

Access Free Infrared

Infrared

Written by experts in the field, the Non-Dispersive Infrared Gas Measurement begins with a brief survey of various gas measurement techniques and continues with fundamental

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aspects and cutting-edge progress in NDIR gas sensors in their historical development. Providing sufficient background information and details, the book Non-Dispersive Infrared Gas Measurement is an excellent resource for advanced level

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undergraduate and graduate students as well as researchers, instrumentation engineers, applied physicists, chemists, material scientists in gas, chemical, biological, and medical sensors to have a comprehensive understanding of the

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development of non-dispersive infrared gas sensors and the trends for the future investigation.

“A woman explores complex family relationships and discovers truths about herself in this sensual, intricately woven

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***offering from award-winning
Huston.”—Kirkus Reviews Nancy
Huston follows her bestselling
novel, Fault Lines, winner of the
Prix Femina, with an intensely
provocative story about a
passionate yet emotionally
wounded woman’s sexual***

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explorations. After a troubled childhood and two failed marriages, Rena Greenblatt has achieved success as a photographer. She specializes in infrared techniques that expose her pictures' otherwise hidden landscapes and capture the raw

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essence of deeply private moments in the lives of her subjects. Away from her lover, and stuck in Florence, Italy, with her infuriating stepmother and her aging, unwell father, Rena confronts not only the masterpieces of the Renaissance

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but the banal inconveniences of a family holiday. At the same time, she finds herself traveling into dark and passionate memories that will lead to disturbing revelations. Infrared is both an explicitly bold story of how sexuality is influenced by

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childhood, family, and culture, and a portrait of a woman coming to terms with the end of her father's life. With exceptional flair and intelligence, Huston fearlessly investigates the links between family intimacies and our collective lives, between

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destruction and creation.

“Huston shows her mastery of complicated structure, wide cultural knowledge, and brilliant, assured portraiture.”—The Globe and Mail (Top 100 Books of the Year) “There is something eminently subversive in Nancy

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Huston's latest novel. A forty-five-year-old woman dares to talk about her sexuality, her immense desire for men. But even more, Infrared is a staggering expression of the power of art as salvation."—Voir
The third edition of this highly

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successful manual is not only a revised text but has been extended to meet the interpretive needs of Raman users as well as those working in the IR region. The result is a uniquely practical, comprehensive and detailed

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source for spectral interpretation. Combining in one volume, the correlation charts and tables for spectral interpretation for these two complementary techniques, this book will be of great benefit to those using or considering either

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technique. In addition to the new Raman coverage the new edition offers: * new section on macromolecules including synthetic polymers and biomolecules; * expansion of the section on NIR (near infrared region) to reflect recent growth

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in this area; * extended chapter on inorganic compounds including minerals and glasses; * redrawn and updated charts plus a number of new charts covering data new to this edition. This new edition will be invaluable in every industrial, university,

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government and hospital laboratory where infrared (FT-IR) and Raman spectral data need to be analysed.

This classic opens with a history of the development of the infrared portion of the spectrum, probes the system engineering

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process, and then examines the characteristics of the successful system engineer. The next eleven chapters delve deeply into the elements of infrared technology. Chapter 13 explains the functional relationships between the various system elements and

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the effects of their interactions when assembled into a system. In Chapter 14 the reader is invited to watch the development of an infrared search system for commercial jet transports. Part II contains an in-depth treatment of the applications of infrared

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techniques to the solution of military, industrial, medical, and scientific problems. It contains nearly 1400 annotated references to the infrared literature of the world. The annotations summarize the content, describe the hardware,

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details its performance and examine the significant results. The references are carefully arranged, extensively indexed, and does not contain citations to the classified or report literature, a feature appreciated by most readers. For those readers

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***having the necessary credentials,
Appendix 4 is a guide to the
unpublished and classified
literature of the infrared.***

An Atlas

A Systematic Approach

***From Research to Clinical
Settings***

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***Infrared Spectroscopy for Food
Quality Analysis and Control
from William Herschel to the
Herschel Space Observatory
IR***

**Pedagogical classic and
essential reference focuses
on mathematics of detailed**

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vibrational analyses of polyatomic molecules, advancing from application of wave mechanics to potential functions and methods of solving secular determinant.

