19-th Asia-Pacific Conference on Fundamental Problems of Opto- and Microelectronics

CONFERENCE HANDBOOK

Organizers:

Hainan University, P.R. of China

Institute for Automation and Control Processes, Far Eastern Branch of Russian Academy of Sciences, Russia

Dalian University of Technology, China

Welcome to APCOM 2019

Asia-Pacific conferences on "Fundamental Problems of Opto- and Microelectronics (APCOM)" started in 2000. Russia, China, Korea, Japan and Taiwan have been taking turns hosting this great event. APCOM 2019 will be held in Hainan, P.R. of China at Haikou Campus, Hainan University, from 23 through 24 of November this year. Haikou is the capital of Hainan Province while it is also the biggest city on the Hainan island. The weather here is pretty pleasant. You could either go visit the flower markets or enjoy the delicious seafood.

APCOM 2019 will continue previously opened discussions on recent achievements in the development of optoelectronic, electronic and microelectronics systems, methods and devices for communication, measuring and sensory systems and networks, their application in life-sciences, bio- medicine, social welfare, industrial facilities, including structural health monitoring, etc., as well as technologies for development of new materials and structures and new principles and methods for information processing.

Topics of APCOM 2019

include but not limited to

◊ Optoelectronic sensory and measurement systems
◊ Optoelectronics for medicine and life sciences
◊ Optoelectronics for structural health monitoring
◊ New materials and structures for photonics
◊ Micro and nanotechnologies for optoelectronics
◊ Optical information and data processing
◊ Microelectronics sensory and control systems
◊ Optoelectronics for smart material and structure

Conference chairs

Prof. Zhi ZHOU, Chair,
Dean, School of Civil Engineering and Architecture, Hainan University, Haikou, Hainan, P.R. of China

Prof. Yuri KULCHIN, Co-Chair, Academician of Russian Academy of Sciences (RAS), Vice-President of Far Eastern Branch of RAS (FEB RAS), Scientific Director of Institute for Automation and Control Processes (IACP) FEB RAS, Vladivostok, Russia

Prof. Yoshio NIKAWA, Co-Chair, Dean, School of Science and Engineering, Kokushikan University, Tokyo, Japan **Prof. Roman ROMASHKO,** Co-Chair, Corresponding Member of RAS, Acting Director of Institute for Automation and Control Processes FEB RAS, Vladivostok, Russia

APCOM 2019 International Program Committee

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Keynote Speaker

Academician Yu.N. Kulchin

Institute of automatic and control processes of the FEB RAS, Vladivostok, Russia

Topic: Optogenetics of Plants

Abstract:

Currently, Photonics is considered as a priority direction for the development of science and technology in many leading countries of the world, including Russia, as it serves as a key element for solving many social problems: from energy generation and its effective use to ensuring public health, security, adequate response to climate change, etc. Today Photonics actively penetrates into chemistry, biology, medicine, engineering, which led to the development of new technologies for the creation of optical materials, the discovery of new optical phenomena and effects, which formed the basis for the creation of fundamentally new elements, devices and systems. However, despite the impressive achievements, significant progress in the development and use of Photonics achievements has been observed only in the last three to four decades. At the same time, in Nature, living matter has long been using the energy of solar radiation to form and ensure the life of biological objects, without increased requirements for raw materials and energy processes and extreme technological conditions. Light is one of the important factors needed for photosynthesis and plant development. In addition, light has a direct effect on growth, on many differentiation processes in cells and tissues, and on organ formation itself. By controlling the parameters and characteristics of light, it is possible to influence the efficiency of the plant growth process and their storage of nutrients [1, 2]. In practice, this is important for the successful cultivation of cultivated and agricultural plants, for example, in the maintenance of greenhouses and greenhouses, since the correct organization of illumination of cultivated plants will contribute to better growth and development of plants and increase their productivity. The main characteristics of light in the production of chlorophyll and control the process of morphogenesis are considered spectral composition, intensity, daily and seasonal dynamics. Taking into account the needs of plants in a certain spectral composition of light is necessary with the correct selection of artificial lighting sources. But there is still no answer to such questions as what happens to protein and hormone metabolism under the influence of different lighting. The purpose of this report is to consider from a unified perspective these extremely important issues for the improvement of technologies for growing plants in protected soil.

