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Peter Lehmann
Wolfgang Osten
Armando Albertazzi Gonçalves Jr.
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Contents

xiii	<i>Authors</i>
xix	<i>Conference Committee</i>
xxiii	<i>Introduction</i>

Part One

SESSION 1 INTERFEROMETRY I

11056 03	Bessel fringes modulation determination by directional spatial carrier phase shifting [11056-2]
11056 04	Analysis of measurement error caused by swing motion for determining the physical thickness and group refractive index of a large glass panel [11056-4]
11056 05	Comparison of algorithms determining sign of Bessel function in time averaging interferometry [11056-3]

SESSION 2 DIGITAL HOLOGRAPHY

11056 06	Digital holographic imaging for optical inspection in learning-based pattern classification [11056-5]
11056 07	High-NA lensless coherent imager as a building block for a synthetic aperture interferometry array [11056-6]

SESSION 3 INTERFEROMETRY II

11056 0A	Topography measurement of glass disk substrates with sub-nanometer resolution [11056-9]
11056 0B	Three-dimensional shape measurement of fine structure by detecting phase distribution of only zeroth order diffraction beam based on speckle interferometry [11056-10]
11056 0C	Two-dimensional remote interferometric stage encoder through a single access port using range-resolved interferometry [11056-11]

- 11056 OD **Absolute distance measurement of optical path length of non-contact three-dimensional nanoprofiler based on normal vector tracing method by tandem white-light interferometer** [11056-12]
- 11056 OE **Differential displacement measurements along a single beam using range-resolved interferometry** [11056-13]
- 11056 OF **Demodulation for sinusoidal frequency/phase modulation interferometer using artificial harmonic series signal and phase-locked loop** [11056-14]

SESSION 4 SPECKLE AND SHEARING INTERFEROMETRY

- 11056 OG **Thermography-inspired processing strategy applied on shearography towards nondestructive inspection of composites** [11056-15]
- 11056 OH **A robust integration algorithm for out-of-plane displacement field measurements applied to multiple images of shearography** [11056-16]
- 11056 OI **Shearography inspection of monolithic CFRP composites: finite element modeling approach for assessing an adequate strategy of artificial defects representing delamination** [11056-17]
- 11056 OJ **EXTREME shearography: high-speed shearography instrument for in-plane surface strain measurements during an impact event** [11056-18]
- 11056 OK **Absolute angle measurement using dual-wavelength laser speckle for robotic manufacturing** [11056-19]

SESSION 5 TOPOGRAPHY SENSORS AND MEASURING SYSTEMS

- 11056 OL **Scale spanning subnanometer metrology up to ten decades (Invited Paper)** [11056-20]
- 11056 OM **Concept for a highly miniaturized endoscopic point distance sensor** [11056-21]
- 11056 ON **Evaluation of the optical performance of a novel high-speed focal-distance-modulated fibre-coupled confocal sensor** [11056-22]

SESSION 6 RESOLUTION ENHANCEMENT TECHNIQUES

- 11056 OQ **Light-sample interaction in microsphere enhanced 2D super-resolution imaging** [11056-25]
- 11056 OR **Microsphere-assisted imaging of sub-diffraction-limited features** [11056-26]
- 11056 OS **Label-free 3D super-resolution nanoscope** [11056-27]

SESSION 7 HIGH-SPEED TECHNIQUES

- 11056 OT **Double pulse LED illumination for phase detection in RGB-interferometry** [11056-28]
- 11056 OU **Full-field, high-frequency, heterodyne interferometry for dynamic metrology based on phase detection using a modified time-of-flight camera** [11056-29]
- 11056 OV **GPU-based digital image correlation system for real-time strain-controlled fatigue and strain field measurement** [11056-30]

SESSION 8 3D MICROSCOPY

- 11056 OW **Active illumination focus variation** [11056-31]
- 11056 OX **Optical measurement of ground cylinder lead angle** [11056-32]
- 11056 OY **User-oriented evaluation of the metrological characteristics of areal surface topography measuring instruments** [11056-33]
- 11056 OZ **Correction of surface error occurring in microlenses characterization performed by optical profilers** [11056-34]
- 11056 IO **The use of parabolic mirrors in combined low-coherence and confocal refractive index measurement** [11056-35]
- 11056 II **Novel chromatic confocal differential interference contrast prototype** [11056-36]

SESSION 9 STRUCTURED ILLUMINATION TECHNIQUES I

- 11056 I3 **Hybrid telecentric triangulation sensor system with real-time field-dependent deconvolution** [11056-38]
- 11056 I4 **Structured light sensor with telecentric stereo camera pair for measurements through vacuum windows** [11056-39]
- 11056 I5 **3D shape from thermal patterns: investigation of projection parameters in simulation and experiment** [11056-40]

