

## Publications, Patents, Oral and Poster Presentations

Dr.-Ing. Martin Jakobi

Fink, M.; Schardt, M.; Baier, V.; Wang, K.; Jakobi, M.; Koch, A.W.:  
*Simulation of coaxial time-of-flight measurements using SiPM as detector.*  
Sensors and Actuators A: Physical, 364 (114805), DOI: 10.1016/j.sna.2023.114805,  
December 2023.

Brändle, F.; Jakobi, M.; Koch, A.W.:  
*Forschung auf dem Gebiet der Speckle-Messtechnik.*  
Annual Magazine Engineering Sciences Germany 2023/24: Measurement and Sensor  
Technology, Institute for Scientific Publications,  
<https://alphapublic.de/ingenieurwissenschaften>, November 2023.

Haas, L.; Haider, A.; Kastner, L.; Zeh, T.; Poguntke, T.; Kuba, M.; Schardt, M.; Jakobi,  
M.; A. W. Koch:  
*Velocity Estimation from LiDAR Sensors Motion Distortion Effect.*  
Sensors 23(23), 9426, DOI: 10.3390/s23239426, November 2023.

Wang, K.; Mizuno, Y.; Dong, X.; Kurz, W.; Köhler, M.H.; Kienle, P.; Lee, H.; Jakobi, M.;  
Koch, A.W.:  
*Multimode optical fiber sensors: from conventional to machine learning-assisted.*  
Meas. Sci. Technol. 35, 022002, DOI: 10.1088/1361-6501/ad0318, November 2023.

Kurz, W.; Arus, A.F.; Kariper, E.; Akgün, O.; Adisoemarta, E.; Jakobi, M.; Koch, A.W.:  
*Hyperspectral Imaging Microscopy for Single-Cell-Analysis.*  
9th International Conference on Sensors Engineering and Electronics Instrumentation  
Advances (SEIA' 2023), Funchal, Portugal, September 2023.

Haider, A.; Pigniczki, M.; Koyama, S.; Köhler, M.H.; Haas, L.; Fink, M.; Schardt, M.;  
Nagase, K.; Zeh, T.; Eryildirim, A.; Poguntke, T.; Inoue, H.; Jakobi, M.; A. W. Koch:  
*A Methodology to Model the Rain and Fog Effect on the Performance of Automotive  
LiDAR Sensors.*  
Sensors 23(15):6891, DOI: 10.3390/s23156891, August 2023.

Wang, S.; Yetisen, A.K.; Wang, K.; Jakobi, M.; Koch, A.W.:  
*Dependence of the Michelson Interferometer-Based Membrane-Less Optical  
Microphone–Photoacoustic Spectroscopy Gas-Sensing Method on the Fundamental  
Parameters of a Photoacoustic Gas Cell.*  
Photonics 10(8):888, DOI: 10.3390/photonics10080888, August 2023.

Wang, S.; Yetisen, A.K.; Jakobi, M.; Zhou, Q.; Koch, A.W.:  
*High-Performance Sound Detection of Nanoscale-Thick and Large-Area Graphene  
Oxide Films in Liquids.*  
Advanced Engineering Materials 2023, 202300962, DOI: 10.1002/adem.202300962,  
July 2023.

Dong, X., Li, H., Wang, K., Menze, B., Jakobi, M., Yetisen, A.K., Koch, A.W.:  
*Multispectral Microscopic Multiplexed (3M) Imaging of Atomically-Thin Crystals Using Deep Learning.*

Advanced Optical Materials, 2300860, DOI: 10.1002/adom.202300860, June 2023.

Wang, K.; Mizuno, Y.; Lee, H.; Dong, X.; Kurz, W.; Fink, M.; Jakobi, M.; Koch, A.W.:  
*Experimental demonstration of offset-induced sensitivity enhancement in SMS-based temperature and strain sensing.*

Appl. Phys. Express, 16 (5), DOI: 10.35848/1882-0786/acd046, May 2023.

Wang, S.; Hoffmann, M.; Yetisen, A.K.; Wang, K.; Brändle, F.; Kurz, W.; Jakobi, M.; Zhou, Q.; Koch, A.W.:

*Optical interferometer-based methods for photoacoustic gas sensing: a review.*

Applied Spectroscopy Reviews, pp. 1-40, DOI: 10.1080/05704928.2023.2196729, April 2023.

Haider, A.; Cho, Y.; Pigniczki, M.; Köhler, M.H.; Haas, L.; Kastner, L.; Fink, M.; Schardt, M.; Cichy, Y.; Koyama, S.; Zeh, T.; Poguntke, T.; Inoue, H.; Jakobi, M.; Koch, A.W.:  
*Performance Evaluation of MEMS-Based Automotive LiDAR Sensor and Its Simulation Model as per ASTM E3125-17 Standard.*

Sensors 23(6), 3113, DOI: 10.3390/s23063113, March 2023.

