. 2013 · 170 pages

ISBN: 9780819491558

SPIE Member \$56 · Nonmember \$66

Modeling the Imaging Chain of Digital Cameras

Robert D. Fiete

Vol. TT92 · Nov. 2010 · 226 pages

ISBN: 9780819483393

SPIE Member \$47 · Nonmember \$55

Modulation Transfer Function in Optical and Electro-Optical Systems

Glenn D. Boreman

Vol. TT52 · July 2001 · 120 pages

ISBN: 9780819441430

SPIE Member \$44 · Nonmember \$52

Mounting Lenses in Optical Instruments

Paul R. Yoder, Jr.

Vol. TT21 · Oct. 1995 · 194 pages

ISBN: 9780819419415

SPIE Member \$44 · Nonmember \$52

Nanotechnology: A Crash Course

Akhlesh Lakhtakia, Raúl J. Martín-Palma

Vol. TT86 · June 2010 · 158 pages

ISBN: 9780819480750

SPIE Member \$47 · Nonmember \$55

Ocean Sensing and Monitoring: Optics and Other Methods

Weilin Hou

Vol. TT98 · Aug. 2013 · 274 pages

ISBN: 9780819496317

SPIE Member \$62 · Nonmember \$73

Optical Communication Receiver Design

Stephen B. Alexander

Vol. TT22 · Jan. 1997 · 340 pages

ISBN: 9780819420237

SPIE Member \$49 · Nonmember \$58

Optical Design: Applying the Fundamentals

Max J. Riedl

Vol. TT84 · July 2009 · 190 pages

ISBN: 9780819477996

SPIE Member \$47 · Nonmember \$55

Take 15% off of prices shown for all print books until the end of 2015

Optical Design for Visual Systems

Bruce H. Walker

Vol. TT45 · Sep. 2000 · 170 pages
ISBN: 9780819438867
SPIE Member \$44 · Nonmember \$52

Optical Design Fundamentals for Infrared Systems, *Second Edition*

Max J. Riedl

Vol. TT48 · Mar. 2001 · 202 pages
ISBN: 9780819440518
SPIE Member \$49 · Nonmember \$58

Optical Design of Microscopes

George H. Seward

Vol. TT88 · Apr. 2010 · 258 pages
ISBN: 9780819480958
SPIE Member \$56 · Nonmember \$66

Optical Engineering Fundamentals, *Second Edition*

Bruce H. Walker

Vol. TT82 · Jan. 2009 · 294 pages
ISBN: 9780819475404
SPIE Member \$59 · Nonmember \$69

Optical Imaging in Projection Microlithography

Alfred Kwok-Kit Wong

Vol. TT66 · Mar. 2005 · 276 pages
ISBN: 9780819458292
SPIE Member \$56 · Nonmember \$66

Optische Grundlagen für Infrarotsysteme

Max J. Riedl

Vol. TT56 · Aug. 2002 · 208 pages
ISBN: 9780819444998
SPIE Member \$44 · Nonmember \$52

The Physics and Engineering of Solid State Lasers

Yehoshua Kalisky

Vol. TT71 · Mar. 2006 · 222 pages
ISBN: 9780819460943
SPIE Member \$56 · Nonmember \$66

Polarization of Light with Applications in Optical Fibers

Ajoy Ghatak, Arun Kumar

Vol. TT90 · Jan. 2011 · 246 pages
ISBN: 9780819482150
SPIE Member \$56 · Nonmember \$66

The Power- and Energy-Handling Capability of Optical Materials, Components, and Systems

Roger M. Wood

Vol. TT60 · Jan. 2003 · 136 pages
ISBN: 9780819447432
SPIE Member \$44 · Nonmember \$52

Practical Applications of Infrared Thermal Sensing and Imaging Equipment, *Third Edition*

Herbert Kaplan

Vol. TT75 · Mar. 2007 · 192 pages
ISBN: 9780819467232
SPIE Member \$56 · Nonmember \$66

Radiation Thermometry: Fundamentals and Applications in the Petrochemical Industry

Peter Saunders

Vol. TT78 · Aug. 2007 · 176 pages
ISBN: 9780819467836
SPIE Member \$47 · Nonmember \$55