Keynote Speaker

Prof. Mingshan Zhao

School of Optoelectronic Engineering and Instrumentation Science

Topic: Demands and Challenges in Integrated Microwave photonics

Abstract:

Microwave photonics (MWP) has attracted great interest from both the research community and the industry sector over the past 30 years. Current MWP systems have mainly relied on discrete optoelectronic devices and modules, which are bulky, expensive and power consuming while lacking in flexibility. Integrated microwave photonics (IMWP) is an emerging area of research in MWP, which takes advantage of photonic integration techniques to combine the basic building blocks on a single chip or in a compact package, and has great potential to address critical issues of size, weight, and power consumption. In this talk, a brief review of demands and recent advances of IMWP will be presented. Challenges in IMWP research and engineering applications will also be discussed.

Biography:

Mingshan Zhao received the Ph.D. degree in Photonics at the faculty of Engineering Sciences from Ghent University, Belgium in 2003. Since 2004, he has been a full professor in Photonics at Dalian University of Technology where he founded the Photonics Research Center. From 2007 to 2009, he was the Head of Scientific Research Department at Dalian University of Technology. He was the Dean of School of Physics and Optoelectronic Engineering, Dalian University of Technology, from 2009 to 2017. Mingshan Zhao has mainly worked in the field of microwave photonics and integrated photonics. He has been the author and/or co-author of 120 international journal papers as well as of more than 50 papers published in conference proceedings. As part of a team of 6 professors or associate professors and 30 graduated students, Prof. Mingshan Zhao leads the Photonics Research Center. He has been involved in numerous (inter)national research programs.

Invited Speaker

Prof. Alexei A. Kamshilin
ITMO University, St. Petersburg, Russia

Topic: Camera-based assessment of microcirculation in-vivo: Physiological mechanism and applications

Abstract:
In this talk, I will present recent advances in a camera-based optoelectronic system referred to as imaging photoplethysmography (IPPG) for assessment of the blood circulation in microvessels in-vivo. Special attention will be paid for discussion an optical-physiological model of light interaction with live tissue containing blood vessels. Recent experimental results demonstrating capability to estimate cerebral vascular tone will be presented. Other applications of an advanced IPPG system including capillary visualization in any area of the body, assessment vascular reactivity in arms and legs, monitoring local thermal impact in the face, and monitoring influence of capsaicin topical application on blood perfusion will be also presented.

Biography:
Prof. Alexei A. Kamshilin received the M.D. degree from Leningrad State University and the Ph.D. degree from the A.F. Ioffe Physical Technical Institute, Leningrad, USSR, in 1974 and 1982, respectively. His academic carrier started in 1974 in Russia, continued in Brazil, from 1990 to 1992, and then in Finland where he was researching and teaching in different universities from 1992 to 2014. Since 2014, he has been a Professor with the ITMO University, Saint Petersburg, Russia. His research interest includes nonlinear and coherent optics, optical image processing, photorefractive and photogalvanic effects, optical sensors technology, and adaptive interferometry and multispectral imaging for biomedical and industrial applications. He has published more than 250 papers in peer-reviewed journals, one monograph, and awarded by 17 patents. His Hi-index is 23.

Prof. Stanislav M. Shandarov

Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia

Topic: Bragg diffraction of light beams on regular domain structures in uniaxial ferroelectric crystals

Abstract:

We present the results of experimental study and theoretical analysis of Bragg diffraction of Gaussian beam on regular domain structures (RDS) with 180° domain walls which can be inclined or non-inclined to the polar axis of uniaxial ferroelectric crystals. The RDS with domain walls of first kind attract widespread attention for new applications because they are charged and characterized by a giant two-dimensional conductivity [1]. It is shown that the inclined domain walls in absence of an external field create the periodic perturbations of optical properties in the crystal, which cause a splitting of the pattern for the Bragg diffraction maxima with orders of 1 and 3, 4, 5 … into two peaks at the using of probing Gaussian light beam. The measuring of spacing between these peaks enables the tilt angle to be estimated quantitatively. It was determined experimentally that the RDS sample in a 5% MgO:LiNbO3 crystal has the walls inclined through an angle $\alpha = \pm 0.31°$ about the polar axis. That means, they are electrically charged, while for RDS in the 1%MgO:LiTaO3 and KTiOPO4 crystals an inclination of the walls has not been observed and they are neutral. Theoretical consideration revealed that light field in two spots relating to Bragg maximum of first order are opposite in phase. On the contrary, the Bragg diffraction on electro-optically induced perturbation of refractive index, which is observed in presence of external voltage in the case of RDS with inclined walls, created one spot only in the maximum of first order. Because of that, in the experiment we observed in an applied sinusoidal voltage with frequency f the time evolution of light intensity for diffracted beam described as the superposition of spectral components with frequencies nf, where n = 0, 1 and 2 as well as the time dependent spatial redistribution of light intensity in Bragg maximum of first order.

