

Optical Micro- and Nanometrology

Wednesday - Thursday 25 - 26 April 2018

Conference Sessions At A Glance

[SHOW](#) | [HIDE](#)

- 1: Interferometry I
- 2: Optical Tomography
- 3: Metrology of Microoptics/MEMS
- 4: Holography
- 5: Optical Scatterometry
- Posters-Wednesday
- Hot Topics III
- 6: Micro- and Nanotopography
- 7: Interferometry II
- 8: Specialized Techniques

Important Dates

[SHOW](#) | [HIDE](#)

Abstract Due:
25 October 2017

Author Notification:
26 January 2018

Manuscript Due Date:
26 March 2018

Conference Committee

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[Christophe Gorecki](#), FEMTO-ST (France)
[Anand Krishna Asundi](#), Nanyang Technological Univ. (Singapore)
[Wolfgang Osten](#), Institut für Technische Optik (Germany)

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WEDNESDAY 25 APRIL

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Opening Remarks

Wednesday 25 April 2018
 8:25 AM - 8:30 AM
 Location: Auditorium Cassin

Session 1: Interferometry I

Wednesday 25 April 2018
 8:30 AM - 10:20 AM
 Location: Auditorium Cassin


Session Chair: [Wolfgang Osten](#), Institut für Technische Optik (Germany)

Speckle Interferometry in harsh environments: design considerations and successful examples *(Invited Paper)*

Paper 10678-1

Time: 8:30 AM - 9:00 AM

Author(s): Armando Albertazzi Gonçalves, Matias R. Viotti, Fabio Silva, Celso L. N. Veiga, E. S. Barrera, M. Benedete, Univ. Federal de Santa Catarina (Brazil); Analucia V. Fantin, Daniel P. Willemann, Santa Catarina State University (Brazil)


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Impulsive Brillouin micro-elastography for noncontact, fast mechanical mapping

Paper 10678-2

Time: 9:00 AM - 9:20 AM

Author(s): Benedikt Krug, Nektarios Koukourakis, Jürgen Czarske, TU Dresden (Germany)

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Focusing type grating interferometer

Paper 10678-3

Time: 9:20 AM - 9:40 AM


Author(s): Jia-Xian Liao, Bo-Yen Sun, Hung-Lin Hsieh, National Taiwan Univ. of Science and Technology (Taiwan)

[Add To My Schedule](#) **Perturbation resistant RGB-interferometry with pulsed LED illumination**

Paper 10678-4

Time: 9:40 AM - 10:00 AM


Author(s): Markus Schake, Peter Lehmann, Univ. Kassel (Germany)

[Add To My Schedule](#) **Laser heterodyne interferometer for simultaneous measurement of displacement, and roll-angle based on the acousto-optic modulators**

Paper 10678-5

Time: 10:00 AM - 10:20 AM

Author(s): Jingya Qi, Zhao Wang, Junhui Huang, Jianmin Gao, Xi'an Jiaotong Univ. (China)

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Coffee Break 10:20 AM - 10:50 AM

**Session 2:
Optical Tomography**

Wednesday 25 April 2018

10:50 AM - 12:20 PM

Location: Auditorium Cassin


Session Chair: [Christophe Gorecki](#), FEMTO-ST (France)

The SS-OCT endomicroscopy probe based on MOEMS Mirau micro-interferometer for early stomach cancer detection (Invited Paper)

Paper 10678-6

Time: 10:50 AM - 11:20 AM

Author(s): Przemyslaw Struk, FEMTO-ST (France), Silesian Univ. of Technology (Poland), Univ. de Bourgogne Franche-Comté (France); Sylwester Bargiel, Quentin Tanguy, Christophe Gorecki, FEMTO-ST (France), Univ. de Bourgogne Franche-Comté (France); Huikai Xie, Department of Electrical and Computer Engineering / University of Florida (Poland); Ravinder Chutani, Nicolas Passilly, Alain Billard, FEMTO-ST (France), Univ. de Bourgogne Franche-Comté (France)