SESSION 10 STRUCTURED ILLUMINATION TECHNIQUES II

- 11056 I6 **Automatic camera calibration and sensor registration of a multi-sensor fringe measurement system using hexapod positioning** [11056-41]
- 11056 I7 **Extrinsic calibration of a 3D sensor based on an array projector and a single camera** [11056-42]

- 11056 18 **3D multispectral imaging system for contamination detection** [11056-43]
- 11056 19 **Full-field deflectometry for optical characterization of high-precision mirrors** [11056-44]

SESSION 11 LIGHT SCATTERING TECHNIQUES

- 11056 1A **Heterodyne detection system for nanoparticle detection using coherent Fourier scatterometry** [11056-45]
- 11056 1B **Determination of optical fiber layer parameters by inverse evaluation of lateral scattering patterns** [11056-46]
- 11056 1C **High-resolution Czerny-Turner scatterometer for BRDF measurements** [11056-47]
- 11056 1D **Recent development in BTDF/BRDF metrology on large-scale lambertian-like diffusers, application to on-board calibration units in space instrumentation** [11056-48]

SESSION 12 MEASUREMENT OF OPTICAL COMPONENTS I: ASPHERE AND FREEFORM MEASUREMENT. JOINT SESSION WITH EOS

- 11056 1F **Grazing incidence interferometry for testing rough asperics** [11056-50]
- 11056 1G **Tilted wave interferometer in common path configuration: challenges and realization** [11056-51]
- 11056 1H **Measurement of mid-spatial frequency errors on freeform optics using deflectometry** [11056-52]

SESSION 13 MEASUREMENT OF OPTICAL COMPONENTS II

- 11056 1N **Precise measurement of known and unknown freeform surfaces using Experimental Ray Tracing** [11056-55]
- 11056 1O **Interferometric measurement of local radii of curvature for aspheric surface using a PDI** [11056-56]

SESSION 14 HYPERSPECTRAL IMAGING AND SPECTROSCOPIC TECHNIQUES

- 11056 1P **Setup and evaluation of a static imaging Fourier transform spectrometer for the mid-infrared spectral range** [11056-57]
- 11056 1Q **An approach to combined multispectral reflectorless distance measurement and material probing** [11056-58]

- 11056 1R **Precise thickness measurement and comparison of step-shaped microfluidic channel mold using optical interferometry** [11056-59]
- 11056 1S **Hyperspectral imaging microscopy for thickness measurement and surface characterization of layered MoS₂** [11056-60]
- 11056 1T **Realization of a LIBS-based, temporally and spatially resolved welding control** [11056-61]
- 11056 1U **Rotational Raman spectroscopy for in situ temperature and composition determination in reactive flows** [11056-62]

SESSION 15 IN-PROCESS AND IN-SITU MEASUREMENTS

- 11056 1V **Automated pump-probe microscope to observe laser ablation on a picosecond scale** [11056-63]
- 11056 1X **Fluorescence laser scanner for in-line inspection of functional coatings in metal processing industries** [11056-65]
- 11056 1Y **Automated inline visual inspection and 3D measuring in electrode manufacturing** [11056-66]
- 11056 1Z **Innovative system for automated measurement of the distribution of the length of natural fibres** [11056-67]
- 11056 20 **Imaging detection and classification of particulate contamination on structured surfaces** [11056-68]

SESSION 16 NONDESTRUCTIVE TESTING AND FAULT DETECTION

- 11056 21 **Diameter quantification of through holes in pipelines hidden by protective layers of composite materials using instantaneous shearography simultaneously in three shearing directions** [11056-70]
- 11056 22 **Photoacoustic inspection of CFRP using an optical microphone** [11056-71]
- 11056 23 **Development of a convolutional autoencoder using deep neuronal networks for defect detection and generating ideal references for cutting edges** [11056-72]
- 11056 24 **An automatic visual inspection system to scan outer lenses of automotive rear lamps** [11056-74]

Part Two

- 11056 25 **Development of an experimental setup and a study for the comparison between optical properties and the subjective perception of a quality of a display surface** [11056-69]