Bian, Q.; Bauer, C.; Stadler, A.; Buchfellner, F.; Jakobi, M.; Volk, W.; Koch, A.W.; Roths, J.:

*Monitoring strain evolution and distribution during the casting process of AlSi9Cu3 alloy with optical fiber sensors.*

Journal of Alloys and Compounds 935 (2), DOI: 10.1016/j.jallcom.2022.168146, Journal Pre-proof published in November 2022, February 2023.

Bian, Q.; Dutz, F.J.; Lindner, M.; Buchfellner, F.; Stadler, A.; Jakobi, M.; Koch, A.W.; Roths, J.:

*Regenerated fiber Bragg gratings in large mode area fibers for high-temperature sensing.*

Journal of Lightwave Technology, DOI: 10.1109/JLT.2023.3241861, February 2023.

Fink, M.; Schardt, M.; Baier, V.; Wang, K.; Jakobi, M.; Koch, A.W.:

*Low-cost scanning LIDAR architecture with a scalable frame rate for autonomous vehicles.*

Applied Optics 62 (3), pp. 675-682, DOI: 10.1364/AO.479765, January 2023.

Wang, K.; Mizuno, Y.; Su, X.; Dong, X.; Kurz, W.; Fink, M.; Lee, H.; Jakobi, M.; Koch, A.W.:

*Core diameter and numerical aperture dependencies on the performance of fiber-optic multimode interference sensing.*

Applied Physics Express 16 (1), DOI: 10.35848/1882-0786/aca9bc, December 2022.

Fink, M.; Jakobi, M.; Koch, A.W.:

*Forschung auf dem Gebiet der LiDAR-Sensorik.*

Annual Magazine Engineering Sciences Germany 2021/22: Measurement and Sensor Technology, Institute for Scientific Publications, November 2022.

Wang, K.; Mizuno, Y.; Kishizawa, K.; Toyoda, Y.; Lee, H.; Ichige, K.; Kurz, W.; Dong, X.; Jakobi, M.; Koch, A.W.:

*Temperature sensing based on multimode interference in polymer optical fibers: sensitivity enhancement by PC-APC connections.*

Japanese Journal of Applied Physics 61, Brief Note, DOI: 10.35848/1347-4065/ac9810, October 2022. (identical with POF 2022, paper 12)

Haider, A.; Pigniczki, M.; Köhler, M.H.; Fink, M.; Schardt, M.; Cichy, Y.; Zeh, T.; Haas, L.; Poguntke, T.; Jakobi, M.; Koch, A.W.:

*Development of high-fidelity automotive LiDAR sensor model with standardized interfaces.*

Sensors 22 (19), DOI: 10.3390/s22197556, October 2022.

Wang, K.; Mizuno, Y.; Kishizawa, K.; Toyoda, Y.; Lee, H.; Ichige, K.; Dong, X.; Kurz, W.; Jakobi, M.; Koch, A.W.:

*Accuracy improvement in POF-MMI-based temperature sensing by higher-order mode excitation.*

30th International Conference on Plastic Optical Fibers (POF 2022), paper 12, Bilbao, Spain, September 26-28, 2022.

Dong, X.; Zhang, Y.; Li, H.; Yan, Y.; Li, J.; Song, J.; Wang, K.; Jakobi, M.; Yetisen, A.K.; Koch, A.W.:

*Microscopic Image Deblurring by a Generative Adversarial Network for 2D Nanomaterials: Implications for Wafer-Scale Semiconductor Characterization.*

ACS Applied Nano Materials, 5, 12855–12864, DOI: 10.1021/acsanm.2c02725, September 2022.

Stadler, A.; Buchfellner, F.; Zeisberger, A.; Jakobi, M.; Koch, A.W.; Roths, J.:

*Verification of the mechanical integrity of regenerated fiber Bragg gratings (RFBGs) by shaker tests for their use as high-temperature sensors in gas turbines.*

International Conference on Optical Fiber Sensors (OFS27), Alexandria, USA, Aug29-Sept2, 2022.

Bian, Q.; Bauer, C.; Stadler, A.; Buchfellner, F.; Jakobi, M.; Volk, W.; Koch, A.W.; Roths, J.:

*Investigation of Strain Behavior during Aluminum Casting Process with Regenerated Fiber Bragg Grating Arrays.*

International Conference on Optical Fiber Sensors (OFS27), Alexandria, USA, Aug29-Sept2, 2022.

Bian, Q.; Podhrazsky, A.; Bauer, C.; Stadler, A.; Buchfellner, F.; Kuttler, R.; Jakobi, M.; Volk, W.; Koch, A.W.; Roths, J.:

*Temperature and external strain sensing with metal-embedded optical fiber sensors for structural health monitoring.*

Optics Express 30(19), 33449-33464, DOI: 10.1364/OE.459459, August 2022.

Dong, X.; Li, H.; Yan, Y.; Cheng, H.; Zhang, H. X.; Zhang, Y.; Le, T. D.; Wang, K.; Dong, J.; Jakobi, M.; Yetisen, A.K.; Koch, A.W.:  
*Deep-Learning-Based Microscopic Imagery Classification, Segmentation, and Detection for the Identification of 2D Semiconductors.*  
Journal Advanced Theory and Simulations, DOI: 10.1002/adts.202200140, July 2022.

