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The CID Number appears on each page of the manuscript. The complete citation is used on the first page, and an abbreviated version on subsequent pages.

Contents

- v *Authors*
- vii *Conference Committee*
- ix *Introduction*

SESSION 1 HYPERBOLIC AND DIELECTRIC METAMATERIALS

- 9502 03 **Towards all-dielectric metamaterials and nanophotonics (Invited Paper) [9502-2]**

SESSION 2 PLASMONICS: FUNDAMENTALS AND APPLICATIONS I

- 9502 06 **Symmetry breaking in the second harmonic field of self-assembled metallic nanostructures (Invited Paper) [9502-6]**

SESSION 3 PLASMONICS FOR ENERGY CONVERSION

- 9502 0C **Enhancement of light absorption in polyazomethines due to plasmon excitation on randomly distributed metal nanoparticles [9502-11]**
- 9502 0D **Optical activity of catalytic elements of hetero-metallic nanostructures [9502-12]**

SESSION 4 PLASMONICS: FUNDAMENTALS AND APPLICATIONS II

- 9502 0E **Current sheets in the Discontinuous Galerkin Time-Domain method: an application to graphene (Invited Paper) [9502-14]**
- 9502 0F **Perfectly matched layer based multilayer absorbers [9502-15]**
- 9502 0G **Revealing plasmonic interactions in both isolated and arrayed dimers with analytical and numerical approaches [9502-17]**
- 9502 0H **Plasmonic nano-antennas for spectral emissivity engineering [9502-34]**

SESSION 5 PLASMONICS: FUNDAMENTALS AND APPLICATIONS III

- 9502 0J **Dielectric negative index metamaterial as plasmonics devices [9502-20]**
- 9502 0K **Infrared imaging of microwave negative index metamaterials [9502-21]**
- 9502 0L **The effect of geometry on the quality factor of resonance peaks in asymmetric nano-antennas at mid-infrared wavelengths [9502-39]**

SESSION 6 NANOMAGNETS AND MAGNETIC FIELD OF LIGHT

9502 0O **Ultrafast dynamics of Faraday rotation in thin films** [9502-24]

SESSION 7 METASURFACES AND SUB-WAVELENGTH PLASMONIC DOE

9502 0Q **Circular dichroism from Fano resonances in planar chiral oligomers** [9502-26]

9502 0R **Asymmetric and symmetric coupling of surface-plasmon-polariton waves to planar interfaces with periodically patterned slanted columnar thin films of silver (Best Student Paper Award)** [9502-27]

9502 0S **High-field enhancement factor in dielectric photonic structures** [9502-28]

9502 0T **Plasmonic planar antenna for spectral and spatial manipulation of the polarization** [9502-29]

9502 0U **Generation of red color and near infrared bandpass filters using nano-scale plasmonic structures** [9502-30]

POSTER SESSION

9502 0X **Polarization-dependent transmission through microwave metamaterials** [9502-35]

9502 10 **Plasmonic organic thin-film solar cell: light trapping by using conformal vs. non-conformal relief gratings** [9502-38]

9502 11 **Photonic structures in photoresist and PDMS surface patterned by AFM lithography** [9502-40]

9502 13 **Design of plasmonic circular grating with broadband absorption enhancements** [9502-42]

9502 14 **Surface doping of composite plasmonic material by functional graphene nanostructures for organic solar cell applications** [9502-43]

9502 16 **Observation of terahertz radiation absorption in CdSe quantum dots** [9502-13]

9502 17 **Effective medium approximation of anisotropic materials with radiative correction** [9502-31]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four 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.