POSTER SESSION

- 11056 27 **Wavelength-switchable Fizeau interferometry and its applications** [11056-75]
- 11056 28 **Light field three-dimensional measurement** [11056-76]
- 11056 29 **Measurement of wavefront curvature using computer-generated Fourier holograms** [11056-77]
- 11056 2B **Surface roughness measurement accuracy analysis of grinded silicon wafer by white light scanning interferometry (WLSI)** [11056-80]
- 11056 2C **Non-destructive and real-time optical inspection for lens size using swept source optical coherence tomography** [11056-81]
- 11056 2D **Optical form measurement system using a line-scan interferometer and distance measuring interferometers for run-out compensation of the rotational object stage** [11056-83]
- 11056 2E **Dynamic speckle inspection with raw data compression** [11056-84]
- 11056 2F **Study of the errors of stereoscopic optical-electronic system for railroad track position** [11056-85]
- 11056 2G **Motionless and fast measurement technique for obtaining the spectral diffraction efficiencies of a grating** [11056-86]
- 11056 2H **Influence of test bench parameters on determination of CMOS -cameras feature** [11056-87]
- 11056 2I **Near real-time digital holographic imaging on conventional central processing unit** [11056-88]
- 11056 2J **Optic-electronic multi-matrix system for measuring the positions of the reflecting panels on the main mirror of the large radio-telescope** [11056-89]
- 11056 2K **Design and fabrication of opto-mechanical micro polymeric cantilever based optical fiber sensor** [11056-90]
- 11056 2M **Bright high harmonic generation around 30 nm and 10 nm for seeding full coherent XFEL** [11056-92]
- 11056 2N **Impact damage characterization in CFRP plates using PCA and MEEMD decomposition methods in optical lock-in thermography phase images** [11056-93]
- 11056 2O **Turning a machine vision camera into a high precision position and angle encoder: nanoGPS-OxyO** [11056-94]
- 11056 2Q **Nonlinear noise analysis in a long-haul fiber-optic sensing system** [11056-96]
- 11056 2R **Wafer-level inspection platform on high-volume photonic integrated circuits for drastic reduction of testing time** [11056-97]

- 11056 2S **Ultra-large dynamic signal detection method based on combined 3x3 optical fiber interferometer** [11056-98]
- 11056 2T **Comparative analysis of feedback methods in reconstruction algorithms for multiple-scattering holographic tomography** [11056-99]
- 11056 2U **A conceptual study of infrared and visible-light image fusion methods for three-dimensional object reconstruction** [11056-100]
- 11056 2V **Study of the non-uniformity of sensitivity distributed over photomultiplier active area influence on the operation of the photometric module for separate x-ray luminous diamond** [11056-101]
- 11056 2W **Optimization of a geometrical calibration procedure for stereoscopic endoscopy systems** [11056-102]
- 11056 2X **Optic-electronic system for measurement the position of Millimetron's space telescope segments of main mirror** [11056-103]
- 11056 2Y **Measurement and calculation of solid-state matrix photomultiplier's polarization parameters** [11056-104]
- 11056 2Z **Optical laser reflection borometry** [11056-105]
- 11056 30 **Characterization the effect of acetone gas concentration on polymeric tapered optical fiber sensor** [11056-107]
- 11056 31 **Spectrally-resolved white-light phase-shifted interferometry for 3D measurements of multilayer films** [11056-108]
- 11056 32 **Optical methods of on-line diagnostics of processes of the Nickel alloy powder consolidation in the layer-by-layer laser melting technology** [11056-109]
- 11056 33 **Optical method of on-line temperature monitoring on the melt surface in laser metal deposition technology** [11056-110]
- 11056 35 **Camera calibration method of optical system for large field measurement of hot forgings in heavy industry** [11056-112]
- 11056 36 **Original methods of aberration correction in optical systems of autocollimators** [11056-113]
- 11056 37 **Micro- and nanofabrication technologies using the nanopositioning and nanomeasuring machines** [11056-114]
- 11056 38 **Removal of monotonically increasing or decreasing phase ambiguity in retrieved phase by Riesz transform method in digital interferometric techniques** [11056-115]
- 11056 39 **Optoelectronic autocollimator as a tool for monitoring load-carrying structure** [11056-117]
- 11056 3A **Automatic control system of combustion processes based on the methods of contactless optical spectroscopy** [11056-118]

11056 3B	High-accuracy piston error measurement with a large capture range based on coherent diffraction [11056-119]
11056 3D	Adaptive optics test bench for predictive wavefront correction [11056-121]
11056 3F	Reliability results of a fully automated robust x-y stage measurement unit for precise light distribution measurement [11056-123]
11056 3G	Noise reduction of digital holography using speckle correlation properties in longitudinal direction [11056-124]
11056 3H	Characterization of thermal absorption and nonlinear absorption in KDP/DKDP crystals with different orientations [11056-125]
11056 3I	High resolution topography sensors in a multisensor measuring setup [11056-126]
11056 3J	Measurement of the refractive index of a transparent film using interferometry [11056-127]
11056 3K	Multi degree-of-freedom position sensing by combination of laser speckle correlation and range-resolved interferometry [11056-128]
11056 3L	Measuring method and standard system for retroreflective traffic marking's photometric characteristic [11056-129]
11056 3M	Automatic and accurate full-view registration method for 3D scanning system [11056-130]
11056 3N	3D shape measurement in the presence of interreflections by light stripe triangulation with additional geometric constraints [11056-131]
11056 3O	Analysis of sub-pixel laser spot detection in laser triangulation systems [11056-132]
11056 3P	Digital holographic microscopy for thickness characterization using synthesized partially coherent holograms [11056-133]
11056 3Q	Nonlocal means variants filtering methods for speckle noise reduction in digital speckle pattern interferometric fringes [11056-134]
11056 3R	Polarization analysis of the object wave using FMCW-digital holography [11056-135]
11056 3S	A hybrid method for velocity field of fluid flow estimation based on optical flow [11056-136]
11056 3T	Interferometer for large convex optical aspheric surfaces testing [11056-137]
11056 3U	A demodulation method with high stability for interferometric type vector fiber hydrophone [11056-138]
11056 3V	Determination of paraxial focal length of lens using Strehl definition measurement [11056-139]