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The advent of laser-based sources of ultrafast infrared pulses has extended the study of very fast molecular dynamics to the observation of processes manifested

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through their effects on the vibrations of molecules. In addition, non-linear infrared spectroscopic techniques make it possible to examine intra- and intermolecular interactions

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and how such interactions evolve on very fast time scales, but also in some instances on very slow time scales. Ultrafast Infrared Vibrational Spectroscopy is an advanced overview of

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**the field of ultrafast
infrared vibrational
spectroscopy based on the
scientific research of the
leading figures in the field.
The book discusses
experimental and**

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theoretical topics reflecting the latest accomplishments and understanding of ultrafast infrared vibrational spectroscopy. Each chapter provides background, details of

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methods, and explication of a topic of current research interest. Experimental and theoretical studies cover topics as diverse as the dynamics of water and the dynamics and structure of

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**biological molecules.
Methods covered include
vibrational echo chemical
exchange spectroscopy, IR-
Raman spectroscopy, time
resolved sum frequency
generation, and 2D IR**

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spectroscopy. Edited by a recognized leader in the field and with contributions from top researchers, including experimentalists and theoreticians, this book presents the latest

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research methods and results. It will serve as an excellent resource for those new to the field, experts in the field, and individuals who want to gain an understanding of particular

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methods and research topics.

This text treats the fundamentals of optical and infrared detection in terms of the behavior of the radiation field, the physical

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**properties of the detector,
and the statistical behavior
of the detector output.
Both incoherent and
coherent detection are
treated in a unified
manner, after which**

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selected applications are analyzed, following an analysis of atmospheric effects and signal statistics. The material was developed during a one-semester course at M.I.T. in

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1975, revised and presented again in 1976 at Lincoln Laboratory, and rewritten for publication in 1977. Chapter 1 reviews the derivation of Planck's thermal radiation law and

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also presents several fundamental concepts used throughout the text. These include the three thermal distribution laws (Boltzmann, Fermi-Dirac, Bose Einstein),

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spontaneous and stimulated emission, and the definition and counting of electromagnetic modes of space. Chapter 2 defines and analyzes the perfect photon detector and

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calculates the ultimate sensitivity in the presence of thermal radiation. In Chapter 3, we turn from incoherent or power detection to coherent or heterodyne detection and

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use the concept of orthogonal spatial modes to explain the antenna theorem and the mixing theorem. Chapters 4 through 6 then present a detailed analysis of the

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sensitivity of vacuum and semiconductor detectors, including the effects of amplifier noise. Although infrared spectroscopy has been applied with success to the

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study of important biological and biomedical processes for many years, key advances in this vibrant technique have led to its increasing use, ranging from

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characterisation of individual macromolecules (DNA, RNA, lipids, proteins) to human tissues, cells and their components. Infrared spectroscopy thus has a significant role to play in

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the analysis of the vast number of genes and proteins being identified by the various genomic sequencing projects. Whilst this book gives an overview of the field it highlights

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more recent developments, such as the use of bright synchrotron radiation for recording infrared spectra, the development of two-dimensional infrared spectroscopy and the

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ability to record infrared spectra at ultrafast speeds. The main focus is on the mid-infrared region, since the great majority of studies are carried out in this region but there is

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increasing use of the near infrared for biomedical applications and a chapter is devoted to this part of the spectrum. Major advances in theoretical analysis have also enabled

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better interpretation of the infrared spectra of biological molecules and these are covered. The editors, Professor Andreas Barth of Stockholm University, Stockholm,

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Sweden and Dr Parvez I. Haris of De Montfort University, Leicester, U.K., who both have extensive research experience in biological infrared spectroscopy per se and in

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its use in the solution of biophysical problems, have felt it timely therefore to bring together this book. The book is intended for use both by research scientists already active in

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the use of biological infrared spectroscopy and for those coming new to the technique. Graduate students will also find it useful as an introduction to the technique.

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**Advanced Infrared
Technology
Near-Infrared Spectroscopy
(NIRS) in Functional
Research of Prefrontal
Cortex
Tables and Charts**

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**Introduction to Infrared
System Design
Infrared Absorption Spectra
of Steroids
Catalog of Infrared
Observations**

The evolution of technological

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advances in infrared sensor technology, image processing, "smart" algorithms, knowledge-based databases, and their overall system integration has resulted in new methods of research and use in medical infrared imaging. The

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development of infrared cameras with focal plane arrays no longer requiring cooling, added a new dimension to this modality.