[Add To My Schedule](#) **Stability characterization of a fixed sample, areal approach to wafer-scale profilometry using a modified low-coherence interferometer (Canceled)**

Paper 10678-7

Time: 11:20 AM - 11:40 AM

Author(s):

Measurement of 3D refractive index distribution of multicore photonic crystal fibers by using self-interference digital holographic tomography (Canceled)

Paper 10678-8

Time: 11:40 AM - 12:00 PM


Author(s):

The original application of hybrid lens in micromasurements for optical coherence tomography

Paper 10678-9

Time: 12:00 PM - 12:20 PM

Author(s): Dmitrii Igorevich Egorov, ITMO University (Russian Federation)

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Lunch/Exhibition Break 12:20 PM - 1:40 PM

**Session 3:
Metrology of Microoptics/MEMS**

Wednesday 25 April 2018

1:40 PM - 3:00 PM

Location: Auditorium Cassin

Session Chair: [Przemyslaw Struk](#), FEMTO-ST (France)


Assessing microlens quality based on 3D irradiance measurement at the focal spot area

Paper 10678-10

Time: 1:40 PM - 2:00 PM

Author(s): Jeremy Béguelin, SUSS MicroOptics SA (Switzerland); Michail Symeonidis, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Wilfried Noell, Reinhard Voelkel, SUSS MicroOptics SA (Switzerland); Toralf Scharf, Ecole Polytechnique Fédérale de Lausanne (Switzerland)




[Add To My Schedule](#) **About detecting steam condensation by means of polymer racetrack micro-resonators: highlighting the dynamics of such a soft matter process**

Paper 10678-11

Time: 2:00 PM - 2:20 PM


Author(s): Lucas Garnier, Institut de Physique de Rennes (France); Hervé Lhermite, Institut d'Electronique et de Télécommunications de Rennes (France); Véronique Vié, Qingyue Li, Institut de Physique de Rennes (France); Mathieu Berges, Vincent Cazin, Hervé Cormerais, Jacques Weiss, CentraleSupélec (France); Etienne Gaviot, Univ. du Maine (France); Bruno Bêche, Institut de Physique de Rennes (France)

[Add To My Schedule](#) **d'Nanoimager and d'Holoscope: a comparative study for MEMS metrology**

Paper 10678-12

Time: 2:20 PM - 2:40 PM


Author(s): Rosmin E. Mohan, Gih-Keong Lau, Anand K. Asundi, Nanyang Technological Univ. (Singapore); Rachel Wang, d'Optron Pte Ltd. (Singapore)

[Add To My Schedule](#) **Lithographic diffraction grating with a period failure**

Paper 10678-14

Time: 2:40 PM - 3:00 PM

Author(s): Maria Shishova, Alexander Y. Zherdev, Sergey B. Odinkov, Dmitriy S. Lushnikov, Bauman Moscow State Technical Univ. (Russian Federation)

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Coffee Break 3:00 PM - 3:40 PM

**Session 4:
Holography**

Wednesday 25 April 2018

3:40 PM - 4:40 PM

Location: Auditorium Cassin


Session Chair: [Rosmin Elsa Mohan](#), Nanyang Technological Univ. (Singapore)

Holographic characterization and laser structuring of a microphone membrane

Paper 10678-16

Time: 3:40 PM - 4:00 PM

Author(s): Bryan L. Nelsen, Paul Jacobs, Westsächsische Hochschule Zwickau (Germany); Christopher Taudt, Westsächsische Hochschule Zwickau (Germany), Fraunhofer-Institut für Werkstoff- und Strahltechnik (Germany), Technische Univ. Dresden (Germany); Florian Rudek, Peter Hartmann, Westsächsische Hochschule Zwickau (Germany), Fraunhofer-Institut für Werkstoff- und Strahltechnik (Germany)

[Add To My Schedule](#) **Optical profilometry using synthetic aperture interferometry****(Canceled)**