Resolution Enhancement Techniques in Optical Lithography

Alfred Kwok-Kit Wong

Vol. TT47 · Mar. 2001 · 234 pages
ISBN: 9780819439956
SPIE Member \$49 · Nonmember \$58

Single Frequency Semiconductor Lasers

Jens Buus

Vol. TT05 · Jan. 1991 · 114 pages
ISBN: 9780819405357
SPIE Member \$42 · Nonmember \$49

Spectrally Selective Surfaces for Heating and Cooling Applications

Claes-Goeran Granqvist

Vol. TT01 · Jan. 1989 · 128 pages
ISBN: 9780819402288
SPIE Member \$37 · Nonmember \$44

Thermal Infrared Characterization of Ground Targets and Backgrounds, *Second Edition*

Pieter A. Jacobs

Vol. TT70 · Mar. 2006 · 190 pages
ISBN: 9780819460820
SPIE Member \$56 · Nonmember \$66

Thin-Film Design: Modulated Thickness and Other Stopband Design Methods

Bruce E. Perilloux

Vol. TT57 · Oct. 2002 · 134 pages
ISBN: 9780819445254
SPIE Member \$44 · Nonmember \$52

Uncooled Thermal Imaging Arrays, Systems, and Applications

Paul W. Kruse

Vol. TT51 · July 2001 · 110 pages
ISBN: 9780819441225
SPIE Member \$44 · Nonmember \$52

FIELD GUIDES

Series Editor: **John E. Greivenkamp**

Your essential research reference.

SPIE Field Guides include the key definitions, equations, illustrations, application examples, design considerations, methods, and tips that you need in the lab and in the field. They are the perfect practical reference tool for your specialized area.



All Field Guides are spiral bound. Visit: www.spie.org/fg

Print: SPIE Member \$36 / Nonmember \$42 · eBook: SPIE Member \$31 / Nonmember \$36

