

SARATOV FALL MEETING XXV

27 SEPTEMBER – 1 OCTOBER, 2021, Saratov, Russia



Invited Speakers



ESTIMATION OF THE SPECTRAL OPTICAL PROPERTIES OF RABBIT PANCREAS AND BRAIN CORTEX FROM THE UV TO NIR

Luís Oliveira

Polytechnic of Porto - School of Engineering, Portugal



RAMAN SPECTROSCOPY FOR LIVE EARLY MAMMALIAN EMBRYOS: OPTIMIZATION OF EXPERIMENTAL CONDITIONS AND SELECTION OF THE ESTIMATION CRITERIA

Elena Perevedentseva

National Dong Hwa University, Hualien, Taiwan, P.N.
Lebedev Physics Institute of Rus. Acad. Sci., Moscow, Russia



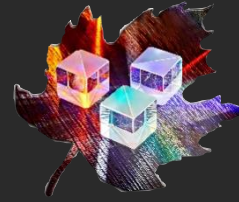
FLUORESCENCE GUIDED PROCEDURES AND PHOTODYNAMIC THERAPY IN NEUROSURGERY

Ronald Sroka

LIFE-Center at Department of Urology at Hospital of University of Munich, Munich, Germany

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NOVEL DESIGNS AND INGAAS-BASED MATERIALS FOR EFFICIENT THZ DETECTION

Dmitry S. Ponomarev

Institute of Ultra High Frequency Semiconductor Electronics of RAS, Moscow, Russia



PHOTONIC AND ACOUSTIC TOOLS FOR THERANOSTICS

Dmitry A. Gorin

Skolkovo Institute of Science and Technology, Skoltech, Moscow, Russia



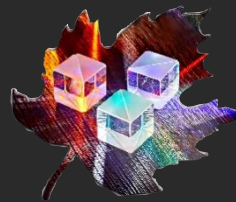
IDENTIFICATION OF NON-COMMUNICABLE DISEASES WITH RAMAN-BASED OPTICAL AND LIQUID BIOPSY

Ivan A. Bratchenko

Samara National Research University, Samara, Russia

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APPLICATION OF OPTICAL COHERENCE
ELASTOGRAPHY TO CHARACTERIZE
ELASTIC PROPERTIES OF HUMAN
PERICARDIUM SAMPLES USED FOR
FABRICATION OF CARDIAC-VALVE
PROSTHESES

Vladimir Y. Zaitsev

Institute of Applied Physics RAS, Nizhniy
Novgorod, Russia



BREATHOMICS USING LASER PHOTO-
ACOUSTIC SPECTROSCOPY AND MACHINE
LEARNING

Yury V. Kistenev

Tomsk State University, Tomsk, Russia



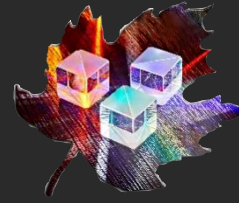
INTRAMOLECULAR H-BOND
DYNAMICS INVESTIGATED BY THZ
HIGH-RESOLUTION SPECTROSCOPY

Arnaud Cuisset

LPCA, Laboratoire de Physico-Chimie
de l'Atmosphère, Université du Littoral
Côte d'Opale, Dunkerque, France

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BIOPHOTONICS STUDY OF CELLS
INTERACTION IN BLOOD UNDER
NORMAL AND PATHOLOGICAL
CONDITIONS

Alexander V. Priezzhev

M.V. Lomonosov Moscow State
University, Moscow, Russia



MICRORHEOLOGIC AND MICROCIRCULATION
PARAMETERS OF BLOOD CHARACTERISTIC OF
PATIENTS SUFFERING FROM
CARDIOVASCULAR DISEASES

Andrei E. Lugovtsov

M.V. Lomonosov Moscow State University,
Moscow, Russia



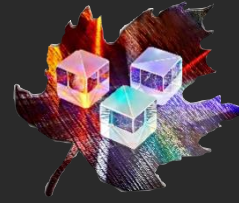
FUNCTIONAL NEAR-INFRARED
SPECTROSCOPY BRAIN RESEARCH IN
CLINICAL SETTING

Teemu Myllylä

Research Unit of Medical Imaging, Physics
and Technology, University of Oulu, Finland