Medical Infrared Imaging: Principles and Practices covers new ideas, concepts, and

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technologies along with historical background and clinical applications. The book begins by exploring worldwide advances in the medical applications of thermal imaging systems. It covers technology and hardware

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including detectors, detector materials, un-cooled focal plane arrays, high performance systems, camera characterization, electronics for on-chip image processing, optics, and cost-reduction designs. It then

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discusses the physiological basis of the thermal signature and its interpretation in a medical setting. The book also covers novel and emerging techniques, the complexities and importance of protocols for effective and

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reproducible results, storage and retrieval of thermal images, and ethical obligations. Of interest to both the medical and biomedical engineering communities, the book explores many opportunities for developing and conducting

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multidisciplinary research in many areas of medical infrared imaging. These range from clinical quantification to intelligent image processing for enhancement of the interpretation of images, and for further

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development of user-friendly high-resolution thermal cameras. These would enable the wide use of infrared imaging as a viable, noninvasive, low-cost, first-line detection modality.

The full revision of this text has

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presented a number of problems. The basic data have changed little since the second edition, although they have been much extended in depth and in detail. To some extent this has helped to shorten the present text as many

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controversial issues which needed to be presented at some length have now been resolved so that only the final conclusions need to be given. However, it remains the case that very few new group frequencies have emerged over the

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past fifteen years and the emphasis of group-frequency studies has tended to shift away from the identification of specific groups towards their other possible uses in the solution of structural and chemical problems.

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The study of the interplay of mechanical and electronic effects in determining the directions and extents of group-frequency shifts which result from changes in the substituents has told us much about chemical mechanisms

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themselves, and has opened up new possibilities for the use of group frequencies in areas such as the study of rotational isomerism, the measurement of bond angles, and the use of frequency relationships to derive other

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chemical and physical properties. Uncover the Secrets of the Universe Hidden at Wavelengths beyond Our Optical Gaze William Herschel's discovery of infrared light in 1800 led to the development of astronomy at

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wavelengths other than the optical. Infrared Astronomy – Seeing the Heat: from William Herschel to the Herschel Space Observatory explores the work in astronomy that relies on observations in the infrared.

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Author David L. Clements, a distinguished academic and science fiction writer, delves into how the universe works, from the planets in our own Solar System to the universe as a whole. The book first presents the major

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telescopes in the world of observational infrared astronomy, explains how infrared light is detected through various kinds of telescopes, and describes practical problems that send infrared astronomers to the tops of

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mountains and their telescopes into orbit and beyond. Much of the book focuses on what infrared astronomers find in their observations. You'll discover what infrared astronomy reveals about the planets, moons, and

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other bodies that constitute our Solar System; star formation and stellar evolution; the processes that shape galaxies; and dark energy and dark matter. Infrared astronomy has revolutionized our understanding of the universe and

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has become essential in studying cosmology. Accessible to amateur astronomers, this book presents an overview of the science and technology associated with infrared astronomy. With color figures, it shows you how infrared

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astronomy provides insights into the workings of the universe that are unavailable at other wavelengths.

Infrared Photography

Handbook Amherst Media, Inc

Infrared and Raman

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Characteristic Group Frequencies
Appendixes
Infrared and Millimeter Waves
V10
Millimeter Components and
Techniques
Non-Dispersive Infrared Gas

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Measurement

Ultrafast Infrared Vibrational
Spectroscopy

*This newly revised and
updated edition of a
classic Artech House
book offers a current*

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*and complete and
introduction to the
analysis and design of
Electro-Optical Systems
(EO) imaging systems.
The Second Edition
provides numerous*

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updates and brand new coverage of today's most important areas, including the integrated spatial frequency approach and a focus on the weapons of

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terrorists as objects of interest. This comprehensive reference details the principles and components of the Linear Shift-Invariant (LSI) infrared and

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electro-optical systems and shows you how to combine this approach with calculus and domain transformations to achieve a successful imaging system analysis.