Paper 10678-17

Time: 4:00 PM - 4:20 PM


Author(s):

Size measurements of an optical fiber by diffraction pattern analysis in Fraunhofer approximation

Paper 10678-18

Time: 4:20 PM - 4:40 PM

Author(s): Ali Boukellal, Karima Boumrar, Univ. Mouloud Mammeri de Tizi-Ouzou (Algeria); Pierre Pfeiffer, Univ. de Strasbourg (France); Rabah Mokdad, Univ. Mouloud Mammeri de Tizi-Ouzou (Algeria)

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**Session 5:
Optical Scatterometry**

Wednesday 25 April 2018

4:40 PM - 5:40 PM

Location: Auditorium Cassin


Session Chair: [Tino Hausotte](#), Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)

New challenges in light scattering analysis of complex optical components (Conference Presentation)

Paper 10678-19

Time: 4:40 PM - 5:00 PM

Author(s): Myriam Zerrad, Michel Lequime, Simona Liukaityte, Claude Amra, Institut Fresnel (France)


[Add To My Schedule](#) **Multimodal imaging Mueller polarimetric microscope to study polarimetric properties of spheroidal microparticles**

Paper 10678-20

Time: 5:00 PM - 5:20 PM

Author(s): Thomas Sang Hyuk Yoo, Ecole Polytechnique (France), Ctr. National de la Recherche Scientifique (France); Andrea Fernández, Fernando Moreno,

Jose Maria Saiz, Dpto. de Física Aplicada, Universidad de Cantabria (Spain); Razvigor Ossikovski, Enric Garcia-Caurel, Ecole Polytechnique (France), Ctr. National de la Recherche Scientifique (France)

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Session PSWed: Posters-Wednesday

Wednesday 25 April 2018
5:45 PM - 7:30 PM
Location: Hall Rhin


Conference attendees are invited to attend the Photonics Europe poster session on Wednesday 17.45 to 19.30. Posters will be on display after 10.00 Wednesday morning in the Hall Rhin. Come view the posters, enjoy light refreshments, ask questions, and network with colleagues in your field. Authors of poster papers will be present to answer questions concerning their papers. Attendees are required to wear their conference registration badges to the poster sessions. Poster authors, view poster presentation guidelines and set-up instructions at <http://spie.org/x34963.xml>.

Deriving forces in a single beam gradient force optical tweezers using the angular spectrum method

Paper 10678-13

Time: 5:45 PM - 7:30 PM

Author(s): Qin Yu, National Univ. of Ireland, Maynooth (Ireland); John Healy, Univ. College Dublin (Ireland); Bryan Hennelly, National Univ. of Ireland, Maynooth (Ireland)


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Pump-probe digital holography for monitoring of long bulk nonlinear strain waves in solid waveguides

Paper 10678-37

Time: 5:45 PM - 7:30 PM

Author(s): Andrey V. Belashov, Ioffe Institute (Russian Federation), ITMO Univ (Russian Federation); Yaroslav Beltukov, Irina Semenova, Ioffe Institute (Russian Federation)


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Investigation of alumina nanometer pore sizes on the broadening of molecular oxygen absorption line

Paper 10678-38

Time: 5:45 PM - 7:30 PM

Author(s): Ahmed Al-Saudi, Abdulaziz Aljalal, Watheq Al-Basheer, Khaled Gasmis, King Fahd Univ. of Petroleum & Minerals (Saudi Arabia)


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Optical challenging feature inline measurement system based on photometric stereo and HON feature extractor

Paper 10678-39

Time: 5:45 PM - 7:30 PM

Author(s): Huiyu Liu, Yunhui Yan, Kechen Song, Northeastern Univ. (China); Howard Chen, BMW-brilliance, China (China)


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Micro Glass Blowing platform for microfabrication of microoptical components

