Front Matter: Volume 10455
12th Conference on Integrated Optics: Sensors, Sensing Structures, and Methods

Przemyslaw Struk
Tadeusz Pustelny
Editors

27 February–3 March 2017
Szczyrk-Gliwice, Poland

Sponsored by
SPIE

Cosponsored by
Committee of Electronics and Telecommunication Polish Academy of Sciences

Organized by
Photonics Society of Poland
Polish Acoustical Society Upper Silesian Division

Published by
SPIE

Volume 10455
# Contents

- Authors
- Conference Committee
- Introduction

<p>| 10455 02 | Cross spectral, active, and passive approach to face recognition for improved performance [10455-1] |
| 10455 03 | Optical sensor in planar configuration based on multimode interference [10455-2] |
| 10455 04 | Modelling of MIR photoluminescence from Pr3+ doped chalcogenide fibers pumped at near-infrared wavelengths [10455-3] |
| 10455 05 | Dark current simulation in interband cascade photodetectors operating in room temperature [10455-4] |
| 10455 06 | Modulators for MWIR detectors with liquid crystals [10455-5] |
| 10455 07 | Raman and photoluminescence investigation of InAs/GaSb and InAs/InAsSb superlattices [10455-7] |
| 10455 08 | Integrated optical sensor for individual protection of artwork (Invited Paper) [10455-8] |
| 10455 09 | Research to improve the accuracy of determining the stroke volume of an artificial ventricle using the wavelet transform [10455-9] |
| 10455 0A | Method of laser beam coding for control systems [10455-10] |
| 10455 0B | The technique of accuracy measurement of membrane shape mapping of an artificial ventricle [10455-11] |
| 10455 0C | Simple thermal to thermal face verification method based on local texture descriptors [10455-12] |
| 10455 0D | Theoretical simulation of the long-wave HgCdTe detector for ultrafast response-operating under zero bias condition and room temperature [10455-13] |
| 10455 0E | Preparation of fluorescent nanodiamond suspensions using bead-assisted ultrasonic disintegration [10455-14] |
| 10455 0F | InAs/GaSb superlattice quality investigation [10455-15] |</p>
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Conference Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>10455 0G</td>
<td>Optoelectronics technologies for Virtual Reality systems</td>
<td>[10455-16]</td>
</tr>
<tr>
<td>10455 0H</td>
<td>Modeling of light propagation in canine gingiva</td>
<td>[10455-17]</td>
</tr>
<tr>
<td>10455 0I</td>
<td>Straight and bended high refractive index rib waveguides: theoretical analysis</td>
<td>[10455-18]</td>
</tr>
<tr>
<td>10455 0J</td>
<td>Measurement of luminance and color uniformity of displays using the large-format scanner</td>
<td>[10455-19]</td>
</tr>
<tr>
<td>10455 0K</td>
<td>ZnO semiconductor for applications in optoelectronics sensors structures (Invited Paper)</td>
<td>[10455-21]</td>
</tr>
<tr>
<td>10455 0L</td>
<td>Non-invasive assessment of thromboembolism in rotary blood pumps: case study (Invited Paper)</td>
<td>[10455-22]</td>
</tr>
<tr>
<td>10455 0M</td>
<td>Theoretical analysis of a spectrometric interferometer based on silicon-on-insulator (SOI) waveguide layers</td>
<td>[10455-74]</td>
</tr>
<tr>
<td>10455 0N</td>
<td>Study of the impact of UV radiation on NO\textsubscript{2} sensing properties of graft comb copolymers of poly(3-hexylthiophene) at room temperature</td>
<td>[10455-85]</td>
</tr>
<tr>
<td>10455 0O</td>
<td>Optoelectronics sensors of hydrocarbons based on NDIR technique</td>
<td>[10455-86]</td>
</tr>
<tr>
<td>10455 0P</td>
<td>High birefringent microstructured polymer optical fiber with frozen stresses (Invited Paper)</td>
<td>[10455-87]</td>
</tr>
<tr>
<td>10455 0Q</td>
<td>Stability of thin film diamond mirror for applications in interferometers under the short-time exposure on selected aggressive chemicals</td>
<td>[10455-88]</td>
</tr>
<tr>
<td>10455 0R</td>
<td>Optical fiber current sensor with external conversion for measurements of low AC electric currents</td>
<td>[10455-89]</td>
</tr>
<tr>
<td>10455 0S</td>
<td>Detection of optical signals in selected sensing applications (Invited Paper)</td>
<td>[10455-90]</td>
</tr>
<tr>
<td>10455 0T</td>
<td>Mobility spectrum analysis of HgCdTe epitaxial layers grown by metalorganic chemical vapour deposition</td>
<td>[10455-91]</td>
</tr>
<tr>
<td>10455 0U</td>
<td>Study of blended conductive graft copolymer with graphite oxide thin films deposited using spin coating method for gas sensing and photovoltaic applications</td>
<td>[10455-93]</td>
</tr>
<tr>
<td>10455 0V</td>
<td>Experimental determination of leakage current occurring in HgCdTe infrared detectors operating in the mid-infrared</td>
<td>[10455-94]</td>
</tr>
<tr>
<td>10455 0W</td>
<td>Fiber optic sensor for H\textsubscript{2} gas detection in the presence of methane based on Pd/WO\textsubscript{3} low-coherence interferometric structure</td>
<td>[10455-95]</td>
</tr>
<tr>
<td>10455 0X</td>
<td>Voltage-and temperature-controlled LC:PDMS waveguide channels (Invited Paper)</td>
<td>[10455-96]</td>
</tr>
<tr>
<td>10455 0Y</td>
<td>Network of photonic sensors for CO\textsubscript{2} exchange rate measurement in forests</td>
<td>[10455-98]</td>
</tr>
</tbody>
</table>
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.