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Ultimately, the steps described in this book lead to results in quantitative characterizations of performance metrics such as modulation transfer

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*functions, minimum
resolvable temperature
difference, minimum
resolvable contrast, and
probability of object
discrimination. The book
includes an introduction*

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to two-dimensional functions and mathematics which can be used to describe image transfer characteristics and imaging system components. You also

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*learn diffraction
concepts of coherent and
incoherent imaging
systems which show you
the fundamental limits
of their performance. By
using the evaluation*

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*procedures contained in
this desktop reference,
you become capable of
predicting both sensor
test and field
performance and
quantifying the effects*

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*of component variations.
This practical resource
includes over 780 time-
saving equations.
An introduction to
characteristic group
frequencies for those*

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who may need to interpret or examine infrared spectra. The characteristic absorptions of functional groups over the entire infrared

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region (including the far infrared) are given in tables as well as being discussed and amplified in the text. This revised edition (1st ed., 1980) includes

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*a number of new
correlation charts.
Annotation copyright by
Book News, Inc.,
Portland, OR
This volume is written
for those who desire a*

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*comprehensive analysis
of the latest
developments in infrared
detector technology and
a basic insight into the
fundamental processes
which are important to*

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evolving detection techniques. Each of the most salient infrared detector types is treated in detail by authors who are recognized as leading

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*authorities in the
specific areas
addressed. In order to
concentrate on pertinent
aspects of the present
state of the detector
art and the unique point*

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of view of each author, extensive tutorials of a background nature are avoided in the text but are readily available to the reader through the many references given.

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The volume opens with a broad-brush introduction to the various types of infrared detectors that have evolved since Sir William Herschel's discovery of infrared

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*radiation 175 years ago.
The second chapter
presents an overall
perspective of the
infrared detector art
and serves as the
cohesive cement for the*

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*more in-depth
presentation of
subsequent chapters.
Those detector types
which, for one reason or
other have not attained
wide use today, are also*

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*discussed in Chapter 2.
The more notable and
widely used infrared
detectors can be divided
into three basic classes
which are indicative of
the primary effect*

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produced by the photon-detector interaction, i.e., thermal, photoconductive, photo voltaic, and photoemissive. Chapters 3, 4, and 5 offer a

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detailed treatment of each of these important processes.

This author's second volume introduces basic principles of interpreting infrared

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spectral data, teaching its readers to make sense of the data coming from an infrared spectrometer. Contents include spectra and diagnostic bands for the

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more common functional groups as well as chapters on polyester spectra and interpretation aids. Discussions include: Science of infrared

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*interpretation Light and
molecular vibrations How
and why molecules absorb
infrared radiation Peak
heights, intensities,
and widths Hydrocarbons,
carbonyl groups, and*

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*molecules with C-N bonds
Polymers and inorganic
molecules The use of
atlases, library
searching, spectral
subtraction, and the
Internet in augmenting*

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interpretation Each chapter presents an introduction to the nomenclature and structure of a specific functional group and proceeds with the

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*important diagnostic
bands for each group.
Infrared Spectral
Interpretation serves
both novices and
experienced
practitioners in this*

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field. The author maintains a website and blog with supplemental material. His training course schedule is also available online.

High Spectral Resolution

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*Infrared Remote Sensing
for Earth's Weather and
Climate Studies
Reviews of Infrared and
Millimeter Waves
Fundamentals, Research
and Applications*

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*Detection of Optical and
Infrared Radiation*

Infrared Thermal Imaging

Medical Infrared Imaging

The rather specialized field
of solar and infrared
radiation measurement has

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become more and more important in the face of growing demands by the renewable energy and climate change research communities for data that are more accurate and have increased temporal and spatial

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resolution. Updating decades of acquired knowledge in the field, Solar and Infrared Radiation Measurements details the strengths and weaknesses of instruments used to conduct such solar and infrared radiation

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measurements. Topics covered include: Radiometer design and performance Equipment calibration, installation, operation, and maintenance Data quality assessment Methods to use measured data to estimate irradiance for

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any surface With a broad range of content that will benefit students and more experienced readers alike, this resource serves as a primer and technical reference that presents the basic terminology and

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fundamentals for resource assessment. It explores the history of solar radiation instruments and addresses direct normal, global, diffuse, and tilted measurements, as well as the characteristics of

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instruments used for these measurements. The authors consider methods of assessing the uncertainty of solar measurements and then cover albedo, infrared, net, and spectral irradiance measurements and

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instrumentation. The book devotes a section to other meteorological instruments, and another to the basics for installing and operating a solar monitoring station. Appendices include information on solar

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resource assessment modeling and satellite-derived irradiance, along with other useful material. This book's authors are experts who each have more than 30 years of experience developing and operating multiple

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measurement stations,
working with industry to
improve radiometry, and
conducting various research
projects.