Prof. Yongkang Dong
Harbin Institute of Technology

Topic: Ultra-fast distributed Brillouin optical fiber sensing for dynamic strain measurement

Abstract:

Recently, distributed optical fiber sensor systems based on Brillouin scattering have been extensively studied and discussed for structural health monitoring in diverse fields because they have the capacity for measuring the distributed strain and temperature. In several optical fiber sensing schemes, Brillouin optical time domain analysis (BOTDA) is widely concerned due to its good SNR, high spatial resolution and long-range sensing distance. However, due to the time-consuming averaging and frequency-sweeping processes, the classical BOTDA system is suitable for static or slow-varying strain measurements. In this paper, based on analyzing the operation principle of BOTDA, some main limiting factors for fast measurement are discussed. Then, some latest methods of dynamic measurement based on fast BOTDA are summarized and analyzed, including polarization compensation technique, frequency-agile technique, slope-assisted method, optical chirp chain technique, optical frequency comb technique.

Biography:

Prof. Yongkang Dong was admitted into HIT in 1999 majored in Physical Electronics and received his bachelor and Ph.D. degree in 2003 and 2008, respectively. During 2008 to 2011, he was working as a Post-Doctoral Fellow in the Physics Department, University of Ottawa, Canada. In 2012, he re-joined HIT as a full professor. His current research interests involve nonlinear fiber optics and Brillouin scattering based optical fiber sensor and its applications in structural health monitoring. He has authored and coauthored more than 80 international journal papers. He is the recipient of the First Prize in Provincial Natural Science Award (2013), the Innovation Award of Chinese Society for Optical Engineering (2015), and the First Prize in Provincial Science and Technology Progress Award (2017). He is now the Chief Scientist of the National Key Scientific Instrument and Equipment Development Project of China.

Prof. Roman V. Romashko

Institute of Automation and Control Processes, FEB RAS, Radio st. 5, Vladivostok, Russia

Topic: Adaptive laser interferometry in acoustic measurements

Abstract:

In this paper we review the results of our long-term study which is devoted to application of adaptive interferometry technique based on multi-wave mixing at dynamic holograms recorded in photorefractive crystal for the tasks of acoustics measurements. Different schemes of adaptive holographic interferometers based on two-wave, three-wave and multi-wave mixing in a photorefractive crystal of cubic symmetry as well as based on using different type of primary sensors are presented. Results of application of the adaptive interferometry technique for such practical applications as air acoustic measurements, structural health monitoring, hydroacoustic measurements, etc. are considered.

Biography:

Roman V. ROMASHKO received his M.Sc. degree from the Moscow Engineering Physics Institute, Moscow, Russia, in 1995, and his Ph.D. from the Far-Eastern National Technical University, Vladivostok, Russia, in 2002. During 2004-2009 he was visiting researcher at the University of Eastern Finland and at the Korea Electronics Technology Institute where he works on adaptive interferometry and holographic systems for weak signal detection in industrial environment. Since 2004 he works at the Institute of Automation and Control Processes (IACP), FEB RAS, Vladivostok, Russia, where he received his D.Sc. degree in laser physics in 2010. Since 2010 he is Professor in the School of Natural Sciences, Far-Eastern Federal University, and since 2019 he is director of IACP FEB RAS. In 2016 he was elected as a Corresponding Member of Russian Academy of Sciences. His research interest includes optical measurement and sensory systems, holography and interferometry, photonics, and optical information processing. He is author of more than 280 scientific papers, including 1 monography and 12 patents.

