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Polarization Spectral Imaging A

Orthogonal polarization spectral imaging (OPS imaging) is a method for imaging small blood vessels in tissue like the nail bed or lip. It uses a light source of linearly polarized light with a wavelength of 550 nanometers, an isosbestic point for

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hemoglobin, thus imaging the erythrocytes as they are flowing through the small blood vessels.

Orthogonal polarization spectral imaging - Wikipedia

Orthogonal polarization spectral (OPS) imaging is a relatively new

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noninvasive method for assessment of human microcirculation. Principles, validation studies, its advantages, limitations and current experience in clinical practice are discussed in this review. Principles of orthogonal polarization spectral imaging technology

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The orthogonal polarization spectral (OPS) imaging technique employs biologically inert polarized light without the need for any fluorescence dye (Table). This novel form of

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intravital microscopy has been validated by conventional fluorescence methods in standardized animal models (Langer et al, 2001; von Dobschuetz et al, 2003).

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Imaging: A Novel Tool for...

Orthogonal polarization spectral imaging (OPS imaging) is a method for imaging small blood vessels [1] in tissue like the nail bed or lip. It uses a light source of linearly polarized light with a wavelength of 550 nanometers, an isosbestic point for hemoglobin,

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thus imaging the erythrocytes as they are flowing through the small blood vessels.

Orthogonal polarization spectral imaging - WikiMili, The ...

Different disease states, including diabetes, hypertension and coronary

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heart disease, produce distinctive microvascular pathologies. So far, imaging of the human microcirculation

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Orthogonal polarization spectral (OPS) imaging is a relatively new noninvasive method for assessment of human microcirculation without

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using fluorescent dyes.

(PDF) Orthogonal polarization
spectral imaging

Orthogonal Polarization Spectral
(OPS) Imaging represents a major
innovation over conventional
intravital microscopy because of its

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portability and elimination of the need for special preparations. Here's how it works: Click here for animation: requires Flash

Human Microcirculation

Orthogonal Polarization Spectral (OPS) Imaging by Cytometrics

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imaging (OPS): a novel method to measure the microcirculation in term and preterm infants transcutaneously. Genzel-Boroviczény O (1), Strötgen J, Harris AG, Messmer K, Christ F.

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imaging (OPS): a novel ...

Orthogonal polarization spectral (OPS) imaging is an optical imaging technique that uses a handheld microscope and green polarized light to visualize the red blood cells in the microcirculation of organ surfaces.

The purpose of this study was to

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evaluate whether OPS imaging can be used for the functional and morphological evaluation of microcirculation in the conjunctiva.

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Orthogonal polarization spectral imaging of conjunctival ...

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polarization spectral (OPS) imaging as a new tool for in vivo visualization of human microcirculation makes it possible to acquire high resolution images of the oral mucosa.

Orthogonal polarization spectral (OPS) imaging and ...

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Orthogonal polarization spectral imaging is a specialized form of in vivo transcutaneous videomicroscopy. Polarized light of around 548 nm (well absorbed by hemoglobin) is directed at the tissue, and reflected light is gathered through a second polarization filter perpendicular to

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Orthogonal polarization spectral imaging is a method for imaging small blood vessels in tissue like the nail bed or lip.. It uses a light source of

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linearly polarized light with a wavelength of 550 nanometers, an isosbestic point for hemoglobin, thus imaging the erythrocytes as they are flowing through the small blood vessels. The reflected light orthogonal (at a 90° angle) to the emitted ...

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Orthogonal polarization spectral imaging — Wikipedia ...

Orthogonal polarization spectral (OPS) imaging enables the noninvasive visualization of microvascular perfusion in humans without the use of fluorescent dyes. 5

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Various clinical investigations with OPS imaging have identified microcirculatory abnormalities as a major component of the pathogenesis of sepsis^{6,7} and cardiogenic shock.⁸ Furthermore, the effect of therapeutic strategies could be studied using this technique in

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preterm infants 9 and critically ill adults. 10–12

Monitoring of the Sublingual Microcirculation in Cardiac...

We re- port here on orthogonal polarization spectral (OPS) imaging, a new method for imaging the

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microcirculation using reflected light that allows imaging of the microcirculation noninvasively...

Orthogonal polarization spectral imaging: A new method for ...

Orthogonal polarization spectral imaging is a newly developed

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technique that visualizes the microcirculation using reflected light without the use of fluorescent dyes and allows for noninvasive real-time observation of functional microvascular networks.

Reliable assessment of skin flap

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Spectral and polarization
characteristics of relativistic...

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This book introduces orthogonal polarized spectral (OPS) imaging, a new technique for examining the microcirculation in both animals and humans during surgery and in other clinical setups. OPS imaging creates an image by using the sub-surface scattering of polarized light to create

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a 'virtual' light source within the tissue being observed. Thus, the microcirculation can be visualized without the use of fluorescent dyes or transillumination, making it possible to observe the human microcirculation in real time. The technology has been incorporated

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into a small, hand-held device called a CYTOSCAN™ video microscope, which can be used in both research and clinical settings. Several validation studies comparing OPS imaging against standard intravital fluorescence microscopy in animal models demonstrate that it is

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possible to make quantitative measurements of relevant parameters (vessel diameter, red blood cell velocity and functional capillary density) from these images. Further studies show the feasibility of making such measurements in various human organs such as the

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skin, intestine, and brain. In addition, this book presents several clinical applications including use in cardiopulmonary bypass, neurosurgery, intensive care, general surgery and plastic surgery. The book should be read by anyone concerned with microvascular perfusion. This

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includes not only those involved in microcirculation research but clinicians interested in nutritive perfusion. The technique described here will be of aid to a variety of surgical specialists from cardiac and neurosurgeons to plastic surgeons. It will likewise be of interest to

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angiologists, anesthesiologists,
neonatologists, dermatologists, and
general surgeons.