Infrared spectroscopy is
generally understood to mean
the science of spectra

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relating to infrared radiation, namely electromagnetic waves, in the wavelength region occurring intermediately between visible light and microwaves. Measurements of infrared spectra have been

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providing useful information, for a variety of scientific research and industrial studies, for over half a century; this is set to continue in the foreseeable future.

Introduction to Experimental

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Infrared Spectroscopy is intended to be a handy guide for those who have no, or limited, experience in infrared spectroscopic measurements but are utilising infrared-related methods for their research

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or in practical applications. Written by leading researchers and experienced practitioners, this work consists of 22 chapters and presents the basic theory, methodology and practical measurement

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methods, including ATR, photoacoustic, IR imaging, NIR, 2D-COS, and VCD. The six Appendices will aid readers in understanding the concepts presented in the main text. Written in an easy-to-understand way this

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book is suitable for students, researchers and technicians working with infrared spectroscopy and related methods.

This book is about general infrared (IR) engineering, technology, practices, and

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principles as they apply to modern imaging systems. An alternative title to this book with appeal to managers and marketing personnel might be "Everything You Always Wanted to Know about Infrared Sensors, but

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Couldn't Get Answers on from Engineers." This book is not meant to be a comprehensive compendium of IR (like the Infrared and Electro Optical Systems Handbook). Rather, it is intended to complement such texts by

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providing up to date
information and pragmatic
knowledge that is difficult
to locate outside of
periodicals. The information
contained in this book is
critical in the day-to-day
life of en gineering

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practitioners, proposal writers, and those on the periphery of an IR program. It serves as a guide for engineers wishing to "catch up," engineers new to the field, managers, students, administrators, and

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technicians. It is also useful for seasoned IR engineers who want to review recent technological developments.

This necessary desk reference for every practicing spectroscopist

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represents the first definitive book written specifically to integrate knowledge about group frequencies in infrared as well as Raman spectra. In the spirit of previous classics developed by

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Bellamy and others, this volume has expanded its scope and updated its coverage. In addition to detailing characteristic group frequencies of compounds from a comprehensive assortment of

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categories, the book includes a collection of spectra and a literature search conducted to verify existing correlations and to determine ways to enhance correlations between vibrational frequencies and

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molecular structure.
Particular attention has
been given to the
correlation between Raman
characteristic frequencies
and molecular structure. Key
Features * Constitutes a
necessary reference for

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every practicing vibrational spectroscopist * Provides the new definitive text on characteristic frequencies of organic molecules * Incorporates group frequencies for both infrared and Raman spectra *

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Details the characteristic
IR and Raman frequencies of
compounds in more than
twenty major categories *
Includes an extensive
collection of spectra *
Compiled by internationally
recognized experts

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Introduction to Experimental
Infrared Spectroscopy
Fundamentals and Practical
Methods
Principles and Practices
Volume 2 Optically Pumped
Far-Infrared Lasers
Infrared System Engineering

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A Practical Guide to the State of the Art

This tutorial text focuses on the optics and detector aspects of infrared system design. It introduces the terminology, processes, and instrument design techniques available. Design examples are based

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on real problems investigated by the author.

The first edition of this text was written primarily by one of the present authors (HAS), with a chapter on instrumentation contributed by a second (NLA). The volume was well received, and to keep the text up-to-

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date a second edition was planned. For this second edition, a third author (WEK) was invited, whose background complemented that of the other two. Each of the authors was assigned several chapters as his primary task while the complete manuscript remained the second ary

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responsibility of all three. It is hoped that this approach has resulted in a work that is even more thorough than the first edition in covering the basic concepts of infrared spectroscopy.

