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y A
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Given the increasing
role of intellectual*

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property (IP) in academic research, it is important for academic scientists to gain greater awareness and knowledge of the various issues involved with IP resulting from their research and inventions. In addition, the line between academic

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and industrial research has been blurred, and a large amount of crossover exists due to corporate funding of academic research and collaborations between company and university laboratories. These and other factors have complicated the push toward

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***technology transfer
in universities. As
commercialization
has become
inseparable from
university research,
there is now an
essential need for
academics to have a
greater
understanding of
the processes
involved. Intellectual
Property in***

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need, providing an
indispensable
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academia. You've
Just Invented a
Gadget – What
Now? Written by a
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professionals, most of whom also have years of experience as scientists, this volume addresses IP issues relevant to the academic community—including ways to efficiently deal with the structural constraints inherent in the university environment.

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Scientists and engineers will benefit from the authors' insights and their advice on how to establish good communication with university Offices of Technology Transfer. This perspective affords a common language and facilitates a

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smoother path through IP procedures. The book covers the best approaches to determine invention novelty by prior art searching and gives step-by-step guidance in using the best modern electronic patent databases. It presents a unique

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***practical approach
for assessing the
monetary value of
ideas and provides
software for
invention valuation,
which can be used
even during the
early stages of an
invention's
development. The
book also discusses
invention
ownership, which is***

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***a crucial issue for
scientists employed
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approach than a
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***asked questions
about employment
legislation as well as
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market estimation,
invention priority
registration, and
other necessary
steps for the
successful
commercialization
of university
inventions. It
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describing both the
right moves and
common mistakes
made by scientists.
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and prosecution,
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industrial researchers. Other key topics addressed by the text include using copyrighted material, protecting material with copyrights, crucial IP legislation, business models, and new trends and changes in the U.S. patent office. In

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short, readers will find that this book provides a pathway for easing their journey through the IP process.

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*reconstruction
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A special chapter is
designated to digital
holographic
interferometry with
applications in
deformation and
shape measurement
and refractive index
determination.
Applications in
imaging and
microscopy are also*

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advances and new
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holographic optical elements for laser beam shaping, combining, and redirection are covered, and their properties are studied theoretically and experimentally. The high impact of holography in imaging and metrology is

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***demonstrated by
applications
spreading from
thickness and
surface
measurements,
through antenna
metrology and
analyzing high-
density gradients
in fluid mechanics
to characterization
of live objects in
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***diagnostics. Novel
functionalized
materials used in
dynamic or
permanent
holographic
recording cover
photopolymers,
photochromics, ph
oto-thermo-
refractive glasses,
and hybrid organic-
inorganic media.
The polarization of***

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light is one of the most remarkable phenomena in nature and has led to numerous discoveries and applications. The nature and mathematical formulation of unpolarized light and partially polarized light were not readily

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*forthcoming until
the 1950s, when
questions about
polarized light and
the mathematical
tools to deal with it
began to be
addressed in
earnest. As a
result, there is a
very good
understanding of
polarized light
today. The primary*

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objective of this guide is to provide an introduction to the developments in polarized light that have taken place over the past half-century, and present the most salient topics of the subject matter such as Mueller matrices, Stokes polarization

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*parameters, and
Jones matrices.*

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Optical microscopy

is used in a vast

range of

applications

ranging from

materials

engineering to in

vivo observations

and clinical

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diagnosis, and thanks to the latest advances in technology, there has been a rapid growth in the number of methods available. This book is aimed at providing users with a practical guide to help them select, and then use, the most

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***suitable method
for their
application. It
explores the
principles behind
the different forms
of optical
microscopy,
without the use of
complex maths, to
provide an
understanding to
help the reader
utilise a specific***

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*method and then
interpret the*

*results. Detailed
physics is provided*

*in boxed sections,
which can be*

*bypassed by the
non-specialist. It is
an invaluable tool*

*for use within
research groups*

*and laboratories in
the life and*

physical sciences,

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with inserts to
provide the
physical science
background Brings
together
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widefield and
confocal**

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*underlying
theory.*

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sensors for
the
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and glucose in
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sensors that
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of high-risk
individuals in
any clinical
or point-of-
care setting.
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fabrication
approaches
outlined
include silver-
halide*

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*chemistry,
laser ablation
and photopolym
erization. The
sensors employ
off-axis Bragg
diffraction
gratings of
ordered silver
nanoparticles
and localized
refractive*

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*index changes
in poly (2-hyd
roxyethyl
methacrylate)
and
polyacrylamide
films. The
sensors
exhibited
reversible
Bragg peak
shifts, and*

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*diffracted the
spectrum of
narrow-band
light over the
wavelength
range $\lambda_{\text{peak}} \approx$
495–1100 nm.*

*Clinical
trials of
glucose
sensors in the
urine samples*

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of diabetic patients demonstrated that they offer superior performance compared to commercial high-throughput urinalysis devices.