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**FROM MILLIMETERS TO NANOMETERS –
REDUCING THE SCALE IN MICROSCOPY**

Herbert Schneckenburger

Aalen University, Aalen, Germany



THE BIOLOGICAL EFFECTS OF THZ RADIATION

Olga P. Cherkasova

Institute of Laser Physics SB RAS, Russia
Institute on Laser and Information Technologies -
Branch of the Federal Scientific Research Centre
"Crystallography and Photonics" of RAS, Russia



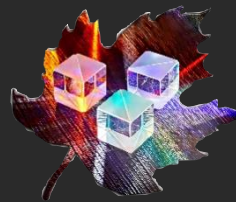
**PROSPECTS OF TERAHERTZ TECHNOLOGY
IN DIAGNOSIS OF HUMAN BRAIN
TUMORS**

Kirill I. Zaytsev

Prokhorov General Physics Institute of
RAS, Russia; Bauman Moscow State
Technical University, Russia; Institute for
Regenerative Medicine, Sechenov
University, Russia

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SAPPHIRE SHAPED CRYSTALS FOR OPTICAL DIAGNOSIS, THERAPY AND SURGERY OF TISSUES

Irina N. Dolganova

Institute of Solid State Physics of RAS, Russia; Institute for Regenerative Medicine, Sechenov University, Russia
Bauman Moscow State Technical University, Russia



APPLICATIONS OF THE SHAPED SAPPHIRE IN THZ-WAVE DELIVERY AND SUPER-RESOLUTION IMAGING

Gleb M. Katyba

Institute of Solid State Physics of RAS, Russia; Prokhorov General Physics Institute of RAS, Russia; Bauman Moscow State Technical University, Russia



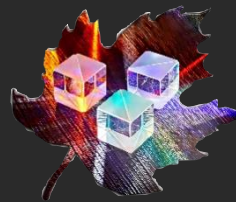
TERAHERTZ AND OPTICAL PROPERTIES OF CARBON NANOTUBES AND THEIR HETEROSTRUCTURES

Maria G Burdanova

Center for Photonics and 2D Materials, Moscow Institute of Physics and Technology, Dolgoprudny, Russia; Department of Physics, University of Warwick

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BIODEGRADATION: A NOVEL CHALLENGE FOR BIOPHOTONICS

Peter S. Timashev

Institute for Regenerative Medicine, Sechenov University, Russia; Department of Polymers and Composites, N.N. Semenov Institute of Chemical Physics of RAS, Russia; Institute of Photonic Technologies, Research Center "Crystallography and Photonics" of RAS, Russia



MID-IR SOLID-STATE LASER SOURCES FOR MEDICAL APPLICATIONS

Mikhail K Tarabrin

Bauman Moscow State Technical University, Russia; P.N. Lebedev Physical Institute of RAS, Russia; Novosibirsk State University, Novosibirsk



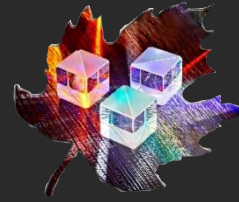
STANDARD OF UP-CONVERSION LUMINESCENCE BASED ON BARIUM FLUORIDE DOPED YTTERBIUM AND ERBIUM

Sergey Kuznetsov

Prokhorov General Physics Institute of RAS, Russia

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**VISUALIZATION OF THE 3D SUB-MICRON
STRUCTURE OF BIOMEDICAL OBJECTS
WITH NANO-SENSITIVITY TO STRUCTURAL
ALTERATIONS**

Sergey A. Alexandrov

National University of Ireland in Galway,
Ireland



**NON-INVASIVE HYPERSPECTRAL MULTI-
DISTANCE MEASUREMENTS OF CEREBRAL
RESPONSE TO BREATH HOLDING IN ADULT
HUMANS**

Vladislav Toronov

Ryerson University and Institute of Biomedical
Engineering, Science and Technology (iBEST), Li
Ka-Shing Knowledge Institute, Toronto, Canada