NELSON L. ALPERT WILLIAM E. KEISER
HERMAN A. SZYMANSKI v PREFACE
TO THE FIRST EDITION My experience

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with the many infrared spectroscopy institutes held at Canisius College and many discussions with both beginners and experienced practitioners in infrared spectroscopy have convinced me that there is a need for an introductory text devoted entirely to infrared spectroscopy, a

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text which can be utilized even by those who approach this study with only a limited background. This volume sprang from that conviction. It is intended for all who wish to use infrared spectroscopy in research - especially chemists doing structural work - in routine control work, in

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industrial development, or in medical applications or those military applications where it is employed as an analytical tool.

One of major challenges facing Earth's science in the next decade and beyond is the development of an accurate long term observational

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data set to study global change. To accomplish this, a wide range of observations will be required to provide both new measurements, not previously achievable and measurements with a greater degree of accuracy and resolution than the ones which are presently

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and currently available. Among the parameters that are currently retrieved from satellite vertical sounding observations, temperature and moisture profiles are the most important for the description of the thermodynamic state of the medium. Other parameters, like those

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describing the cloud fields, the surface state or the conditions close to the surface are also key parameters for meteorology and climatology. A new generation of high spectral atmospheric sounders in the infrared has recently been designed to provide both new and more accurate

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data about the atmosphere, land and oceans for application to climate studies. Among the important observations that these instruments should contribute to the climate data set are day and night global measurements of: atmospheric temperature profiles; relative

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humidity profiles; cloud field parameters; total ozone burden of the atmosphere; distribution of minor atmospheric gases (methane, carbonmonoxide and nitrous oxide). This e-book includes the latest outcomes produced by a broad range of fNIRS research with activation of

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prefrontal cortex, from methodological one to clinical one, providing a forum for scientists planning functional studies of prefrontal brain activation. Reading this book, one will find the possibility that fNIRS could replace fMRI in the near future, and realize that even our

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aesthetic feeling is measurable. This will serve as a reference repository of knowledge from these fields as well as a conduit of information from leading researchers. In addition it offers an extensive cross-referencing system that will facilitate search and retrieval of information about NIRS

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measurements in activation studies. Researchers interested in fNIRS would benefit from an overview about its potential utilities for future research directions.

The Infra-red Spectra of Complex Molecules

Complete Guide to Digital Infrared

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Photography

Molecular Vibrations

The Theory of Infrared and Raman

Vibrational Spectra

Principles of Infrared Technology

Infrared and Millimeter Waves V10

Written by an international panel of

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professional and academic peers, the book provides the engineer and technologist working in research, development and operations in the food industry with critical and readily accessible information on the art and science of infrared spectroscopy technology. The book should also serve as an essential reference source

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to undergraduate and postgraduate students and researchers in universities and research institutions. Infrared (IR) Spectroscopy deals with the infrared part of the electromagnetic spectrum. It measure the absorption of different IR frequencies by a sample positioned in the path of an IR beam. Currently, infrared

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spectroscopy is one of the most common spectroscopic techniques used in the food industry. With the rapid development in infrared spectroscopic instrumentation software and hardware, the application of this technique has expanded into many areas of food research. It has become a powerful, fast, and non-destructive tool for

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food quality analysis and control. Infrared Spectroscopy for Food Quality Analysis and Control reflects this rapid technology development. The book is divided into two parts. Part I addresses principles and instruments, including theory, data treatment techniques, and infrared spectroscopy instruments. Part II covers

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the application of IRS in quality analysis and control for various foods including meat and meat products, fish and related products, and others. *Explores this rapidly developing, powerful and fast non-destructive tool for food quality analysis and control *Presented in two Parts -- Principles and Instruments, including

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theory, data treatment techniques, and instruments, and Application in Quality Analysis and Control for various foods making it valuable for understanding and application *Fills a need for a comprehensive resource on this area that includes coverage of NIR and MVA
This book represents a compendium of the

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twenty most useful far-infrared (or submillimeter) lasers. In the case of each laser described here, we have been fortunate to have the author who is the pioneer and acknowledged authority describe the principles of operation and to prepare the list of emission lines. Until these lasers were developed during the

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past decade, the submillimeter range of the spectrum has been almost barren due to lack of sources of radiation. The lasers described here remain the only practical, powerful source of radiation between the wavelengths of one millimeter and ten micrometers. Many hundreds of emission lines have been listed here, some

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providing hundreds of kilowatts of peak power in pulsed operation, others providing many tens of milliwatts of continuous power. The hundreds of wavelengths of the emission lines are so closely spaced in the wavelength range between one millimeter and one-tenth millimeter that this source of radiation can

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be considered to be step-tunable. Of course, laboratory scientists still depend upon the black body source (mercury vapor lamp) and the Fourier transform spectrometer to provide continuous spectra, but for this we must deal with true energy starvation at the sub-microwatt level. This critical review can be expected

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to serve as a handbook for decades in the future because it contains descriptions of fundamental principles and listings of fundamental physical data.

