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Ryszard S. Romaniuk
Waldemar Wójcik
Andrzej Smolarz
Editors

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Contents

vii	<i>Authors</i>
ix	<i>Conference Committee</i>
xi	<i>Introduction</i>

CONFERENCE OVERVIEW

11045 02	Development of optical fiber technology in Poland – 2018 (Invited Paper) [11045-1]
----------	---

OPTICAL GLASS AND FIBER TECHNOLOGY

11045 03	Modification of optical fiber's geometry with an excimer laser [11045-2]
11045 04	Spectral contour length demodulation method for tilted fiber Bragg grating refractive index sensing [11045-4]
11045 05	Manufacturing and properties of glass-ceramics doped with Eu³⁺ from 45S5 Bioglass (Invited Paper) [11045-14]
11045 06	Homogeneity of SiO₂:TiO₂ waveguide films fabricated via sol-gel method [11045-15]
11045 07	Chemical characterization of SiO₂:TiO₂ waveguide films using Auger electron spectroscopy [11045-17]
11045 08	Modelling of the finely-dispersed noncoherent material flow from the loading hopper under vibration [11045-18]
11045 09	Analysis of the effect of hydrogenation of photosensitive fibres on the parameters of the periodic structures produced [11045-27]
11045 0A	Determination of the spectral characteristics shift in the process of writing fiber Bragg gratings [11045-32]
11045 0B	The spectral properties of bended tilted fiber Bragg gratings [11045-41]
11045 0C	Synthesis and characterization of polymeric blends as a new materials in optical fiber technology [11045-49]

OPTICAL FIBER COMPONENTS AND SENSORS

- 11045 OD **Polarization properties of an optical fiber biconical taper with a liquid crystal cladding**
[11045-8]
- 11045 OE **Tapered fiber optic devices with liquid crystal cladding (Invited Paper)** [11045-9]
- 11045 OF **Optical fiber taper sensor with a nanoparticles' mixture cladding** [11045-10]
- 11045 OG **UV polymerized microtips on multimode optical fibers** [11045-12]
- 11045 OH **Influence of liquid crystal cladding on light propagation in a tapered optical fiber** [11045-13]
- 11045 OI **Temperature influence on optical power spectrum of the tapered fiber device with a liquid crystal cladding** [11045-16]
- 11045 OJ **Configurable optical fiber current transformer** [11045-23]
- 11045 OK **Control of the Bragg wavelength in fibre Bragg grating writing process using the phase mask method** [11045-35]

OPTICAL FIBER NETWORKS

- 11045 OL **The method of resolving power enhancement of jitter analyzers in fiber-optical networks**
[11045-19]
- 11045 OM **Effectiveness of optical fiber networks in fifth and next generations of mobile systems (Invited Paper)** [11045-30]
- 11045 ON **Multi-core optical fibers in FTTH/FTTA/FTTS solutions supporting IoT** [11045-31]
- 11045 OO **Sign ambiguity of accumulated chromatic dispersion estimated from intensity waveforms in a fiber optic communications link** [11045-39]
- 11045 OP **Model of a telecommunication system for monitoring gas leaks from gas pipelines** [11045-45]

OPTOELECTRONICS AND PHOTONICS

- 11045 OQ **Analysis of the space-charge field in photorefractive multiple quantum well structures under a moving gratings for a variable trapping coefficient (Invited Paper)** [11045-5]
- 11045 OR **Comparison of single mode slab and rib waveguide planar evanescent wave transducers**
[11045-7]

11045 OS	Modeling of operation regimes in coupled-cavity surface-emitting laser with external photon injection (Invited Paper) [11045-11]
11045 OT	Dual-band UV/VIS photodiodes for sensing applications [11045-20]
11045 OU	Influence of the aberrations of Fourier-lens on the resolution of the digital optical processor [11045-21]
11045 OV	Automated system of audio components analysis and synthesis [11045-22]
11045 OW	Offsetting and blending with perturbation functions [11045-24]
11045 OX	Mathematical modeling of the extraction process of oil-containing raw materials with pulsed intensification of heat of mass transfer [11045-25]
11045 OY	Determination of the interaction of field structures in the presence area of abstract objects [11045-26]
11045 OZ	Preprocessing optical spectra superposition for further decomposition [11045-28]
11045 IO	Detection of hidden parameters the classification of trends in the analysis of multifractal spectra [11045-29]
11045 I1	Mathematical model of glitches in DAC with weight redundancy [11045-36]
11045 I2	Substantiation of a university nanosatellite television camera parameters [11045-37]
11045 I3	A GPU-based multi-volume rendering for medicine [11045-40]
11045 I4	Wave formation on a liquid surface in cylindrical vessel under planar oscillation [11045-42]
11045 I5	Evaluation of the minimum necessary order of a passive analog low-pass filter in VHF band using untunable SMD components [11045-44]
11045 I6	Radiometric calibration of fiber optic spectrophotometers [11045-46]
11045 I7	Experimental evaluation of some approximate algorithms of solving the multidimensional knapsack problem [11045-47]

Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Abenovd, Arman, 0W	Kolobrodov, Mykyta S., 0U
Abisheva, Akmaral, 14	Kolobrodov, Valentin H., 0U, 12
Abramchuk, Igor V., 0S	Kolyanovska, Lyudmila M., 0X
Alrawashdeh, Medin M. A., 0S	Komada, Paweł, 0S, 0Y, 0Z
Asauluk, Inna O., 17	Korec, Joanna, 0D, 0E, 0F, 0I
Askarova, Nursanat, 08	Kornilova, Svitlana V., 17
Azarov, Oleksyi D., 11	Kotyra, Andrzej, 14
Azeshova, Zhanar, 12	Kula, Przemysław, 0D
Baitussupov, Doszhan, 0V	Kwiatkowska, Marlena, 0D
Baranowska, Agata, 05	Kychak, Vasyl M., 0L
Barczak, Kamil, 0J	Lach, Zbigniew T., 0O
Bazarbayeva, Aigul, 0V	ławicki, Tomasz, 13
Begaliyeva, Kalamkas, 0W	Lesniak, Magdalena, 05
Bevz, Svitlana V., 0V	Luganskaya, Saule, 0A, 17
Bissarinov, Baituma, 0X	Lurie, Irene, 10
Bortnyk, Gennadiy G., 0L	Lysenko, Hennadiy L., 0S
Burbelo, Sergii M., 0V	Lytvynenko, Volodymyr I., 0Z, 10
Bushmelev, Petr, 0P	Maherus, Nadiia I., 08
Bushmeleva, Kiya, 0P	Majewski, Jacek, 0N
Chruściel, Monika, 0G	Marć, Paweł, 03, 0D, 0G
Cięszczyk, S., 04	Matras-Postółek, Katarzyna, 0F
Domanowska, Alina, 07	Mekebayev, Nurbapa, 0U
Dorosz, Dominik, 05	Miluski, Piotr, 05
Dudek, Michal, 03	Moś, Joanna E., 0E, 0F, 0H
Duskazhev, Gali, 11	Murashenko, Oleksandr G., 11
Fila, K., 0C	Mushtruk, Mykhailo M., 0X
Firago, V., 16	Muslimov, Kuanysh, 0L
Fleer, Leonid A., 14	Mussabekov, Kanat, 0A, 0Y
Florek, Mariusz, 0E, 0H	Mussabekova, Aisha, 0L
Garbat, Katarzyna, 0E	Mussabekova, Assel, 0X, 10, 12
Gargol, M., 0C	Mykytenko, Volodymyr, 12
Goliszek, M., 0C	Nykiforova, Larysa E., 13
Gromaszek, Konrad, 11	Olszewski, Serge V., 0Z, 10
Gurov, Egor, 15	Omiotek, Zbigniew, 0U, 0V
Harasim, Damian, 0B	Oralbekova, Ayaulym, 13
Hotra, O., 16	Palamarchuk, Igor P., 0X
Jablonski, Blazej, 0Q	Panas, Patryk, 0A, 0K
Jakubowska, Iwona, 0F, 0G	Pavlov, Sergii V., 0W, 13
Jaroszewicz, Leszek R., 03, 0D, 0E, 0F, 0G, 0H, 0I	Pinaiev, Bogdan, 0V
Jarykbassov, Daniyar, 0U	Pinchuk, Bogdan Y., 0U
Karasiński, Paweł, 06	Podkościelna, B., 0C
Karnakova, Gayni, 09	Popiel, Piotr, 0W, 0X
Kashaganova, Gulzhan, 13	Puszka, A., 0C
Katsiv, Semen S., 11	Romaniuk, Ryszard S., 02, 0P
Kisala, Piotr, 0K, 17	Romanyuk, Olexander N., 0W, 13
Klimek, Jacek, 09	Ruzova, Tatiana A., 14
Klotchko, Tatiana R., 0Y	Sagymbekova, Azhar, 08
Kochanowicz, Marcin, 05	Sakovich, I., 16
Kociubiński, A., 0T	Semko, Tetyana V., 0X