**METHODOLOGY OF MICROCIRCULATORY-
TISSUE SYSTEMS MULTIMODAL OPTICAL
DIAGNOSTICS**

Andrey Dunaev,

Orel State University, Russia

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PHOTODYNAMIC INACTIVATION OF DORMANT FORMS OF NON-SPORULATING BACTERIA DUE TO ENDOGENOUS PORPHYRINS

Alexander P. Savitsky

Federal Research Centre 'Fundamentals of Biotechnology' of the Russian Academy of Sciences, A. N. Bach Institute of Biochemistry, Moscow, Russia



RAPID *IN VIVO* RAMAN SPECTROSCOPY FOR NON-INVASIVE SKIN CANCER DETECTION

Haishan Zeng

University of British Columbia, Vancouver, BC, Canada



BIOMEDICAL OPTOACOUSTICS: FROM IDEA TO IMAGING AND THERAPY

Rinat O. Esenaliev

University of Texas Medical Branch, Galveston, Texas, USA

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YIN AND YANG OF NANOPARTICLES ON THE EXAMPLE OF QUANTUM DOTS APPLICATION IN BIOMEDICAL RESEARCH

Elena Kornilova

Institute of Cytology RAS, St.Petersburg, Russia



MESOSCOPIC EARLY-PHOTON FLUORESCENCE MOLECULAR LIFETIME TOMOGRAPHY: FIRST EXPERIMENTAL RESULTS

Alexander B. Konovalov

Federal State Unitary Enterprise “Russian Federal Nuclear Center – Zababakhin All-Russia Research Institute of Technical Physics,” Snezhinsk; Bach Institute of Biochemistry, Research Center of Biotechnology of the Russian Academy of Science, Moscow, Russia



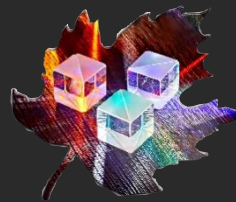
COMPUTATIONAL OPTICAL CLEARING: A NEW TOOL FOR MEASURING HIDDEN CHROMOPHORES IN SKIN ESTIMATE HIDDEN CHROMOPHORE CONTENT

Mohammad Ali Ansari

Laser and Plasma Research Institute, Shahid Beheshti University, Tehran, Iran

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STUDYING ALTERNATING-SIGN STRAIN FIELDS DURING OPTICAL CLEARING OF BIOLOGICAL TISSUES BY OPTICAL COHERENCE ELASTOGRAPHY

Yulia A. Alexandrovskaya

Institute of Photon Technologies, Federal Scientific Research Center “Crystallography and Photonics”, Russian Academy of Sciences, Troitsk, Moscow, Russia



DUAL-WAVELENGTH FLUORESCENCE MONITORING OF PHOTODYNAMIC THERAPY: FROM ANALYTICAL MODELS TO IN VIVO STUDIES

Mikhail Yu. Kirillin

Institute of Applied Physics RAS, Nizhny Novgorod, Russia



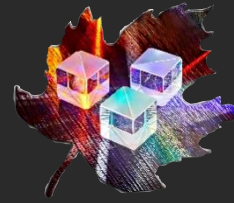
IN VIVO MEASUREMENT OF DNA IN THE SKIN USING CONFOCAL RAMAN MICROSCOPY: DETERMINATION OF THE STRATUM CORNEUM THICKNESS AND SUPERFICIAL MICROBIOME

Maxim E. Darvin

Charité – Universitätsmedizin Berlin, Germany

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**OPTICAL COHERENCE TOMOGRAPHY
FOR OTITIS MEDIA DIAGNOSTICS**

Pavel A. Shilyagin

Institute of Applied Physics of RAS,
Nizhny Novgorod, Russia



**RIGOROUS FULL-WAVE DESCRIPTION OF OCT-
SCAN FORMATION BASED ON BALLISTIC
SCATTERING OF ARBITRARY-PROFILE BEAMS FOR
SIMULATION OF MULTIMODAL OCT**

Lev A. Matveev

Federal research center Institute of Applied
Physics of the Russian Academy of Sciences,
Nizhny Novgorod, Russia