Adaptive Optics, Second Edition

Robert K. Tyson and Benjamin W. Frazier

Vol. FG24 · Apr. 2012 · 142 pages

ISBN: 9780819490179

Astronomical Instrumentation

Christoph U. Keller, Ramón Navarro, Bernhard R. Brandl

Vol. FG32 · est. May 2015 · est. 106 pages

ISBN: 9781628411775

Atmospheric Optics

Larry C. Andrews

Vol. FG02 · Jan. 2004 · 112 pages

ISBN: 9780819453181

Binoculars and Scopes

Paul R. Yoder, Jr. and Daniel Vukobratovich

Vol. FG19 · June 2011 · 152 pages

ISBN: 9780819486493

Diffraction Optics

Yakov G. Soskind

Vol. FG21 · Aug. 2011 · 134 pages

ISBN: 9780819486905

Digital Micro-Optics

Bernard C. Kress

Vol. FG33 · Oct. 2014 · 180 pages

ISBN: 9781628411836

Displacement Measuring Interferometry

Jonathan D. Ellis

Vol. FG30 · Dec. 2013 · 154 pages

ISBN 9780819497994

Fiber Optic Sensors

William B. Spillman, Jr. and Eric Udd

Vol. FG34 · Dec. 2014 · 134 pages

ISBN: 9781628413342

Geometrical Optics

John E. Greivenkamp

Vol. FG01 · Jan. 2004 · 128 pages

ISBN: 9780819452948

Take 15% off of prices shown for all print books until the end of 2015

Holography

Pierre-Alexandre Blanche

Vol. FG31 · Jan. 2014 · 92 pages

ISBN: 9780819499578

Illumination

Angelo V. Arecchi, Tahar Messadi,

and R. John Koshel

Vol. FG11 · Aug. 2007 · 152 pages

ISBN: 9780819467683

Image Processing

Khan M. Iftekharuddin and Abdul Awwal

Vol. FG25 · Mar. 2012 · 96 pages

ISBN: 9780819490216

Infrared Systems, Detectors, and FPAs, *Second Edition*

Arnold Daniels

Vol. FG15 · Dec. 2010 · 192 pages

ISBN: 9780819480804

Interferometric Optical Testing

Eric P. Goodwin and James C. Wyant

Vol. FG10 · Sep. 2006 · 114 pages

ISBN: 9780819465108

Laser Pulse Generation

Rüdiger Paschotta

Vol. FG14 · Oct. 2008 · 132 pages

ISBN: 9780819472489

Lasers

Rüdiger Paschotta

Vol. FG12 · Jan. 2008 · 152 pages

ISBN: 9780819469618

Lens Design

Julie Bentley and Craig Olson

Vol. FG27 · Dec. 2012 · 156 pages

ISBN: 9780819491640

Lidar

Paul McManamon

Vol. FG36 · April 2015 · 168 pages

ISBN: 9781628416541

Linear Systems in Optics

J. Scott Tyo and Andrey Alenin

Vol. FG35 · Jan. 2015 · 120 pages

ISBN: 9781628415476

Microscopy

Tomasz S. Tkaczyk

Vol. FG13 · May 2010 · 156 pages

ISBN: 9780819472465

Nonlinear Optics

Peter E. Powers

Vol. FG29 · Aug. 2013 · 112 pages

ISBN: 9780819496355

Optical Fabrication

Ray Williamson

Vol. FG20 · Aug. 2011 · 134 pages

ISBN: 9780819486769

Optical Fiber Technology

Rüdiger Paschotta

Vol. FG16 · Jan. 2010 · 128 pages

ISBN: 9780819480903

Optical Lithography

Chris A. Mack

Vol. FG06 · Jan. 2006 · 136 pages

ISBN: 9780819462077

Optical Thin Films

Ronald R. Willey

Vol. FG07 · Jan. 2006 · 118 pages

ISBN: 9780819462183

Optomechanical Design and Analysis

Katie Schwertz and James H. Burge

Vol. FG26 · Aug. 2012 · 168 pages

ISBN: 9780819491619

Physical Optics

Daniel G. Smith

Vol. FG17 · Apr. 2013 · 130 pages

ISBN: 9780819485489

Polarization

Edward Collett

Vol. FG05 · Sep. 2005 · 148 pages

ISBN: 9780819458681

Probability, Random Processes, and Random Data Analysis

Larry C. Andrews and Ronald L. Phillips

Vol. FG22 · Mar. 2012 · 108 pages

ISBN: 9780819487018

Radiometry

Barbara G. Grant

Vol. FG23 · Nov. 2011 · 134 pages

ISBN: 9780819488275

Special Functions for Engineers

Larry C. Andrews

Vol. FG18 · June 2011 · 116 pages

ISBN: 9780819485502

Spectroscopy

David W. Ball

Vol. FG08 · May 2006 · 124 pages

9780819463524

Terahertz Sources, Detectors, and Optics

Créidhe M. O'Sullivan and J. Anthony Murphy

Vol. FG28 · June 2012 · 144 pages

ISBN: 9780819491671

Visual and Ophthalmic Optics

Jim Schwiegerling

Vol. FG04 · Nov. 2004 · 124 pages

ISBN: 9780819456298

View SPIE Field Guide descriptions and
order online: www.spie.org/fg

SUBMIT YOUR LATEST RESEARCH TO AN SPIE JOURNAL.

SPIE Journals publish peer-reviewed articles on applied research in optics and photonics.