Shedreyeva, Indira, 17
 Shevchenko, Anatoly F., 14
 Shevchenko, Sergey A., 14
 Sholoviy, Yuriy P., 08
 Skorupski, Krzysztof, 0A, 0K
 Skytsiouk, Volodymyr I., 0Y
 Smolarz, Andrzej, 02, 10, 12
 Sokurenko, Vyacheslav, 12
 Stasiewicz, Karol A., 0D, 0E, 0F, 0H, 0I
 Stavytskyi, Pavlo V., 0V
 Strzeżysz, Olga, 0D, 0E
 Sukhenko, Vladislav Y., 0X
 Sukhenko, Yuri G., 0X
 Sundetov, Samat, 12
 Szablicki, Mateusz, 0J
 Tergeusizova, Aliya, 0B, 14
 Tleshova, Akmaral, 0S, 0Y, 10
 Tolegenova, Akmaral, 0B
 Tolstopyat, Alexander P., 14
 Tuzhanskyi, Stanislav Ye., 0S
 Tymchyk, Grygorij S., 0U, 0Y
 Tyshchenko, Liudmyla M., 0X
 Tyszkiewicz, Cuma, 0R
 Ussatova, Olga, 11
 Uvaysov, Saygid, 0P, 15
 Uvaysova, Svetlana, 0P, 15
 Vasuliev, Volodymyr P., 0X
 Vasykivskyi, Mikola V., 0L
 Voitko, Viktoriia V., 0V
 Vyatkin, Sergey I., 0W, 13
 Weinert-Rączka, Ewa, 0Q
 Wichtowski, Marek, 0Q
 Wójcik, Waldemar, 02, 0P, 15
 Yeliseyev, Vladimir I., 14
 Yuhimenko, Birute I., 17
 Yusupova, Gulbahar, 09
 Zakrzewski, Zbigniew, 0M, 0N
 Ziółkowski, Andrzej, 0Q
 Ziyatbekova, Gulzat, 0S
 Zmojda, Jacek, 05
 Zyska, Tomasz, 08, 0L

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- 1 Opening Plenary Session on Hot Topics in Optical Fiber Technology
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- 2 Optical Fibers and Planar Optical Waveguides
Wiesław L. Woliński, Warsaw University of Technology (Poland)
- 3 Material Engineering in optical fiber technology
Leszek R. Jaroszewicz, Military University of Technology, Warsaw (Poland)
- 4 Microstructural and Photonic Optical Fibers
Tomasz R. Woliński, Warsaw University of Technology (Poland)
- 5 Nonlinear and active optical fibers
Wacław Urbańczyk, Wrocław University of Technology (Poland)
- 6 Photonics applications
Ryszard Buczyński, Institute of Electronic Materials Technology, Warsaw (Poland)
- 7 Optoelectronic Systems and Associated Technologies
Zdzisław Jankiewicz, Military University of Technology, Warsaw (Poland)
- 8 Workshop on Optical Fiber Technology
Paweł Mergo, University of Maria Curie-Skłodowska, Lublin (Poland)
- 9 Closing Plenary Session, Conference Summary
Waldemar Wójcik, Lublin University of Technology (Poland)

Introduction

The Optical Fibers and Their Applications 2018 conference is a forum of national science in this branch of Photonics. The conference usually hosts numerable guests from this geographic region, especially from Ukraine, Belarus and Kazakhstan. It is organized every year and a half by two major optical fiber technology and application centers located in Białystok at Białystok University of Technology, and in Lublin, at Maria Curie-Skłodowska University and Technical University of Lublin. The conference belongs to a bigger circle of national conferences on optoelectronics, optics, photonics, sensors and laser technology, which are under the general patronage of professional community organizations like the Polish Ceramic Society, Photonics Society of Poland, Polish Optoelectronics Committee of the Association of Polish Electrical Engineers, and the Section of Optoelectronics in the Committee of Electronics and Telecommunications, Polish Academy of Sciences.