11056 3W	Contactless optical spectroscopy methods in the tasks of monitoring physical and technological processes in extreme conditions [11056-140]
11056 3X	Experimental light scattering by optical fibers: system design and testing [11056-141]
11056 3Z	Direct monochromatic optic control system of the thickness of thin-film interference coatings applied in vacuum [11056-143]
11056 40	Development of absolute angular encoder design on coordinate photodetectors [11056-144]
11056 41	Adaptive windowed Fourier transform filtering method for speckle fringe patterns [11056-145]
11056 42	Coordinate mapping of the primary mirror vertex in a space telescope by using a CGH and theodolites [11056-146]
11056 43	A new method for measuring target reflectivity [11056-147]
11056 44	Highly repetitive low-coherence interferometry with time-stretch technique [11056-148]
11056 45	Contrast determination in phase-shifting algorithms for interferograms with arbitrary steps and additive noise [11056-149]
11056 46	Two-shot fringe pattern phase demodulation using the extreme value of interference with Hilbert-Huang per-filtering [11056-151]
11056 47	High resolution measurement of freeform wavefront by using self-imaging based sensor [11056-152]
11056 48	Development of an illumination module for stroboscopic phase-shift interferometry on MEMS devices [11056-153]
11056 49	Sensitivity of an image-plane digital holography interferometer for the measurement of pile-up [11056-154]
11056 4A	Measurement system of characteristics of compensation devices by the autocollimation method [11056-155]
11056 4B	Freeform optics alignment strategy and its effect on development of precision freeform optics [11056-156]
11056 4C	Application of immersion method for measuring freeform surfaces [11056-160]

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.

Acher, Olivier, 2O	Bortoli, Tiago, 2I
Aguirre-Aguirre, Daniel, 1O	Boussemaere, L., 19
Ahlers, K., 0S	Bouwens, A., 19
Aichert, D., 3F	Braeuer, Andreas S., 1U
Aizu, Yoshihisa, 3G	Brand, Andreas A., 1V
Aketagawa, Masato, 0F	Brandenburg, Albrecht, 1X, 20
Albertazzi G., Armando, 0H, 2I, 2N, 49	Bräuer-Burchardt, Christian, 17
An, S. Y., 3J	Budnev, A. Y., 3Z
Anisimov, Andrei G., 0J	Burada, Dali R., 47, 4B
Antoine, P., 19	Cadevall, Cristina, 0W
Aoki, N., 3R	Cai, Zewei, 28
Arai, Y., 0B	Cao, Chunyan, 2Q, 2S
Arstila, Timo, 0Q, 0S	Cao, Jinjin, 3L
Artigas, Roger, 0W	Carl, D., 0V
Ayubi, Gastón A., 4S	Chang Chien, Kuang-Che, 06
Babovsky, Holger, 17	Charrett, Thomas O. H., 0K, 3K
Bae, Jaeseok, 04, 1R	Chen, Hu, 2Q, 2S
Bahr, Leo A., 1U	Chen, Jian, 27, 2G
Bai, Qian, 2B	Chen, Liang-Chia, 1I
Baldo, Christian R., 2N	Cheng, Chau-Jern, 06
Barandak, A., 2K, 30	Chertov, Aleksander N., 2V
Baroud, Yousef, 13	Claussen, Gunnar, 1B
Barrera, Estiven S., 0H, 2I, 2N	Clermont, L., 1D
Baselt, T., 1T	Coggrave, Charles R., 07
Batshev, Vladislav I., 2W, 3T	Cornejo-Rodriguez, Alejandro, 1O
Beermann, Rüdiger, 14	Coupland, Jeremy, 07
Béguelin, Jeremy, 0Z	Cox, Brittany, 1H
Beisswanger, Rolf, 1G	de Groot, Peter, 0X
Belkner, Johannes, 1I	de Oliveira, Bernardo C. F., 2N, 2U
Benedet, Mauro E., 0H, 2I	Deck, Leslie, 0X
Bermudez, Carlos, 0W	Denisov, D. G., 3Z
Berndt, Dirk, 48	Domken, I., 1D
Bertz, A., 0V	Dong, Liquan, 3B
Besaga, Vira R., 2I	Dong, Xingchen, 1P, 1S
Binkele, Tobias, 1N	Drozdova, Daria A., 2Y
Birli, Oliver, 0L	Druzhin, Vladislav, 4C
Blain, P., 0G, 0I	Dubrov, A. V., 32, 33
Blalock, Todd, 1H	Dubrov, V. D., 32, 33
Blättermann, Alexander, 20	Dziubecka, Helena, 03, 0S
Blödorn, Rodrigo, 49	Eberl, C., 0V
Blohm, Werner, 1B	Eckmann, S., 0V
Blug, A., 0V	Egorov, D. I., 36
Blumröder, Ulrike, 0L	Ehret, Gerd, 2D
Böhler, Mario, 1V	Eifler, Matthias, 0Y, 23
Boing, Denis, 49	Endo, Katsuyoshi, 0D
Bolbasova, L. A., 3D	Ermacora, Denis, 24
Boonen, Laura, 1Y	Essameldin, Mahmoud, 1N
Borges, Vicente K., 2U	Fan, Chen, 46
Borguet, B., 19	Fang, Meiqi, 2C