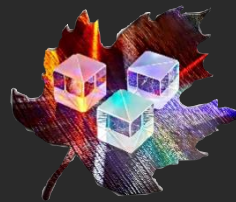
**«SMART ARDOR»: SELECTIVE LOW-
POWER IR-LASER ACTIVATION OF
CONFORMATIONAL DNA
TRANSFORMATIONS IN BACTERIA FOR
DESINFECTION AND STERILIZATION**

Sergey I. Kudryashov

Lebedev Physical Institute, Russian
Academy of Sciences; V.M. Gorbатов
Federal Scientific Center for Food
Systems, Russian Academy of Sciences,
Moscow, Russia

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**LASER ABLATION AND
FRAGMENTATION OF NANO- AND
MICROSTRUCTURED SILICON TOWARDS
DESIGNING NANOPARTICLES FOR
BIOPHOTONICS**

Stanislav V. Zobotnov

Lomonosov Moscow State University,
Faculty of Physics, Moscow, Russia



**THE PROPAGATION OF OPTICAL RADIATION AND
THERMAL FIELD IN CELL CULTURE MEDIA**

Viktor Dremine

R&D Center of Biomedical Photonics, Orel State
University, Orel, Russia; College of Engineering and
Physical Sciences, Aston University, Birmingham, UK



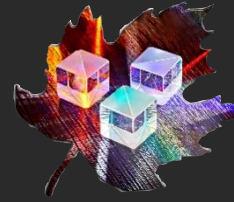
**NON-TRADITIONAL FLUOROPHORES IN
THE HUMAN ORGANISM, THEIR
ORIGIN AND APPLICATIONS**

Evgeny Shirshin

M.V. Lomonosov Moscow State
University, Moscow, Russia

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**ASPECT IMAGING COMPACT:
ADVANTAGES OF THE COMPACT
PERMANENT PRECLINICAL MRI**

Kobi Katsobashvili

Aspect Imaging LTD., Shoham, Israel



**DYNAMICS AND HEATING OF THE HIGH-POWER
PULSE-PUMPED QUANTUM-CASCADE LASERS**

Grigorii Sokolovskii

A.F. Ioffe Physico-Technical Institute of the RAS,
St. Petersburg, Russia



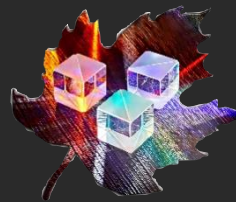
**CEREBRAL MICROCIRCULATION
HETEROGENEITY AT INTRACRANIAL
HYPERTENSION**

Denis E. Bragin

Lovelace Biomedical Research Institute,
University of New Mexico School of
Medicine, Albuquerque, USA

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**OPTICAL COHERENCE TOMOGRAPHY
ANGIOGRAPHY AND ITS APPLICATIONS**

Ruikang Wang

University of Washington, Seattle, USA



**A MULTIMODAL APPROACH TO NON-
INVASIVE DIAGNOSIS OF BASAL CELL
CARCINOMA: A PILOT STUDY**

Elina A. Genina

Saratov State University, Saratov; National
Research Tomsk State University, Tomsk, Russia



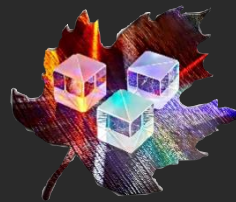
**GAP-ENHANCED RAMAN TAGS FOR
ANALYTICAL AND IMAGING
APPLICATIONS**

Boris N. Khlebtsov

Institute of Biochemistry and Physiology of
Plants and Microorganisms, Saratov,
Russia

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FIBER PHOTONICS FOR BIOMED
APPLICATIONS IN 0.3-16 μ M RANGE

Viacheslav Artyushenko

art photonics GmbH, Berlin, Germany



TRITOM - A MULTIMODALITY IMAGING PLATFORM
FOR VOLUMETRIC MOLECULAR ASSESSMENT OF
MURINE MODELS

Sergey Ermilov

PhotoSound Technologies, Inc., USA



SPECIALIZED FLUORESCENCE
MICROSCOPY FOR HIGH-
RESOLUTION IMAGING OF LARGE
BIOLOGICAL SAMPLES

Alexander Sychevskij,

Biocommerce Ltd., Russia