Author Benefits

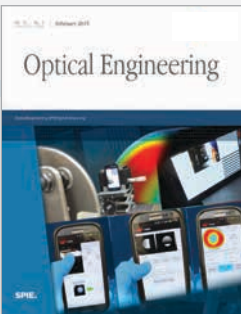
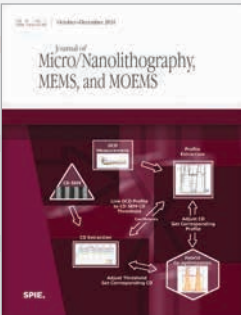
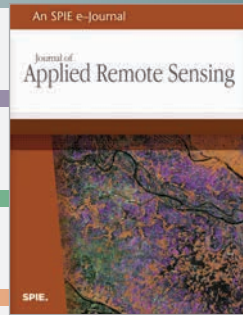
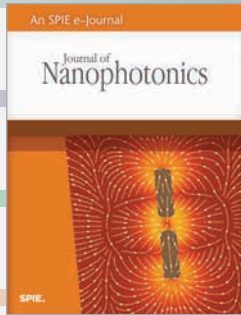
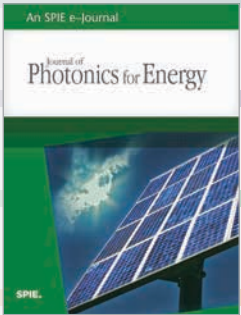
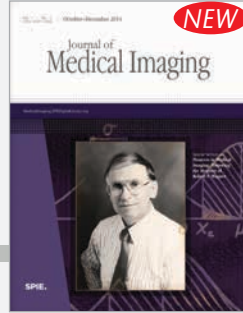
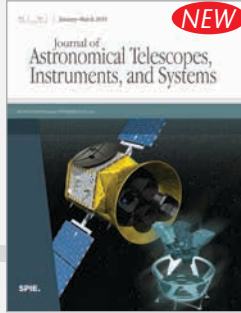
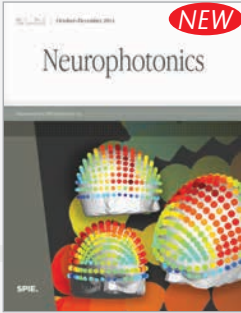
- Low-price open access option
- Indexing in major scientific databases, including Web of Science–Science Citation Index, Current Contents, Ei Compendex, Inspec, Scopus, Google Scholar, SAO/NASA Astrophysics Data System
- All SPIE Journal articles are copyedited and typeset.
- Linking is provided through CrossRef for effective research sharing and dissemination.

Reader Benefits

- 25,000+ Journal articles dating back to 1962 available on the SPIE Digital Library
- Email alerting services to keep current in your field
- Saved figures and tables
- Published e-First for timeliness and reviewed, edited, and produced to the highest standards

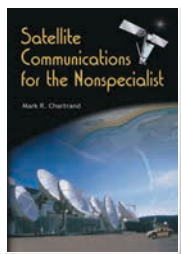
www.spie.org/journals

Free access to three new SPIE Journals through 2015



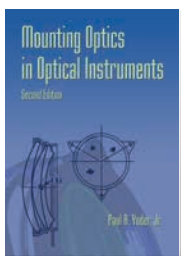
RECENT BESTSELLERS

These recent bestsellers are written by the masters of their disciplines, and address key fields, applications, and industries within optics and photonics.



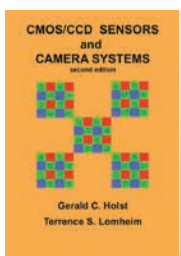
Satellite Communications for the Nonspecialist

Mark R. Chartrand
Vol. PM128SC
Apr. 2004
456 pages · Softcover
ISBN: 9780819477750
SPIE Member \$78
Nonmember \$92



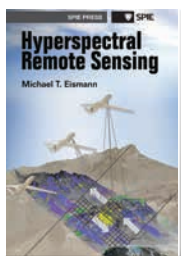
Mounting Optics in Optical Instruments, Second Edition, w/CD

Paul R. Yoder, Jr.
Vol. PM181
Aug. 2008
782 pages · Hardcover
ISBN: 9780819471291
SPIE Member \$88
Nonmember \$103



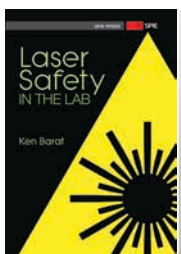
CMOS/CCD Sensors and Camera Systems, Second Edition

Gerald C. Holst,
Terrence S. Lomheim
Vol. PM208
Apr. 2011
408 pages · Hardcover
ISBN: 9780819486530
SPIE Member \$82
Nonmember \$96



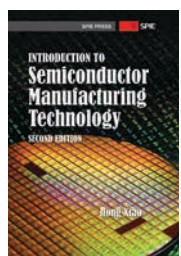
Hyperspectral Remote Sensing

Michael T. Eismann
Vol. PM210
Apr. 2012
748 pages · Hardcover
ISBN: 9780819487872
SPIE Member \$123
Nonmember \$145