Lastly, a

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*generic
smartphone
application to
quantify
colorimetric
tests was
developed and
tested for
both Android
and iOS
operating
systems. The*

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*sensing
platform and
smartphone
application
may have
implications
for the
development of
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reusable and
equipment-free
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the method to
problems in
materials
science, physics
and the life
sciences round
out the volume's
coverage.*

*Transparent in
the visible
range, phase*

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objects can be studied in the optical range using holographic interferometry. Typically, the holograms are recorded on high-resolving-power holographic photo materials, but a lower spatial

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*resolution is
sufficient for
successful
research in many
scientific
applications.
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Approach offers
practical
guidance to
research
scientists and*

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**engineers using
Mach-Zehnder
holographic
interferometry
methods to study
phase objects in
the laboratory.
The Mach-Zehnder
approach allows
the use of
standard
photographic
film and
electronic**

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CCD/CMOS sensors with low resolving power, making it a simpler and more affordable option for testing many types of phase objects. This book demonstrates how to use standard photographic

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optical
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techniques for
using CCD/CMOS
cameras to
digitally record
Mach-Zehnder hol
ograms/interfero
grams of*

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*transparent
objects.*

*Bringing
together
original
research and
information
scattered
throughout
existing
literature, this
book focuses on
the holographic
reference beam*

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*and shearing
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methods. In
particular, it
looks at how
these methods
and optical
schemes can be
directly applied
to testing
aerodynamic
flows, as well
as to plasmas,
shocks, and*

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laser-matter
interactions.
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reconstructed
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interferograms,
deflectograms,
and
Schlierengrams
illustrate the
material,
helping readers*

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*develop and
design their own
optimal optical
scheme and
choose
applicable
details to apply
the approach.
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methods in a
mathematically
simple and
accessible way,
this book is*

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students in the
fields of
aerospace
engineering and
optics, as well
as those in
laser, thermal,
and plasma
physics.*

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account, without
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*mathematics,
explains the two
models of
holography—the
geometric and
the zone
plate—and
different types
of holograms,
including
transmission,
reflection,
phase,
projection,*

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*rainbow, and
multiplex. They
also show basic
setups for
making holograms
and provide step-
by-step
instructions so
readers can make
their own. "I
predict that
Kasper and
Feller will
become a*

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*standard
reference on
holography for
students and
interested
laymen"—James A.
Van Allen. 116
black-and-white
illus.*

*Ultra-high
resolution
holograms are
now finding
commercial and*

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industrial applications in such areas as holographic maps, 3D medical imaging, and consumer devices. Ultra-Realistic Imaging: Advanced Techniques in Analogue and Digital Colour

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attracted
widespread interest

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in this decade, with the application by Leith and Upatnieks of the laser as the source of coherent light. Literature on the subject trends to be general and theoretical. This document is a compilation of experimental techniques

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commonly used in the construction of holograms, including refinements developed at NELC. It supplies the needed practical approach to basic holography, and includes a description of the basic holographic laboratory and its

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equipment. (Author).

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*researchers the
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an overview of the
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professionals and
students Filled with
illustrative examples and
mathematical equations
Written for professional
practitioners, optical
engineers, optical
designers, optical
systems engineers and
students, Optical
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guide that covers the broad range of optical design and optical metrology topics and their applications.

The merging of metasurface and holography brings about unprecedented opportunities for versatile manipulation of light in terms of both far-field wavefront and near-field profile. In this

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book, a brief evolving history from surface plasmon polariton holography to metamaterial holography and finally to metasurface holography is introduced at first. Basic physical mechanisms that govern the phase modulation rules behind metasurface holography design are discussed

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later. Next, extended functionalities such as arbitrary polarization holography, vectorial holography, full-color holography, and hybrid holography achieved in the metasurface platform are presented. Surface wave and metagrating holography that bridges the on-chip surface wave and free-space wave is also

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introduced. In the end, we envisage practical applications of high-fidelity 3D holographic display, high-secure encryption, and high capacity digital encoding and also indicate remaining challenges based on metasurface holography.

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important results based on the work of Jacques Ludman. Examining the use of holography in practice, the author then describes the conditions for successful holography in the laboratory, including various lasers commonly used for holography. He also discusses recording materials and their key holographic

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Holograms have been in the public eye for over a half-century, but their

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have evolved, they
have left their
audiences
alternately
fascinated,
bemused, inspired
or indifferent.

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of high science to
countercultural art
to consumer
security,
holograms have
represented

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modernity, magic
and materialism.

Their most
pervasive impact
has been to
galvanise hopeful
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artists, hippies and
hobbyists have
played with, and
dreamed about,
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book explores how

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audiences
intrigued about
how this
ubiquitous but still-
mysterious visual
medium grew up in
our midst and
became entangled
in our culture. This
book explores the
technical
attractions and
cultural uses of the
hologram, how

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they were shaped by what came before them, and how they have matured to shape our notional futures. Today, holograms are in our pockets (as identity documents) and in our minds (as gaming fantasies and 'faux

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hologram' performers). Why aren't they more often in front of our eyes?

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most commonly
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optical and non-
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used for the
metrology and
characterization of
surfaces, including
guidance on best
practice,
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results. It enables the user to select the best approach in a given context. Most methods in surface metrology are based upon the interaction of light or electromagnetic radiation (UV, NIR, IR), and different optical effects are utilized to get a certain optical

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response from the surface; some of them record only the intensity reflected or scattered by the surface, others use interference of EM waves to obtain a characteristic response from the surface. The book covers techniques ranging from

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light, multi-
wavelength,
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and shearing) to
spectral

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reflectometry and ellipsometry. The non-optical methods comprise tactile methods (stylus tip, AFM) as well as capacitive and inductive methods (capacitive sensors, eddy current sensors). The book provides: Overview of the

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where the combination of different surface metrology techniques in a multi-sensor system can reasonably contribute to a better understanding of surface properties as well as a faster characterization of

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surfaces in
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