Fantin, Analucia V., 0H, 21
 Faulhaber, Andreas, 13
 Fischer, B., 22
 Fleischmann, Friedrich, 1N
 Flury, Manuel, 0R
 Fontanot, Tommaso, 24
 Ford, Helen D., 10
 Francis, Daniel, 10
 Freischlad, Klaus, 0A
 Fröhlich, Herberth B., 2N
 Fröhlich, Thomas, 0L
 Frommknecht, Andreas, 1Y
 Fu, Peng, 43
 Fukuda, Hiroshi, 2R
 Funamizu, Hideki, 3G
 Furukawa, Hideaki, 44
 FÜßl, Roland, 0L
 Garcia-Armenta, Jorge, 07
 Gavlina, Alexandra E., 3T
 Georges, M., 0G, 0I
 Gerhardt, Nils C., 2I
 Ghim, Young-Sik, 3I
 Ghosh, A., 47
 Gibson, Sam J., 0K
 Giessen, Harald, 0M
 Glanz, Carsten, 1Y
 Glaser, Tilman, 1C
 Głomb, Grzegorz, 3S, 3X
 Glukhov, Yuriy, 29
 Gorevoy, Alexey V., 2W
 Granados-Agustin, Fermín Salomón, 1O
 Grietsuta, A. N., 3D
 Gronle, Marc, 13
 Gröschl, Andreas C., 0N
 Grosse, C. U., 22
 Groves, Roger M., 0J
 Gu, Feifei, 3M
 Guo, Dongming, 2B
 Hæggström, Edward, 0Q, 0S
 Hagemeyer, Sebastian, 3I
 Haist, Tobias, 13
 Hallam, Jonathan M., 10
 Han, S.-H., 3J
 Harsch, Antonia, 1G
 Hartmann, P., 1T, 25
 Hashimoto, Kota, 0D
 Hashimoto, Takahiro, 44
 Hausotte, Tino, 0N, 16
 He, Huayang, 3L
 He, Wenqi, 28
 Heist, Stefan, 15, 17
 Henning, Thomas, 1N
 Hering, Julian, 0Y
 Herkommer, Alois, 0M
 Higuchi, Masato, 0F
 Hilbig, David, 1N
 Hofmann, Martin, 37
 Hofmann, Martin R., 2I
 Holz, Philipp, 1X
 Horsten, R. C., 1A
 Hošek, J., 2Z
 Hoshikawa, Masaharu, 44
 Hou, Qingkai, 2S, 3U
 Hu, Fei, 43
 Hu, Guohang, 3H
 Hu, Yan, 43
 Huang, Ming, 27, 2G
 Huber, Franz J. T., 1U
 Hui, Mei, 3B
 Hurník, Jakub, 35
 Ishii, Katsuhiko, 44
 Ishikawa, T., 3R
 Ivanov, Branimir, 2E
 Jacobs, J., 1D
 Jakobi, Martin, 1S, 3O
 Järvinen, M., 0S
 Jha, Sunil, 4B
 Jia, Pingping, 2C
 Jiang, Hongzhi, 3N
 Jin, Jonghan, 04, 1R
 Kabardiadi-Virkovski, A., 1T, 25
 Kahl, Michael, 1Z
 Kaidarakova, Victoria, 4C
 Kang, J.-W., 42
 Kang, Jungmin, 0D
 Karar, Vinod, 4B
 Karatas, Abdullah, 23
 Kassamakov, Ivan, 0Q, 0S
 Kästner, Markus, 14
 Kazakov, Vasily I., 3A, 3W
 Khan, Gufran S., 47, 4B
 Khokhlov, Demid D., 2W
 Kienle, Patrick, 1P, 3O
 Kihm, H., 42
 Kim, S.-B., 3J
 Kirchner, Johannes, 37
 Kirkove, M., 0G
 Kissinger, Thomas, 0C, 0E, 3K
 Kitayama, Takao, 0D
 Kizaki, Ryo, 0D
 Koch, Alexander W., 1P, 1S, 3O
 Koch, Felix, 1C
 Köchert, Paul, 0L
 Köhler, Michael H., 1P, 1S, 3O
 Kolenov, D., 1A
 Koliopoulos, Chris, 0A
 Kölsch, Dorothea, 23
 Konyakhin, Igor A., 2J, 2X, 39
 Korotaev, Valery V., 2H, 2V
 Kovalev, Michael, 29
 Kowarschik, Richard, 17
 Kozacki, Tomasz, 2T, 3P
 Kozłowski, Peter, 20
 Krasin, George, 29
 Kühmstedt, Peter, 15
 Kumar, Manoj, 38, 3Q
 Landmann, Martin, 15
 Lang, Walter, 1N
 Latifi, H., 2K, 30
 Lavrinov, V. V., 3D