Prof. Aimin Wang

State Key Laboratory of Marine Resource Utilization in South China Sea, Ocean College, Hainan University

Topic: The Practice and Development of Modern Marine Ranching in China

Abstract:

Modern Marine Ranching (MMR) is an artificial fishery farm established for the planned cultivation and management of fishery resources in a specific sea area. Based on the principles of marine ecology and modern marine engineering technology, it is an artificial fishery formed by making full use of natural productivity and scientific cultivation and management of fishery resources. Artificial reef is the key facility of MMR construction. According to the construction plan (2020-2030) of MMR in Hainan Province, 46 sites are planned to be located in the coastal area of Hainan Island and the sea area of Sansha islands, including 20 for conservation and 26 for leisure; 31128 hectares for MMR , including 13593 hectares for conservation and 17535 hectares for fishery leisure. By the end of 2018, the tropical MMR in Wuzhizhou island,Sanya, had completed a total investment of nearly 40 million yuan (RMB), put in 1442 artificial fish reefs, with a total of 41500 square meters, and established a set of underwater monitoring system. This MMR is markedly playing the ecological effect of protecting the marine ecological environment and restoring fishery resources.

Biography:

Aimin Wang received the Ph.D degree in Shanghai Ocean University at Aquaculture. He is a professor of Aquaculture, doctoral supervisor of Hydrobiology, master supervisor of aquaculture and fishery in Ocean College of Hainan University, and a PI of marine ranching team of the State Key Laboratory of marine resources utilization in the South China Sea. He lead in building the first tropical marine ranching in Sanya Wuzhizhou island at Hainan. He presided over the national key research and development plan （863，973）, National Natural Science Foundation Project and other projects, obtained 25 invention patents and published 120 papers (65 of which were included in SCI).

He is a member of the marine ranching construction advisory expert committee of the Ministry of Agriculture and Rural Affairs of the People's Republic of China, and vice chairman of the Marine Ranching Construction Expert Advisory Committee of Hainan Province.

Dr. A.V. Belaventseva

Institute of Automation and Control Processes FEB RAS, Vladivostok, Russia

Topic: Application of imaging photoplethysmography for study the blood-vascular system performance in limbs under pressure occlusion

Abstract:

Currently laser Doppler flowmetry and impedance plethysmography are common used techniques for assessment of the response of the human blood-vascular system behavior. In our paper we present experimental results of application of alternative approach based on using optical non-contact blood pulsation imaging (BPI) under incoherent green illumination for studying a response of the human blood-vascular system under occlusion pressure in limbs. This approach allows assessment of the cutaneous blood flow changes caused by varying occlusion pressure simultaneously in different areas of the body. It was found out, that the circulatory system responds to the pressure as a whole. The reaction of the blood-vascular system on occlusion is appeared in even in those areas which were not been effected.

Biography:

Angelica V. Belaventseva received her M.Sc. degree in quantum and optical electronics from the Far Eastern Federal University, Vladivostok, Russia, in 2015. She is junior research fellow of Laboratory of precision optical measurement methods of the Institute of Automation and Control Processes, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, Russia. Her research interest includes optical and laser technologies for biomedical applications, optical data processing.

Prof. Youliang Zhang

School of Civil Engineering and Architecture, Hainan University, Hainan, China

Topic: Parallel Asynchronous Evolution Algorithm in Engineering Optimization Problems

Abstract:

Engineering problems usually require the selection of accurate parameter values based on laboratory or field tests. This is often an arduous task due to lack of good quality experimental data, cost of lengthy laboratory testing campaigns, difficulties in the interpretation of test results and unavailability of well-established calibration methods. In-situ techniques are usually preferred to laboratory tests as they offer a quicker and less expensive alternative while overcoming limitations associated to the potential disturbance of the samples retrieved from the field. In this context, the paper presents some work carried out within a wider project to devise a methodology for the identification model parameter values through the optimization technique. In particular, a parallel asynchronous differential evolution algorithm using a client-server model is proposed. A validation example is also presented, which demonstrates the ability of the algorithm to identify up to eight parameters simultaneously.