The Observation And Measurement Of The Human Microcirculation

The two previous editions of Applied
Physiology in Intensive Care Medicine

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proved extremely successful, and the book has now been revised and split into two volumes to enhance ease of use. In this second volume some of the most renowned experts in the field offer detailed reviews on measurement techniques and physiological processes of crucial

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importance in intensive care medicine. Throughout, a key aim is to help overcome the fundamental unevenness in clinicians' understanding of applied physiology, which can lead to suboptimal treatment decisions. Applied Physiology in Intensive Care has been

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Imaging by some of the most renowned experts in the field and provides an up-to-date compendium of practical bedside knowledge essential to the effective delivery of acute care medicine. It will serve the clinician as an invaluable reference source on key issues regularly

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confronted in everyday practice.

The Observation And Measurement Of The Human Microcirculation

This debut edition of Visualizing Physical Geography encompasses the science of physical geography from local to global scales, using a uniquely visual approach to take students on a journey from the top layers of the

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Earth's atmosphere to the rocks underlying the ocean basins to the forests of the farthest continents. As students explore the critical topics of physical geography, their study of the climate, surface features, and habitats around the world uses basic concepts of ecology, geology, chemistry,

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create our planet's dynamic surface and atmosphere. Visualizing Geography relies heavily on other visuals with text to elucidate concepts for students and solidify their understanding of them. The goal is to help students understand the world around them and interpret

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and learning styles with several new pedagogical aids — encouraging students to apply what they are learning to their everyday lives.

Visualizing Geography continues to offer ongoing study tips and psychological techniques for mastering the material. Most

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Importantly students are provided with numerous opportunities to immediately access their understanding.

Human Microcirculation

Even if in the last years more information on sepsis and new treatments has become available,

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mortality rate is however high. In fact, the complexity of the several biohumoral factors involved in this process is difficult to understand.

Another major problem is the consequent organ failure, which grows in a sequential way and in relation with the lesion gravity and

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the functional reserves of the patient. The volume presents the most recent results of research in this field.

The Update compiles the most recent, widespread developments of experimental and clinical research and practice in one comprehensive

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reference book. The chapters are written by well recognized experts in the field of intensive care and emergency medicine. It is addressed to every one involved in internal medicine, anesthesia, surgery, pediatrics, intensive care and emergency medicine.

File Type PDF Orthogonal Polarization Spectral Imaging A New Tool For

This book covers virtually all aspects of image formation in medical imaging, including systems based on ionizing radiation (x-rays, gamma rays) and non-ionizing techniques (ultrasound, optical, thermal, magnetic resonance, and magnetic

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particle imaging) alike. In addition, it discusses the development and application of computer-aided detection and diagnosis (CAD) systems in medical imaging. Also there will be a special track on computer-aided diagnosis on COVID-19 by CT and X-rays images.

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Given its coverage, the book provides both a forum and valuable resource for researchers involved in image formation, experimental methods, image performance, segmentation, pattern recognition, feature extraction, classifier design, machine learning / deep learning, radiomics,

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CAD workstation design, human-computer interaction, databases, and performance evaluation.

Human Microcirculation

Microscopes represent tools of the utmost importance for a wide range of disciplines. Without them, it would

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It has been impossible to stand where we stand today in terms of understanding the structure and functions of organelles and cells, tissue composition and metabolism, or the causes behind various pathologies and their progression. Our knowledge on basic and

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Advanced materials is also intimately intertwined to the realm of microscopy, and progress in key fields of micro- and nanotechnologies critically depends on high-resolution imaging systems. This volume includes a series of chapters that address highly significant scientific

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subjects from diverse areas of microscopy and analysis.

Authoritative voices in their fields present in this volume their work or review recent trends, concepts, and applications, in a manner that is accessible to a broad readership audience from both within and

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Adopting a multidisciplinary approach with input from physicists, researchers and medical professionals, this is the first book to introduce many different technical approaches for the visualization of

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microcirculation, including laser Doppler and laser speckle, optical coherence tomography and photoacoustic tomography. It covers everything from basic research to medical applications, providing the technical details while also outlining the respective strengths and

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weaknesses of each imaging technique. Edited by an international team of top experts, this is the ultimate handbook for every clinician and researcher relying on microcirculation imaging.

This book introduces the optical multi-

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band imaging polarization theory and the utilization of the multi-band polarimetric information for detecting the camouflage object and the optical hidden marker, and enhancing the visibility in bad weather and water. The book describes systematically and in detail

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the basic optical polarimetry theory; provides abundant multi-band polarimetric imaging experiment data; and indicates practical evaluation methods for designing the multi-band polarization imager, for analyzing and modeling the object's multi-band polarization

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characteristics, and for enhancing the vision performance in scattering media. This book shows the latest research results of multi-band polarimetric vision, especially in camouflage object detection, optical hidden marker detection and multi-band polarimetric imagery fusion.

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From this book, readers can get a complete understanding about multi-band polarimetric imaging and its application in different vision tasks.

Human Microcirculation

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