Layh, Michael, 0M
 Lecler, Sylvain, 0R
 Lee, H. J., 3J
 Lehmann, Peter, 0T, 2D, 3I
 Leng, Zhengwei, 3L
 Lequesne, C., 0I
 Li, Dawei, 3H
 Li, Jun, 3M
 Li, Ruxin, 2M
 Li, Xudong, 3N
 Liao, Meihua, 28
 Liao, Zaibo, 2Q
 Lindlein, N., 1F
 Linghu, Changxiang, 2Q, 2S
 Liu, Beibei, 4I
 Liu, Hsiu-Wen, 1I
 Liu, Jing, 4I
 Liu, Shijie, 27, 2G
 Liu, Xiaoli, 28
 Lobanova, Anastasiya Y., 2Y
 Lou, Zhiyuan, 2M
 Lu, Qi, 27
 Lukin, V. P., 3D
 Lvova, Ksenia, 4C
 Machikhin, Alexander S., 2W
 Maconi, Göran, 0Q, 0S
 Maeda, Yoshiho, 2R
 Makino, Takeshi, 44
 Manske, Eberhard, 0L, 1I, 37
 Mantel, K., 1F
 Maraev, Anton A., 2H
 Marbach, Sébastien, 0R
 Marcellino, Guilherme C., 2U
 Marcotte, S., 1D
 Marquet, B., 1D
 Martinez, Pol, 0W
 Martinez-Carranza, Juan, 3P
 Mastilo, Rostyslav, 0L
 Matsuo, Shinji, 2R
 Mazy, E., 1D
 Mednikov, Sergey V., 2V
 Meister, Andreas, 0L
 Mendoza-Santoyo, Fernando, 38, 3Q
 Metzner, Sebastian, 16
 Meyer, Fabian, 1V
 Michel, C., 1D
 Mikš, A., 3V
 Mikula, Marta, 3P
 Minh, Dinh B., 2H
 Mishra, Vinod, 4B
 Mitchell, John B., 0U
 Mitrofanov, Sergey S., 40
 Miura, Toru, 2R
 MohanPant, Lalit, 47
 Montgomery, Paul, 0R
 Moreau, V., 19
 Moskaletz, Oleg D., 3A, 3W
 Myer, Brian, 1H
 Nallar, Elif, 3O
 Nassim, Abdelkrim, 38, 3Q
 Nekarda, Jan F., 1V
 Nekrylov, Ivan S., 2F, 2H, 2V
 Neumann, M., 1T
 Nguyen, Thanh-Liem, 2O
 Nguyen, The Thien, 1P
 Ninca, I., 0S
 Noell, Wilfried, 0Z
 Nogin, Anton A., 39
 Nolvi, A., 0S
 Notni, Gunther, 15, 18
 Novák, J., 3V
 Novák, P., 3V
 Novikov, Denis A., 3T
 Odinokov, Sergey, 29
 Oh, Kwan-Jung, 2E
 Ortlepp, Ingo, 0L
 Osten, Wolfgang, 13, 1G, 28
 Ostendorf, Andreas, 2I
 Özdemir, B., 3F
 Paloušek, David, 35
 Pant, Kamal K., 47, 4B
 Paraskun, A. S., 3W
 Park, Ian S., 07
 Park, Joongki, 2E
 Park, Jungjae, 04, 1R
 Paroni, Sara, 24
 Pedrini, Giancarlo, 28
 Peng, Xiang, 28
 Peng, Xiaocong, 3H
 Percino-Zacarias, Maria Elizabeth, 1O
 Pereira, S. F., 1A
 Perevoznikova, Anastasiia, 4C
 Perrin, Stephane, 0R
 Pham, Ngoc Tuan, 2F
 Pinto, Tiago L. F. C., 2U
 Pinzer, Bernd, 0M
 Pokorný, P., 3V
 Portnova, V. E., 4A
 Povarov, Kirill S., 40
 Prause, Korbinian, 0M
 Prosovskii, O. F., 3Z
 Prosovskii, Y. O., 3Z
 Pruss, Christof, 0L, 13, 1G
 Puder, Th., 25
 Qin, Yuwei, 2C
 Quentin, Lorenz, 14
 Raatikainen, P., 0S
 Raducci, Sebastian, 24
 Rangelow, Ivo W., 37
 Ranjbar-Naeini, O. R., 2K, 30
 Rees, Paul C. T., 0U
 Regina, D. J., 0V
 Reichel, S., 3F
 Reithmeier, Eduard, 14
 Rhee, Hyug-Gyo, 3I
 Riebeling, Joerg, 2D
 Rinner, Stefan J., 1Z
 Roberts, Gareth Wyn, 0U
 Rodrigues, Joel J. P. C., 2V
 Rosenberger, Maik, 18