Introduction -- Comparison of Photon and Thermal Detectors Performance --

GaAs/AlGaAs Based Quantum Well Infrared Photodetector Focal Plane Arrays --

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GaInAs(P) Based Qwips on GaAs, InP
and Si Substrates for Focal Plane Arrays --
InAs/(Galn)Sb Superlattices: A Promising
Material System for Infra-red Detection --
GaSb/InAs Superlattices for Infra-red
FPAs -- MCT Properties, Growth Methods
and Characterization -- HgCdTe 2D
Arrays -- Technology and Performance

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Limits -- Status of HgCdTe MBE
Technology -- Silicon Infra-red Focal
Plane Arrays -- PolySiGe Uncooled
Microbolometers for Thermal Infra-red
Detection -- Infra-red Silicon/Germanium
Detectors -- Fundamentals of Spin
Filtering in Ferromagnetic Metals with
Application to Spin Sensors.

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Biological and Biomedical Infrared
Spectroscopy

The Infrared Handbook

Theory and Practice of Infrared
Spectroscopy

Infrared Spectra of Inorganic Compounds
(3800-45cm⁻¹)

Infrared Spectral Interpretation

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Water-filtered Infrared A (wIRA) Irradiation

*This book is intended to
serve as an up-to-date
reference source for those
familiar with
chromatography/Fourier*

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transform infrared spectroscopy (FT-IR) methods and as an introduction to techniques and applications for those interested in future uses for chromatography/FT-IR.

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This new up-to-date edition of the successful handbook and ready reference retains the proven concept of the first, covering basic and advanced methods and

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applications in infrared imaging from two leading expert authors in the field. All chapters have been completely revised and expanded and a new chapter has been added to

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reflect recent developments in the field and report on the progress made within the last decade. In addition there is now an even stronger focus on real-life

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examples, with 20% more case studies taken from science and industry. For ease of comprehension the text is backed by more than 590 images which include graphic

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visualizations and more than 300 infrared thermography figures. The latter include many new ones depicting, for example, spectacular views of phenomena in nature,

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*sports, and daily life.
Handbook of Infrared and
Raman Spectra of Inorganic
Compounds and Organic
Salts.*

*Cameras can capture what
the eye can't perceive:*

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the presence of infrared light. And shooting infrared (IR) with a digital camera makes it easier than ever to create distinctively dreamlike, high-contrast black-and-

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*white pictures. Using a
wealth of stunning images,
this thorough resource
explores the technical and
creative possibilities of
this unique and
increasingly popular*

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medium. Get tips on focus and exposure; IR filters; and having a camera converted to shoot specifically in infrared. Follow instructions for processing and printing

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the photos--including toner effects and faux color. One glance through this guide and it's clear why infrared pictures are fun to take and beautiful to look at.

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*Infrared Photography
Handbook*

*Solar and Infrared
Radiation Measurements*

*The Handbook of Infrared
and Raman Characteristic
Frequencies of Organic*

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Molecules

Handbook of Infrared

Detection Technologies

Infrared Astronomy -

Seeing the Heat

Introduction to Infrared

and Electro-optical

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Systems

This is the definitive guide to black and white infrared photography. Suitable for use by anyone with basic photographic skills, it

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**shows how to create
visual magic by
mastering the art of
seeing and composing
shots in infrared.
Infrared Characteristic
Group Frequencies**

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**Infrared
Infrared Detectors
Chromatography/Fourier
Transform Infrared
Spectroscopy and its
Applications
Optical and Infrared**

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Detectors

**The Atmospheric
Transmission of Infrared
Radiation from 2-5
Microns for Slant Paths
from 35,000 Feet to the
Upper Limit of the**

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Atmosphere, a Survey