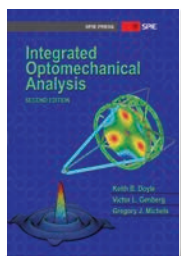
Laser Safety in the Lab

Ken Barat
Vol. PM212
Dec. 2012
176 pages · Softcover
ISBN: 9780819488190
SPIE Member \$44
Nonmember \$52



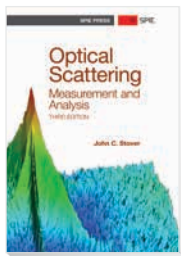
Introduction to Semiconductor Manufacturing Technology, Second Edition

Hong Xiao
Vol. PM220
Nov. 2012
704 pages · Hardcover
ISBN: 9780819490926
SPIE Member \$110
Nonmember \$129



Integrated Optomechanical Analysis, Second Edition

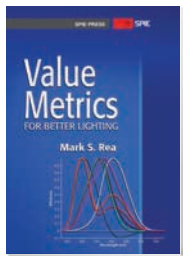
Gregory J. Michels,
Keith B. Doyle,
Victor L. Genberg
Vol. PM223
Nov. 2012
408 pages · Softcover
ISBN: 9780819492487
SPIE Member \$72
Nonmember \$85



Optical Scattering: Measurement and Analysis, Third Edition

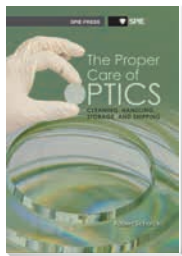
John C. Stover
Vol. PM224
July 2012
330 pages · Hardcover
ISBN: 9780819492517
SPIE Member \$73
Nonmember \$86

Take **15% off** of prices shown for all print books until the end of 2015



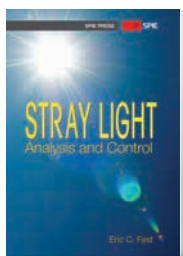
Value Metrics for Better Lighting

Mark S. Rea
Vol. PM228
 Dec. 2012
 122 pages · Softcover
 ISBN: 9780819493224
 SPIE Member \$34
 Nonmember \$40



The Proper Care of Optics: Cleaning, Handling, Storage, and Shipping

Robert Schalck
Vol. PM233
 Mar. 2013
 236 pages · Softcover
 ISBN: 9780819494573
 SPIE Member \$46
 Nonmember \$54



Stray Light: Analysis and Control

Eric Fest
Vol. PM229
 Mar. 2013
 228 pages · Softcover
 ISBN: 9781628411553
 SPIE Member \$47
 Nonmember \$55



Strength Properties of Glass and Ceramics

John W. Pepi
Vol. PM244
 May 2014
 186 pages · Softcover
 ISBN: 9780819498366
 SPIE Member \$41
 Nonmember \$48

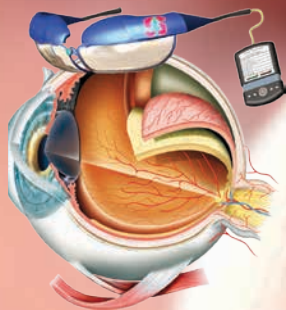
PRESENT AND PUBLISH

SHARE YOUR RESEARCH WORLDWIDE IN CONFERENCE PROCEEDINGS ON THE SPIE DIGITAL LIBRARY

- Present your research at an SPIE conference and reach your community.
- Publish your research in the conference Proceedings.
- Promote your research worldwide through the SPIE Digital Library.



RELEVANT TIMELY COMPREHENSIVE



Photovoltaic Retinal Prosthesis for Restoring Sight to the Blind

Proceedings of SPIE: doi:10.1117/12.909104

**One of over 420,000 interdisciplinary
papers from SPIE.**

Biomedical Optics & Medical Imaging

63,000+ papers

Communication & Information Technologies

66,000+ papers

Defense & Security

35,000+ papers

Electronic Imaging & Signal Processing

106,000+ papers

Energy

10,000+ papers

Lasers

62,000+ papers

Light Sources & Illumination

20,000+ papers

Lithography & Microelectronics

27,000+ papers

Metrology

28,000+ papers

Nanotechnology

21,000+ papers

Optics & Astronomy

191,000+ papers

Remote Sensing

27,000+ papers

Sensors

59,000+ papers

The SPIE Digital Library is the world's largest collection of **optics & photonics** applied research.