Rothau, S., 1F
 Rudek, F., 25
 Ruiz, Pablo D., 07
 Rus, J., 22
 Ryzhova, Victoria A., 2Y
 Saetchnikov, Anton V., 2I
 Sakhariyanova, Aigany M., 39
 Salehi-Moghadam, Mohammadreza, 2K
 Salido-Monzú, David, 1Q
 Schake, Markus, 0T
 Scharf, Torald, 0Z
 Schaupe, Janik, 0N
 Schäufele, T., 3F
 Schmauder, Martin, 1Y
 Schmid, Hubert, 1Z
 Schmidt, Michael, 0X
 Schmidt, Samuel, 23
 Schmitt, Robert, 2N
 Schnabel, Mike, 1C
 Schober, Christian, 1G
 Schütz, Jan, 20
 Schwesinger, Folker, 0L
 Schwider, J., 1F
 Seewig, Jörg, 0Y, 23
 Selin, A. A., 3D
 Senn, M., 0V
 Sergeeva, Maria V., 3T
 Shakher, Chandra, 47
 Shao, Jianda, 27, 2G, 3H
 Sharshavina, K., 19
 Shin, O., 3J
 Simon, Sven, 13
 Simonetti, Giulio, 24
 Sinzinger, Stefan, 37
 Skupsch, Christoph, 48
 Šmejkal, F., 3V
 Smirnov, N. V., 4A
 Soin, E. L., 3D
 Song, W., 3J
 Song, Zhan, 3M
 Söylemez, H., 3F
 Stankic, D., 3F
 Stark, Andreas, 17
 Stockman, Y., 1D
 Stoykova, Elena, 2E
 Ströer, Felix, 0Y
 Stsepuro, Nikita, 29
 Styk, Adam, 03, 05
 Su, Jinlong, 43
 Su, Wenying, 3L
 Supreeti, Shraddha, 37
 Suski, Damian, 2T
 Świrniak, Grzegorz, 3S, 3X
 Tahmasebi, M. M., 30
 Takamasu, Kiyoshi, 0D
 Tang, Qiyong, 2Q
 Tatam, Ralph P., 0C, 0E, 0K, 10, 3K
 Taudt, Ch., 25
 Thiele, Simon, 0M
 Timofeev, Alexander N., 2F, 2V
 Tong, Minh Hoa, 2J
 Tounsi, Yassine, 38, 3Q
 Toyoshi, Yui, 0D
 Tu, Han-Yen, 06
 Uozumi, Jun, 3G
 Vaganov, Mikhail A., 3A, 3W
 Vainikka, T., 0Q, 0S
 Vandenrijt, J.-F., 0G, 0I
 Vasilev, Gleb, 2X
 Vasileva, Anna V., 2H
 Ventura, Luiz G. M., 48
 Vesselli, Erik, 24
 Villalobos-Mendoza, Brenda, 1O
 Viotti, Matias R., 49
 Voelkel, Reinhard, 0Z
 von Freymann, Georg, 0Y
 Wada, Naoya, 44
 Wang, Fuyin, 2S, 3U
 Wang, Shenghao, 2G
 Wang, YiQi, 2B
 Wang, Yunfan, 3N
 Wei, Dong, 0F
 Weidenfeller, Laura, 37
 Wieser, Andreas, 1Q
 Will, Stefan, 1U
 Willemann, Daniel P., 0H, 21
 Winarno, Agustinus, 0D
 Winkler, Y., 1T
 Winnik, Julianna, 2T
 Wiseman, Kieran B., 0C
 Wolschke, Steffen, 48
 Wong, Eugene, 17
 Wu, Hongfei, 43
 Wu, Jiaqi, 2M
 Wu, Zhouling, 27, 2G
 Xiong, H., 0I
 Xiong, Shuidong, 2Q, 2S, 3U
 Xu, Pei, 3M
 Xu, Xueke, 27
 Xu, Yang, 3N
 Xu, Zhizhan, 2M
 Yamamura, Kazuya, 0D
 Yan, Ying, 2B
 Yang, H.-S., 42
 Yao, Qiong, 2S, 3U
 Yaryshev, Sergey N., 2H
 Ylitalo, T., 0S
 Yokota, M., 3R
 Zatocilová, Aneta, 35
 Zavalov, Y. N., 32, 33
 Zeng, Zhinan, 2M
 Zhang, Chen, 18
 Zhang, Hangying, 46
 Zhang, Jinning, 3L
 Zhang, Long, 3H
 Zhang, Lu, 3B
 Zhang, Luyao, 2M
 Zhang, Weihua, 2Q
 Zhao, Hong, 2C, 46
 Zhao, Huijie, 3N