Paper 10678-42

Time: 5:45 PM - 7:30 PM

Author(s): Christophe Gorecki, José Vincente Carrion, Nicolas Passilly, Sylwester Bargiel, FEMTO-ST (France)


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Step-index optical fiber sizing with a rainbow technique

Paper 10678-43

Time: 5:45 PM - 7:30 PM

Author(s): Grzegorz Świmiak, Grzegorz Glomb, Wrocław Univ. of Science and Technology (Poland)


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Immersion white light scanning interferometry using elastic polymer path length compensation

Paper 10678-44

Time: 5:45 PM - 7:30 PM

Author(s): Husneni Mukhtar, ICube (France); Paul Montgomery, Freddy Anstotz, ICube, Uds-CNRS (France); Rémi Barillon, IPHC (France); Anne Rubin, ICS (France)

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THURSDAY 26 APRIL

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Hot Topics III

Thursday 26 April 2018
9:00 AM - 10:35 AM
Location: Schweitzer Auditorium



Photonics Europe 2018: Hot Topics Session III

From extreme nonlinear optics to ultrafast atomic physics

Anne L'Huillier, Lund Univ., Sweden

Quantum computations and quantum simulations with trapped ions
Rainer Blatt, Institute for Experimental Physics, Univ. of Innsbruck, Austria

For additional details, please visit <http://spie.org/x12297.xml>


Coffee Break 10:35 AM - 11:00 AM

Session 6: Micro- and Nanotopography


Thursday 26 April 2018
 11:00 AM - 12:40 PM
 Location: Auditorium Cassin

Session Chair: [Armando Albertazzi Gonçalves](#), Univ. Federal de Santa Catarina (Brazil)


Application of coherence scanning interferometry for local spectral characterization of transparent layers

Paper 10678-22
 Time: 11:00 AM - 11:20 AM
 Author(s): Rémy Claveau, Paul Montgomery, Manuel Flury, Univ. de Strasbourg (France)
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Residual flatness error correction in three-dimensional imaging confocal microscopes

Paper 10678-23
 Time: 11:20 AM - 11:40 AM
 Author(s): Carlos Bermudez, Sensofar-Tech, S.L. (Spain); André Felgner, Physikalisch-Technische Bundesanstalt (Germany); Aitor Matilla, Pol Martinez, Cristina Cadevall, Roger Artigas, Sensofar-Tech, S.L. (Spain)
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GPU-accelerated simulation of the superresolution capabilities of dielectric microspheres using the Differential Method

Paper 10678-24
 Time: 11:40 AM - 12:00 PM
 Author(s): Johannes Drozella, Karsten Frenner, Wolfgang Osten, Univ. Stuttgart (Germany)
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Determination of structural deviations in wire grid polarizers for DUV application wavelengths by transmission spectroscopy in the visible spectral range

Paper 10678-25
 Time: 12:00 PM - 12:20 PM
 Author(s): Thomas Siefke, Walter Dickmann, Physikalisch-Technische Bundesanstalt (Germany); T. Weichelt, M. Steinert, Friedrich-Schiller-Univ. Jena (Germany); Johannes Dickmann, Carol Bibiana Rojas Hurtado, Bernd Bodermann, Stefanie Kroker, Physikalisch-Technische Bundesanstalt (Germany)
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Parallel phase shift microscopy, vibrometry and focus tracking systems (Conference Presentation)

Paper 10678-26
 Time: 12:20 PM - 12:40 PM
 Author(s): Ibrahim Abdulhalim, Michael Ney, Amir Aizen, Andrey Nazarov, Avner Safrani, Ben-Gurion Univ of the Negev (Israel)
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Lunch Break 12:40 PM - 1:50 PM

Session 7: Interferometry II

Thursday 26 April 2018
 1:50 PM - 4:20 PM
 Location: Auditorium Cassin

Session Chair: [Jürgen W. Czarske](#), TU Dresden (Germany)


Interferometric measuring systems of nanopositioning and nanomeasuring machines (Invited Paper)