With more than **420,000** papers spanning biomedicine, communications, sensors, defense and security, manufacturing, electronics, energy, and imaging, the SPIE Digital Library is the most extensive database available on optics and photonics research.

Proceedings

SPIE is the largest organizer of conferences, workshops, and symposia in the field of optics and photonics with over 300 conferences occurring annually. SPIE Proceedings are the rich outcome of these events, providing you with a snapshot of what's happening—right now.

More than 395,000 articles from 1962 to the present.

Technologies covered:

- Astronomy
- Biomedical Optics & Medical Imaging
- Communication & Information Technologies
- Defense & Security
- Electronic Imaging & Signal Processing
- Energy
- Lasers
- Light Sources & Illumination
- Lithography & Microelectronics
- Metrology
- Nanotechnology
- Optics
- Remote Sensing
- Sensors

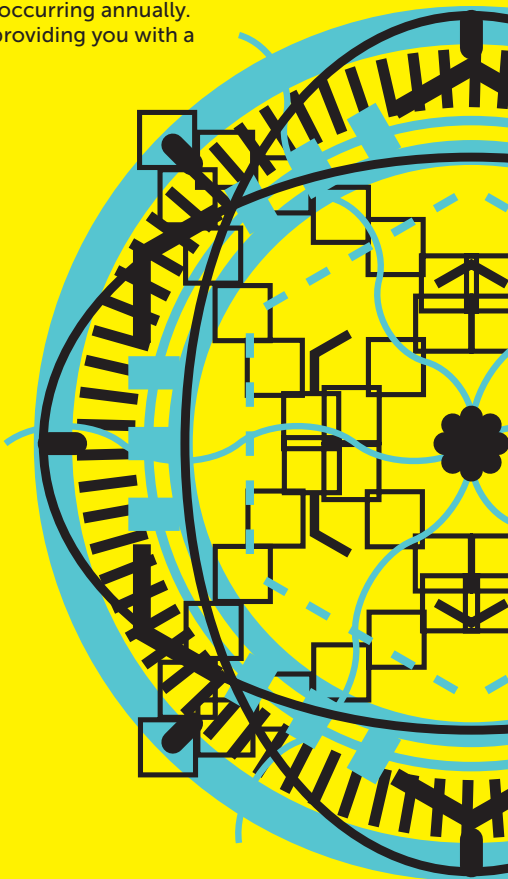
Journals

More than 25,000 peer-reviewed articles. Extending coverage back to Volume 1:

- *Journal of Applied Remote Sensing*
- *Journal of Astronomical Telescopes, Instruments, and Systems*
- *Journal of Biomedical Optics*
- *Journal of Electronic Imaging*
- *Journal of Medical Imaging*
- *Journal of Micro/Nanolithography, MEMS, and MOEMS*
- *Journal of Nanophotonics*
- *Journal of Photonics for Energy*
- *Neurophotonics*
- *Optical Engineering*

eBooks

Complete the collection! For an additional fee, 235+ SPIE PRESS eBook titles may be added to your SPIE Digital Library subscription.



Join SPIE and get a subscription to one online journal and 10 digital library downloads with your membership, or recommend a subscription to your librarian.

SPIE. DIGITAL LIBRARY

For information visit:
www.SPIEDigitalLibrary.org

Powered by photonics



New and Featured Publications



In Celebration of the International
Year of Light, SPIE is offering 15% off
all print books until the end of 2015*

www.spie.org/publications



*Cannot be combined with other discounts or offers.
Resellers not eligible for discount.

The international society for optics and photonics.

CONNECTING MINDS.
ADVANCING LIGHT.

SPIE.

SPIE.org

**SPIE. DIGITAL
LIBRARY**

SPIDigitalLibrary.org

SPIE International Headquarters
PO Box 10
Bellingham, WA 98227-0010 USA
Tel: +1 360 676 3290 / Fax: +1 360 647 1445
help@spie.org / www.SPIE.org

SPIE Europe Offices
2 Alexandra Gate
Ffordd Pengam, Cardiff, CF24 2SA UK
Tel: +44 29 2089 4747 / Fax: +44 29 2089 4750
info@spieurope.org / www.SPIE.org