Biography:

Professor Youliang ZHANG was awarded his Ph.D. degree in 2003 from Institute of Rock and Soil Mechanics, Chinese Academy of Sciences, China. During 2004 – 2009, he worked as a research fellow in Durham University, UK. His research interests include parallel evolution algorithm, finite element method in coupled problems, and numerical manifold method in fractured rock mechanics. He has undertaken more than ten projects including Chinese 973 and NSFC, National Key Technology R&D Program. Also，he has published about 40 peer-reviewed papers.

Dr. A. Zhizhchenko

Institute of Automation and Control Processes, Vladivostok, Russia

Topic: Precise ablation of halide perovskite films with femtosecond laser pulses

Abstract:

Light-emitting active nanophotonics based on resonant nanostructures and metasurfaces made of semiconductors have become an active direction for the creation of multifuctional designs for light manipulation at subwavelength scale via structural coloration, photoluminescence, and lasing. At the same time, halide perovskites are a prospective class of light-emitting materials providing optical contrast that is high enough to support resonances in broad spectral range. Although perovskites allow for their low cost synthesis and subsequent thin films deposition, their nanostructuring is limited to their sensitivity to various chemicals. Moreover, precise partial removal of perovskite material would provide an additional degree of freedom for designing advanced perovskite-based photonic devices. Here, we develop a novel strategy for nanopatterning of metal-halide perovskite films by femtosecond-laser projection lithography with precise control over lateral size and depth of formed nano- and micro-features achieved via careful laser beam engineering and optimized multi-pulse ablation regime. Ultrafast deposition of laser energy ensures precise direct laser ablation, allowing to passivate grain surfaces and thus preserve, and even improve, luminescent properties of the patterned material. Remarkable performance of the developed approach allows us to demonstrate a number of advanced optical applications, including morphology-controlled photoluminescence yield, structural coloring, optical-information encryption, and lasing.

Biography:

Alexey Zhizhchenko got Ph.D. in 2015 from Institute of Automation and Control Processes, Russia. His main area of scientific interest includes optical fiber sensors, laser-matter interaction and laser micro- nano-texturing for surface wettability modification (superhydrophobic and superhydrophilic surfaces), fabrication of photonic and plasmonic structures used for chemical sensor applications. Since 2018 the mainstream of research is becoming femtosecond laser ablation of metal-halide hybrid perovskites for advanced photonic application. He has published more than 20 peer-reviewed papers.

Prof. Zhi Zhou

School of Civil Engineering and Architecture, Hainan University, Hainan, China

Topic: Smart Structures with built in Optical Fiber Sensor

Abstract:

With rapid growth of civil infrastructures, it has been significant to develop life-cycle monitoring of structures from their inception throughout construction, until final commission and elimination. This talk presents the latest progress on the built-in OFs materials, components, and integrated systems with functionality of self-sensing ability to detect any kind of changes occurring in structures being concerned. Moreover, case studies of project in China using existing developed components are also given. The integration of optical fiber sensors into material and component level ease and improve the structural health monitoring by detection of local and distributed damage with high accuracy throughout the lifespan of the structures.

Biography:

Professor Zhi ZHOU got Ph.D. in 2003 from Harbin Institute of Technology, China. Since 1999, he has been active on R&D of optical fiber sensors for Structural Health Monitoring (SHM) of civil infrastructures. Up to date，more than 50 case studies of SHM using optical fiber sensors have been carried out under his leadership. He was the PI or key member of participants of more than 30 projects including Chinese 973, 863 or NSFC, National Key Technology R&D Program. Also，he has published more than 100 peer-reviewed papers and been awarded more than 20 patents.

Prof. Wanqiu Liu

School of Civil Engineering and Architecture, Hainan University, Hainan, China

Title: Multi-Level Performance Evaluation for Pavement Structure based on Optical Fiber Sensing Techniques

Abstract:

It is a big step forward in asphalt pavement design, construction and maintenance technologies in China, since the alligator and net-shaped cracking dominated pavement premature failure has been well controlled. However, the increasing of rutting and reflected cracking dominated premature failure has proved that the problem has not been totally solved. Due to the complexity of the characteristics of asphalt materials, such as viscoelasticity, temperature sensitivity, and aging effects, the performance of HMA mixture in pavement structure is hard to be predicted. This paper introduces our research on developing multi-level pavement structural performance monitoring and material evaluation tools for understanding the mechanism of pavement diseases. Optical fiber sensing techniques have been adopted to developed pavement structural cracking and continuous deformation monitoring. New lab test equipment and methods have been designed to study the high and low temperature performances of pavement materials.