Zhao, Jinlei, 2C, 46
Zhao, Juan, 3M
Zhao, Linjie, 2B
Zhao, Weirui, 3B
Zhao, Y., 0G
Zhao, Yuan'an, 3H
Zhao, Yuejin, 3B
Zhao, Zixin, 46
Zheng, Yinghui, 2M
Zhou, Guoqing, 4I
Zhou, Ping, 2B
Zhou, Yishu, 3L
Zhou, You, 27
Zilk, Matthias, 1C
Ziolek, Carsten, 1Z

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- 10 Structured Illumination Techniques II
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- 11 Light Scattering Techniques
 Jürgen W. Czarske, Technische Universität Dresden (Germany)
- 12 Measurement of Optical Components I: Asphere and Freeform
 Measurement. Joint Session with EOS
 Oliver W. Föhnle, FISBA AG (Switzerland)
 Sven Schröder, Fraunhofer-Institut für Angewandte Optik und
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- 13 Measurement of Optical Components II
 Wolfgang Osten, Institut für Technische Optik (Germany)
- 14 Hyperspectral Imaging and Spectroscopic Techniques
 Peter Lehmann, Universität Kassel (Germany)
- 15 In-process and In-situ Measurements
 Xiang Peng, Shenzhen University (China)
- 16 Nondestructive Testing and Fault Detection
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 Catarina (Brazil)

Introduction

Compared to many other conferences the “Optical metrology systems for industrial inspection XI” has a long and successful tradition of bringing together scientists from academia and industry exchanging their knowledge and discussing new trends, applications and developments in optical metrology. This year the conference takes place for the eleventh time, meaning that the first conference was held already 20 years ago. Until today, this event is an essential part of the biannual Munich SPIE symposium “Optical Metrology” and the “LASER Word of Photonics Congress” at all.

As before, applications of optical metrology in nearly all relevant fields of industrial production will be covered, ranging from high-precision techniques and resolution enhancement to novel measurement systems that may be used in industrial production lines. This impressively demonstrates that the acquisition of knowledge based on reliable measurement data is one of the most important prerequisites to stimulate sustainable progress in industrial manufacturing.

However, the trend towards optical metrology is also driven by an increasing use of optical components and systems such as cameras, light sources, and computing power in consumer electronics products and applications. This helps optical metrology to profit from recent developments and to hold its position as one of the most dynamic fields of measurement technology, dedicated to acquire relevant data effectively in order to control, assess, and improve industrial products and processes.

Again, the Munich conference provides an excellent forum of international scientific exchange and discussion of the latest results. More than 160 submissions impressively demonstrate that, even after 20 years, the industrial inspection conference series remains a remarkable event for researchers working in optical metrology all over the world. With 77 oral presentations and more than 80 posters the 2019 conference could hold, at same time, the high number and the outstanding level of contributions which builds the basis of its long-term success.

As in previous years, a significant number of submissions deals with optical measurement of geometrical features. A field of application of maintaining interest is the measurement of optical components, e.g. aspheres, free-form surfaces, and optical systems. Therefore, the traditional joint sessions with the EOS Conference on Manufacturing and Testing of Optical Components will be continued. Since spectroscopic applications still are of growing interest for the acquisition of multi-modal data even in industrial inspection, a session “Hyperspectral Imaging and Spectroscopic Techniques” was added this year.

Also the invited talks of the conference should be highlighted. Special thanks are due to the distinguished invited speakers, namely Peter de Groot (Zygo), Eberhard Manske (TU Ilmenau), Bernd Bodermann (PTB), Jan Burke (Fraunhofer IOSB), and Rainer Schuhmann (Berliner Glas) for their stimulating lectures.

We would like to express our sincere gratitude also to the members of the program committee for their support of the conference. Additionally, many thanks are due to the SPIE staff for their professional and cooperative work during the conference organization and the preparation of this proceedings volume.

Finally, we would like to thank all authors, who not only fill the conference with life but give added value to the community by contributing to this proceedings volume.

Peter Lehmann
Wolfgang Osten
Armando Albertazzi Gonçalves Jr.