The conferences in this series have been organized since 1976, in the Jabłonna Village Palace near Warsaw. The conference has also been held in Białowieża, by Białystok University of Technology Prof. Jan Dorosz, with emphasis on applications (especially non-telecom applications); and in Nałęczów, by UMCS Lublin Dr. W. Podkościelny and Dr. P. Mergo, and Lublin University of Technology Prof. W. Wójcik, with emphasis on technology and telecom applications. The first conference in Białowieża focused on non-telecommunication application of optical fibers and was held in 1982. During this period, the conferences in Lublin and in Nałęczów were more focused on technology and metrology of optical fibers supplementing the application and construction topics covered in Białowieża. The conference series on Optical Fibers and Their Applications has been organized in this country for 43 years. It was initiated by the late professors: J. Groszkowski, A. Smoliński, A. Waksmundzki, M. Pluta, B. Paszkowski, Z. Szpigler, J. Wójcik, K. HOLEJKO, J. Rayss, and S. Sońta. The conferences always gather the whole national group of optical fiber and optoelectronics experts, a large number of students, and some international guests.

The 18th conference was held 20–23 November 2018, at the Energetyk Resort in Nałęczów, near Lublin. The accompanying School/Workshop on Optical Fiber Technology was held in Lublin at UMCS OFT Laboratory on 19 November. The conference was opened by Prof. W. Wójcik in the presence of the Dean of the Faculty of Chemistry of UMCS. The national expertise in optical fibers has gathered during the recent years around several big organizations, some of them with international roots: Section of Optoelectronics, Committee of Electronics and Telecommunications, Polish Academy of Sciences; Polish Committee of Optoelectronics, Association of Polish Electrical Engineers; Polish Chapter of SPIE. The latter organization registered in this country as a Society and was transformed in 2008, to the Photonics Society of Poland. These organizations cooperate with

SPIE—The International Society for Optics and Photonics, IEEE Poland Section and Photonics Chapter, Section of Optics by Polish Physical Society and Polish Ceramic Society.

During the conference opening ceremony, Prof. W. Wójcik reminded everyone of the history of OFTA Nałęczów Conferences. The national experts of guided wave, laser and semiconductor optoelectronics meeting in Krasnobród, Nałęczów, Białowieża, Lipowy Most, and Świnoujście (Laser Technology Symposium), managed to integrate their activities in the frame of numerable optoelectronics research programs carried out during these years. These were programs, national, central, departmental, priority, university and recently also European, realized with a number of international partners. Realization of these projects lead to numerable scientific and technical achievements, and also, they were underlying factors for establishing a number of photonic firms in this country and modernizing the teaching at technical universities.

The 2018 Nałęczów conference gathered around 120 participants. There were over 80 papers presented in oral and poster sessions. The biggest groups of papers originated from such university centers as: Silesian University of Technology in Gliwice, Białystok, Warsaw and Lublin, as well as UMCS in Lublin. The topical coverage of the Symposium was materials for optoelectronics, in particular, materials for optical fiber technology; fabrication of optical fibers; components and sub-assemblies for optoelectronics; metrology of optical fibers; metrology of optoelectronic components and devices; applications of optical fibers; and education in optoelectronics and photonics. There were a few plenary papers presented touching very current and "hot" problems in optoelectronics.

The technological sessions of the symposium presented the works from three main national centers where optical fibers are pulled. These are the Faculty of Chemistry, University of Maria Curie Skłodowska in Lublin, the Faculty of Electrical Engineering at Białystok University of Technology, and the Institute of Electronic Materials Technology in Warsaw. Numerable papers were presented from research firms and industry, including InPhoTech, Fibrain and Polish Centre for Photonics and Optical Fibres. A number of research centers in this country and internationally use these optical fibers for optical fiber sensors and photonic instrumentation devices. A large group of applications concerned microstructural photonic optical fibers filled or impregnated with liquid crystals, which are highly nonlinear optical substances, much more nonlinear than glasses. This group of papers originated from the laboratories at Warsaw and Wrocław Universities of Technology, but the fibers were manufactured at UMCS in Lublin and at ITME in Warsaw. There were also numerable application-oriented contributions from innovative photonics firms.

The Symposium organizers have provided very favorable participation conditions for Ph.D. and M.Sc. students, who participated in the Symposium in a large number. The majority of the papers were presented by young researchers, which supports the belief that this branch of technology is vivid and has promise for future

development. The Editors would like to thank all symposium participants and authors of submitted papers for making this symposium and the volume of proceedings a reality. The next symposium on Optical Fibers and Their Applications is scheduled for January/February 2020, in Białowieża.

Ryszard S. Romaniuk
Waldemar Wójcik
Andrzej Smolarz