Arciuch, Artur, 0A
Asquini, Rita, 0X
Barczak, Kamil, 0R
Barney, E., 04
Benson, T. M., 04
Benyahia, Djalal, 07, 0F
Beres-Pawlik, E., 04
Bieda, Marcin S., 0Y
Bielecki, Z., 0S
Blahut, Marek, 03
Bogdanowicz, Robert, 0E
Boguski, Jacek, 0T
Budner, Bogusław, 07, 0F
Chodorow, U., 06
Copik, Izabela, 0L
Czyżewska, L., 0P
d'Alessandro, Antonio, 0X
Ficek, Mateusz, 0E
Furniss, D., 04
Gardas, Mateusz, 0E
Gawlikowski, Maciej, 0L
Gawron, W., 06
Gil, M., 0P
Głowacki, Maciej J., 0E, 0L
Gorczyca, Kinga, 0T
Grad, Leszek, 09, 0B
Grodecki, Kacper, 07, 0F
Grudzien, A., 02, 0C
Gut, Kazimierz, 0M
Hackiewicz, K., 0S
Henig, Aleksandra, 07, 0F
Herman, J., 06
Hirsch, M., 0Q
Jankiewicz, Bartłomiej, 07, 0F
Każużyński, P., 0U
Kęblowski, Artur, 0T
Klos, K., 0S
Kopytko, Małgorzata, 0V
Kowalewski, Andrzej, 05, 06, 0V
Kowalski, M., 02, 0C
Kubacki, Krzysztof, 0L
Kubiszyn, Łukasz, 07, 0F
Kula, P., 06
Kustosz, Roman, 0L
Lesiak, Piotr, 0Y
Maciak, Erwin, ON, 0U, 0W
Maciejewski, Marcin, OG
Madejczyk, Paweł, 0D, 0T
Majchrowicz, D., 0Q
Markowska, Olga, 0V
Martyniuk, Piotr, 05, 06, 07, 0D, 0F, 0T, 0V

Mażikowski, Adam, 0J
Maźniewski, Krzysztof, 0R
Mazur, R., 06
Mergo, P., 0P
Michałczewski, Krystian, 07, 0F
Mikołajczyk, J., 0S
Morawik, P., 06
Mrotek, Marcin, 0H
Murawska, Monika, 0B
Murawski, Krzysztof, 07, 08, 09, 0A, 0B, 0F
Pacholewicz, Jerzy, 0L
Palka, Norbert, 0C
Pałys, Tomasz, 0A
Piecek, W., 06
Piramidowicz, R., 04
Piszczez, Marek, 0G
Pomianek, Mateusz, 0G
Procek, Marcin, 0N, 0U
Prokop, Artur, 0Q
Putzelny, Tadeusz, 0K
Pydański, Paweł, 0L
Rutka, B., 0S
Rutkowska, Katarzyna A., 0X
Rutkowski, Jarosław, 05, 0D, 0V
Sakr, H., 04
Sawczak, Mirosław, 0E
Seddon, A. B., 04
Sobotka, Piotr, 0Y
Sojka, L., 04
Stolarczyk, Agnieszka, 0N, 0U
Stuk, Przemysław, 0K
Sujecki, S., 04
Sulej, Wojciech, 09, 0B
Szabat, D., 0S
Szustakowski, Mieczysław, 02, 0G
Tang, Z., 04
Tyszkiewicz, Cuma, 0I
Umana-Membreño, Gilberto A., 0T
Walczak, Andrzej, 0A
Wójcik, G., 0P
Wojtas, J., 0S
Woźniak, Tomasz R., 0Y
Wróbel, Jarosław, 0T
Wysmolek, A., 07
Zakliczyński, Michał, 0L
Conference Committee