Biography:

Wanqiu Liu received her PHD in the program of Infrastructure and Environmental System from University of North Carolina at Charlotte. She received both her MS and BS degree from Engineering mechanics of Dalian University of Technology of China. She has been the chair of pavement inspection and maintenance committee of WTC, the young committee member of TRB, member of SPIE, SEM and Chi epsilon. She has been selected as the Xinghai Scholar of DUT for two terms and top-notch talent in Hainan province. Research interests include structural health monitoring, remote sensing, computational mechanics, and design optimization.

Conference Information

Conference Roon

The main conference room is located on Sanya Salon of Novotel Hotel.

9:30-18:00 ..... Nov 24

Exhibition & poster session

The exhibition booths and poster session board will be open on the Sanya Salon of Novotel Hotel.

9:30-18:00 ..... Nov 24

Presentation instructions presentation sessions

1. All presentations should be give in **English.**
2. All oral presentations should be within **20 min.**
3. Supported presentation file formats include Microsoft Powerpoint**(.ppt or .pptx),** Microsoft Word**(.doc or .docx)** and Adobe Acrobat**(.pdf).**
4. All files should be import into the computer **10 min** prior to the beginning of the session.
5. If you want to use your computers to present, please check the compatibility with the provided projector befor the oral begins.

Poster session

1. All posters presentations should be prepared in **English.**
2. Please report to Information Center on the first floor.
3. You can popularize your researches during the coffee break, lunch time and your free time.

Agenda of APCOM2019

		Nov.24 (Location Sanya Salon)	
		Sunday	
	9:30-10:00	Opening Ceremony	Exhibition & Poster Session location：Sanya Salon
	10:00-10:30	Photo & Coffee Break	
	10:30-11:00	Keynote Speech I： Academician Yu.N. Kulchin Optogenetics of Plants	
	11:00-11:30	Keynote Speech 2: Prof. Mingshan Zhao Demands and Challenges in Integrated Microwave photonics	
	11:30-11:50	Invited Speech 1 ： Prof. Alexei A. Kamshilin Camera-based assessment of microcirculation in-vivo: Physiological mechanism and applications	
	11:50-12:10	Invited Speech 2: Prof. Stanislav M. Shandarov Bragg diffraction of light beams on regular domain structures in uniaxial ferroelectric crystals	
	12:10-14:30	Lunch	
PM	14:30-14:50	Invited Speech 3: Prof. Yongkang Dong Ultra-fast distributed Brillouin optical fiber sensing for dynamic strain measurement	
	14:50-15:10	Invited Speech 4: Prof. Roman V. Romashko Adaptive laser interferometry in acoustic measurements	
	15:10-15:30	Invited Speech 5: Prof. Aimin Wang The Practice and Development of Modern Marine Ranching in China	
	15:30-15:50	Invited Speech 6: Dr. A.V. Belaventseva Application of imaging photoplethysmography for study the blood-vascular system performance in limbs under pressure occlusion	
	15:50-16:20	Coffee Break	
	16:20-16:40	Invited Speech 7: Youliang Zhang Parallel Asynchronous Evolution Algorithm in Engineering Optimization Problems	
	16:40-17:00	Invited Speech 8: Dr. A. Zhizhchenko Precise ablation of halide perovskite films with femtosecond laser pulses	
	17:00-17:20	Invited Speech 9: Prof. Zhi Zhou Smart Structures with built in Optical Fiber Sensor	
	17:20-17:40	Invited Speech10: Prof. Wanqiu Liu Multi-Level Performance Evaluation for Pavement Structure based on Optical Fiber Sensing Techniques	
	18:00-21:00	Reception party	