Paper 10678-27
 Time: 1:50 PM - 2:20 PM
 Author(s): Tino Hausotte, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany)
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Dispersion-controlled low-coherent interferometry for thin-film characterization

Paper 10678-28
 Time: 2:20 PM - 2:40 PM
 Author(s): Marco Preuss, Christopher Taudt, Bryan L. Nelsen, Peter Hartmann, Westsächsische Hochschule Zwickau (Germany)




[Add To My Schedule](#) **Ultrastable metrology laser at 633 nm using an optical frequency comb**

Paper 10678-29

Time: 2:40 PM - 3:00 PM


Author(s): Paul Köchert, Ulrike Blumröder, Eberhard Manske, Technische Univ. Ilmenau (Germany)

[Add To My Schedule](#) **Symmetrical double diffraction laser encoder**

Paper 10678-30

Time: 3:00 PM - 3:20 PM

Author(s): An-Jie Liang, Pei-Yun He, Hung-Lin Hsieh, National Taiwan Univ. of Science and Technology (Taiwan)

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Coffee Break 3:20 PM - 3:40 PM

Dual wavelength fiber laser and its application in displacement measurement with wavelength multiple self-mixing heterodyne interferometry

Paper 10678-31

Time: 3:40 PM - 4:00 PM


Author(s): Hui Wang, Fang Xie, Lianlian Dong, Yunzhi Wang, Hengxiao Xu, Beijing Jiaotong Univ. (China)

[Add To My Schedule](#) **Two-step phase shifting in fringe projection: modeling and analysis**

Paper 10678-32

Time: 4:00 PM - 4:20 PM

Author(s): Jiaqi Mao, Yongkai Yin, Xiangfeng Meng, Xiulun Yang, Shandong Univ. (China); Lei Lu, Henan Univ. of Technology (China); Dechun Li, Shandong Univ. (China); Christian Pape, Eduard Reithmeier, Leibniz Univ. Hannover (Germany)

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Session 8: Specialized Techniques

Thursday 26 April 2018

4:20 PM - 5:40 PM

Location: Auditorium Cassin


Session Chair: [Christophe Gorecki](#), FEMTO-ST (France)

Mapping of the detecting units of the resonator-based multiplexed sensor

Paper 10678-33

Time: 4:20 PM - 4:40 PM


Author(s): Anton V. Saetchnikov, Ruhr-Univ. Bochum (Germany), Belarusian State Univ. (Belarus); Elina A. Tchemiavskaia, Vladimir A. Saetchnikov, Belarusian State Univ. (Belarus); Andreas Ostendorf, Ruhr-Univ. Bochum (Germany)

[Add To My Schedule](#) **Numerical analysis of angle-selective one-dimensional periodic structure for building energy management**

Paper 10678-34

Time: 4:40 PM - 5:00 PM


Author(s): Kazutaka Isoda, Kohki Nagata, Mizue Ebisawa, Tokyo Metropolitan Industrial Technology Research Institute (Japan); Yukiotoshi Otani, Utsunomiya Univ. (Japan)

[Add To My Schedule](#) **Effects of non-ideal display properties in phase measuring deflectometry: A model-based investigation**

Paper 10678-35

Time: 5:00 PM - 5:20 PM

Author(s): Jonas Bartsch, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Johann Rasmus Nüss, Univ. Bremen (Germany); Martin Prinzler, Michael Kalms, Bremer Institut für angewandte Strahltechnik GmbH (Germany); Ralf B. Bergmann, Bremer Institut für angewandte Strahltechnik GmbH (Germany), Univ. Bremen (Germany)

[Add To My Schedule](#) **Ultra-small mechanical deformation sensor using a hybrid fiber optic-based triangular photonic crystal structure**

Paper 10678-36

Time: 5:20 PM - 5:40 PM

Author(s): Roxana-Mariana Beiu, Valeriu Beiu, Virgil-Florin Duma, Aurel Vlaicu Univ. of Arad (Romania)

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