Antosiewicz, Tomasz J., 0C, 0D, 0F
Apell, S. Peter, 0D
Belardini, A., 06
Belov, Pavel, 03
Benedetti, A., 06
Bertolotti, M., 06
Bouchon, Patrick, 0H, 0T
Burghartz, Joachim N., 0U
Busch, Kurt, 0E
Centini, M., 06
Chen, Chi-Chu, 14
Cheng, Chih-Jen, 13
Chiu, Nan-Fu, 13, 14
Ciesielski, A., 0C
De La Rue, Richard, 0L
Denisultanov, Alaudi K., 16
Dolgova, Tatyana V., 0O
Dořtalek, Jakub, 10
Đurišová, J., 11
Dutta, Jhuma, 0R
Fazio, E., 06
Fedyanin, Andrey A., 0O
Fiala, J., 0G
Haïdar, Riad, 0H, 0T
Haus, Joseph W., 06
Hopkins, Ben, 0Q
Hutter, Franz X., 0U
Iwan, A., 0C
Jaeck, Julien, 0H, 0T
Jandura, D., 11
Johnson, Nigel P., 0L
Kao, Yi-Lun, 13, 14
Keshmiri, Hamid, 10
Khodzitsky, Mikhail K., 16
Kivshar, Yuri S., 03, 0Q
Koechlin, Charlie, 0H
Kotyński, Rafał, 0F
Krasnok, Alexander, 03
Lakhtakia, Akhlesh, 0R
Langhammer, Christoph, 0D
Lee, David A., 0K, 0X
Lesňák, M., 17
Lévesque, Quentin, 0T
Makarov, Sergey, 03
Makhsiyani, Mathilde, 0H, 0T
Matyssek, Christian, 0E
Mbomson, Ifeoma G., 0L
McMeekin, Scott G., 0L
Miroshnichenko, Andrey E., 0Q
Mocella, Vito, 0J, 0S
Musorin, Alexander I., 0O
Musselman, Randall L., 0K, 0X
Onushchenko, Aleksei A., 16
Onushchenko, Petr A., 16
Otipka, P., 17
Pardo, Fabrice, 0H, 0T
Pastuszczyk, Anna, 0F
Pelouard, Jean-Luc, 0H, 0T
Petrov, Mikhail, 03
Pinchuk, Anatoliy O., 0K, 0X
Poddubny, Alexander N., 0Q
Pudiš, D., 11
Ramakrishna, S. Anantha, 0R
Richter, I., 0G
Romano, Silvia, 0J, 0S
Sarangan, Andrew, 06
Savelev, Roman, 03
Sharipova, Margarita I., 0O
Sibilia, C., 06
Slabeyciusová, S., 11
Smith, David A., 0K
Sokar, Ahmed A. Z., 0U
Stefaniuk, Tomasz, 0C, 0F
Stolarek, Marcin, 0F
Szoplík, T., 0C
Vávra, I., 17
Vedral, James L., 0K, 0X
Viček, J., 17
Wadell, Carl, 0D
Werra, Julia F. M., 0E
Wieciech, Bartosz, 0F
Wolff, Christian, 0E
Wróbel, Piotr, 0C, 0F
Wronkowska, A. A., 0C
Wronkowski, A., 0C
Yang, Cheng-Du, 13, 14

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Session Chairs

- 1 Hyperbolic and Dielectric Metamaterials
Vladimír Kuzmiak, Institute of Photonics and Electronics of the ASCR,
v.v.i. (Czech Republic)
- 2 Plasmonics: Fundamentals and Applications I
Anatoly V. Zayats, King's College London (United Kingdom)
- 3 Plasmonics for Energy Conversion
Alexandre Dmitriev, Chalmers University of Technology (Sweden)
- 4 Plasmonics: Fundamentals and Applications II
Peter Markos, Slovenska Technicka University (Slovakia)
- 5 Plasmonics: Fundamentals and Applications III
Tomasz Szoplik, University of Warsaw (Poland)
- 6 Nanomagnets and Magnetic Field of Light
Vladimír Kuzmiak, Institute of Photonics and Electronics of the ASCR,
v.v.i. (Czech Republic)
- 7 Metasurfaces and Sub-wavelength Plasmonic DOE
Rafal Kotynski, University of Warsaw (Poland)

Introduction

This 10th conference (the fifth one held in Prague) in a series of SPIE conferences on metamaterials has brought together the scientific communities of metamaterials, plasmonics, and nanophotonics. The conference provided a forum for both researchers and industry professionals and stimulated interaction between both communities.

In invited lectures the latest achievements in the field of hyperbolic, all-dielectric metamaterials, transformation optics, energy conversion, magnetoplasmonics and metasurfaces have been reviewed. New ways to design nonlinearities in hyperbolic plasmonic materials and novel structures with parity-time (PT) symmetry related functionalities in metamaterials and in plasmonics have been reviewed. The progress in the investigation of the properties of meta-atoms, resonant nanostructures in graphene in terahertz range and in computational methods have been presented by top experts in the field. A novel approach in dealing with a thin conductive sheet within the numerical DGTD method has been demonstrated in a system consisting of graphene sheets and alternating graphene and dielectric layers. In the area of energy conversion, an update in investigation of heat transfer at the nanoscale was reported. Namely, it has been demonstrated how the evanescent near-field can be harnessed in a thermal memory device and the role of the thermal self-oscillations in the radiative heat exchange has been analyzed. In the field of photovoltaics several promising designs based on surface plasmon-enhanced light harvesting and functional graphene nanostructures for organic solar cells have been reported. It has been demonstrated how the dielectric negative index metamaterials can be used in design of plasmonic devices. In several presentations recent progress in using of unique properties of negative index low loss microwave metamaterials in the antenna applications has been reported. Also, in the field of magneto-plasmonics, nanostructures in which an active control of light has been employed was demonstrated as well as the possibility to control light polarization on the femtosecond scale.

As chairs of this meeting, we would like to express our thanks to all those participants who contributed through their presentations, to the session chairs and to the programme committee members.

Vladimír Kuzmiak
Peter Markos
Tomasz Szoplík