Poster Sessions Nov 24, 2019

Location: Sanya Salon

ID	Topic	Name Country/Area
1	Detection and Spatial Reconstruction Weak Acoustic Field in a Structural Material by Means of a 30-Channel Fiber-Optic Adaptive Measuring System	Mikhail N. Bezruk，Russia
2	Sensitivity analysis of adaptive holographic fiber-optic acoustic emission sensors on CdTe and Bi12SiO20 photorefractive crystals	Bashkov O.V., Romashko R.V., Bashkov I.O., Khun H.H., Russia
3	Vector-phase methods for processing of signal of laser adaptive hydroacoustic measuring system	Roman V. Romashko, Dmitriy V. Storozhenko, Mikhail N. Bezruk, Vladimir P. Dzyuba, Yury N. Kulchin, Russia
4	Laser Adaptive Hydroacoustic Vector-Phase Measurement System	Roman V. Romashko, Dmitry V. Storozhenko, Mikhail N. Bezruk, Nikolay V. Nikitin, Yury N. Kulchin, Russia
5	Dielectric resonator for a narrow-band matrix THz receiver	Roman V. Romashko, Dmitry V. Storozhenko, Vladimir P. Dzyuba, Russia
6	Modeling of resonance vibrations of micromechanical cantilevers in liquid media	Roman V. Romashko, Timofey T. Efimov, Evgeni A. Rassolov, Boris G. Andryukov, Russia
7	Non-steady-state photo-EMF sensor revealing the mechanical oscillations in diffuse-scattering media	Roman V. Romashko, Timofey A. Efimov, Evgeni A. Rassolov, Andrey M. Khananov, Russia
8	Cantilever Acoustic Sensor based on Adaptive holographic Interferometer	Roman V. Romashko, Timofey A. Efimov, Evgeni A. Rassolov, B.G.Andryukov, Russia
9	Two Channel Micromechanical cantilever-based biosensor	Aleksandr Sergeev, Russia
10	The enhancing of luminescent sensor response via photonic nanojet excitation in transmission and reflection mode	V.I. Krylov, I.N. Egorshin, Russia
11	Analysis of the cross-sections of bremsstrahlung caused by electron scattering on the coulomb centre placed in the stationary not uniform electric field	O. Y. Pikoul, N. V. Sidorov, N. A. Teplyakova, M. N. Palatnikov, Russia
12	Conoscopic analysis of anomalous optical biaxiality in lithium niobate single crystals	Anna Galkina, Roman Romashko, Der-Jang Liaw, Andrey Khananov, Jyh-Chiang Jiang, Russia
13	A new efficient luminescent chemosensor of gaseous amines based on photochromic complex materials	Roman V. Romashko, Timofey A. Efimov, Evgeni A. Rassolov, Russia
14	The Use of Distributed Optical Fiber Sensing Technique for Pavement Subgrade Performance Monitoring	Wanqiu Liu, Boshi Wang, Xijie Chen, Linhua Li, China
15	Life-cycle Monitoring, Management and Maintenance System for Hubei Xiangxi Yangtze River Highway Bridge Project	Jinping Ou, Zhi Zhou,D, Mingzhao Xiao, Kaiqian Xiao, Guanting Liang, Jingsheng Liao, Shi Bai, Zhaohui Xie, Wenbing Liu, Wanqiu Liu

16	Chaotic Generator in Frequency Domain Using Tunable fiber laser with Fiber Mach-Zehnder interferometer	Guohui Lyu, Yan Zhang, Huiying Wang, Bohan Luan, Jiang Xu, China
17	An Experimental Investigation on Flexural Behavior of Reinforced Concrete Beams Strengthened by an Intelligent CFRP Plate with Built- in ○ptical Fiber Bragg Grating Sensors	Zhenzhen Wang, Zhi Zhou, China
18	Cross-sectional Deformation Monitoring of a Shield Tunnel Using ○ptical-electrical Co-sensing Tape	Tong Jiao, Zhi Zhou, China
19	○FBG-Based Smart Double-Skin Tubular Confined-Concrete Column with Basalt FRP-Steel Composite	Yung William Sasy Chan, Zhi Zhou, Wanqiu Liu, Jinping Ou, China
20	Study on Performances and Energy-saving of Resin Translucent Concrete Products	Juan Shen, Zhi Zhou, China
21	An Absolute Temperature Compensation Method on FBG sensor Based on the Analysis of Strain and Temperature Coupling Effect	Huanyu Yang, Zhi Zhou, China