Conference Chair
Tadeusz Pustelny, Silesian University of Technology (Poland)

Honorary Conference Chair
Wiesław L. Woliński, Warsaw University of Technology (Poland)

Scientific Committee
Tadeusz Pustelny, Silesian University of Technology (Poland)
Tomasz R. Woliński, Institute of Electronic Materials Technology (Poland)
Andrzej Napieralski, Lodz University of Technology (Poland)
Wojciech Gawlik, Jagiellonian University Cracow (Poland)
Wiesław Królikowski, University of Canberra (Australia)
Krzysztof Abramski, Wrocław University of Technology (Poland)
Zbigniew Bielecki, Military University of Technology (Poland)
Marek Blahut, Silesian University of Technology (Poland)
Dominik Dorosz, Białystok University of Technology (Poland)
Jan Dorosz, Białystok University of Technology (Poland)
Jan Jakubczyk, Optiwave Systems Inc. (Canada)
Zdzisław Jankiewicz, Military University of Technology (Poland)
Leszek Jaroszewicz, Military University of Technology (Poland)
Zygmunt Mierczyk, Military University of Technology (Poland)
Tadeusz Pisarkiewicz, University of Science and Technology (Poland)
Jan Szmidt, Warsaw University of Technology (Poland)
Tomasz Szoplík, University of Warsaw (Poland)
Mieczysław Szustakowski, Military University of Technology (Poland)
Waclaw Urbanczyk, Wrocław University of Technology (Poland)

Organizing Committee
Tadeusz Pustelny, Silesian University of Technology (Poland)
Przemyslaw Struk, Silesian University of Technology (Poland)
Aneta Olszewska, Silesian University of Technology (Poland)
Sabina Drewniak, Silesian University of Technology (Poland)
Kamil Barczak, Silesian University of Technology (Poland)
Marcin Procek, Silesian University of Technology (Poland)
Marek Blahut, Silesian University of Technology (Poland)
Introduction

The Conference on INTEGRATED OPTICS: Sensors, Sensing Structures and Methods is an international scientific forum of photonics and modern nanotechnology.

The Integrated Optics (IOS) conference is organized every year since 2004 and in 2017 it was held for the twelfth time.

IOS’2017 took place from February 27 to March 3, 2017 in Szczyrk, in the META Hotel, in the Beskidy Mountains in southern Poland, a real winter scenery. IOS’2017 was attended by 60 scientists, mainly from Poland, as well as from Australia, Qatar and Slovakia.

The main organizer of the 12th IOS’2017 was the Photonics Society of Poland in cooperation with SPIE. The technical co-organizers of the conference were: the Upper Silesian Division of the Polish Acoustical Society and the Optoelectronic Department at the Silesian University of Technology in Gliwice (Poland).

The Honorary patronage of the Conference has taken over by Professor Wieslaw Wolinski – Full Member of the Polish Academy of Sciences.

During the IOS’2017 conference thirty-eight oral lectures were held in 8 scientific sessions. In addition, twenty one posters were presented during the poster session.

The main aim of the Conference was an exchange of knowledge in the scope of practical applications of photonics, integrated optics and related scientific areas. The objectives of the Conference were also presentations of experiences in the field of technology and theoretical analysis of optoelectronic sensors and practical applications of sensing structures and systems, as well as new methods in the field of modern metrology.

The IOS’2017 Conference has contributed to the extension of relations between scientific groups and has enabled the intensification of common cooperation for the development of photonics and integrated optics.

Tadeusz Pustelny