Wang, K.; Mizuno, Y.; Dong, X.; Kurz, W.; Fink, M.; Jakobi, M.; Koch, A.W.:  
*Strain-insensitive high-sensitivity temperature sensing based on multimode interference in a square-core fiber.*  
Japanese Journal of Applied Physics, DOI: 10.35848/1347-4065/ac74fe, June 2022.

Baier, V.; Schardt, M.; Fink, M.; Jakobi, M.; Koch, A.W.:  
*MEMS-Scanner Testbench for High Field of View LiDAR Applications.*  
Sensors 2022 (22), 39, DOI: 10.3390/s22010039, December 2021.

Kienitz, S.; Schmid, M.; Jakobi, M.; Koch, A.W.:  
*Forschung auf dem Gebiet der angewandten faseroptischen Drucksensoren.*  
Annual Magazine Engineering Sciences Germany 2021/22: Measurement and Sensor Technology, Institute for Scientific Publications, November 2021.

Dong, J.; Yetisen, A.K.; Zhao, C.; Dong, X.; Brändle, F.; Wang, Q.; Jakobi, M.; Saur, D.; Koch, A.W.:  
*Single-Shot High-Throughput Phase Imaging with Multibeam Array Interferometric Microscopy.*  
ACS Photonics (2330-4022), DOI: 10.1021/acsp Photonics.1c01124, November 2021.

Wang, K.; Dong, X.; Kienle, P.; Fink, M.; Kurz, W.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Optical Fiber Sensor for Temperature and Strain Measurement Based on Multimode Interference and Square-Core Fiber.*  
Micromachines 12(10), 1239, DOI: 10.3390/mi12101239, October 2021.

Balbach, S.; Jiang, N.; Moreddu, R.; Dong, X.; Kurz, W.; Wang, C.; Dong, J.; Yin, Y.; Butt, H.; Brischwein, M.; Hayden, O.; Jakobi, M.; Tasoglu, S.; Koch, A.W., Yetisen, A.K.:  
*Smartphone-based colorimetric detection system for portable health tracking.*  
Analytical Methods 13, 4361-4369, DOI: 10.1039/D1AY01209F, September 2021.

Kienle, P.; Fest, N.E.; Larasati, A.D.; Wang, K.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Analyse eines fehlerkompensierten Lasertriangulationssystems (Investigation of an error-compensated laser triangulation system).*  
tm - Technisches Messen 88 (s1), DOI: 10.1515/teme-2021-0060, August 2021.

Jiang, N.; Flyax, S.; Kurz, W.; Jakobi, M.; Tasoglu, S.; Koch, A. W.; Yetisen, A.K.:  
*Intracranial Sensors for Continuous Monitoring of Neurophysiology.*  
Advanced Materials Technologies 2100339, DOI: 10.1002/admt.202100339, August 2021.

Pöller, F.; Salazar Bloise, F.; Jakobi, M.; Dong, J.; Koch, A.W.:  
*Extension and Limits of Depolarization-Fringe Contrast Roughness Method in Sub-Micron Domain.*  
Sensors 21 (5572), DOI: 10.3390/s21165572, August 2021.

Bian, Q.; Bauer, C.; Stadler, A.; Lindner, M.; Jakobi, M.; Volk, W.; Koch, A.W.; Roths, J.: *In-situ High Temperature and Large Strain Monitoring during a Copper Casting Process based on Regenerated Fiber Bragg Grating Sensors*.  
Journal of Lightwave Technology 39(20), DOI: 10.1109/JLT.2021.3101524, August 2021.

Dong, X.; Yetisen, A.K.; Dong, J.; Wang, K.; Kienle, P.; Jakobi, M.; Koch, A.W.: *Hyperspectral Fingerprints for Atomic Layer Mapping of Two-Dimensional Materials with Single-Layer Accuracy*.  
Journal of Physical Chemistry C, 125, 16583–16590, DOI: 10.1021/acs.jpcc.1c03802, July 2021.

Stadler, A.; Lindner, M.; Bian, Q.; Hamann, G.; Bauer, C.; Volk, W.; Jakobi, M.; Koch, A.W.; Roths, J.: *Decoupled temperature and strain measurement with regenerated fiber Bragg gratings during an aluminum casting process*.  
Proc. SPIE 11591, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2021, 115912D; DOI: 10.1117/12.2588926, March 2021.

Bian, Q.; Bauer, C.; Stadler, A.; Jakobi, M.; Koch, A.W.; Roths, J.: *Multipoint temperature monitoring based on a regenerated fiber Bragg grating temperature sensor array in copper casting*.  
Proc. SPIE 11591, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2021, 115910U, DOI: 10.1117/12.2588600, March 2021.

Pöller, F.; Salazar Bloise, F.; Jakobi, M.; Dong, J.; Koch, A.W.: *Improvement of Roughness Measurement in Sub-micron Ranges Using Contrast-based Depolarization Field Components*.  
Proc. Optical Characterization of Materials (OCM 2021), p. 173–183, DOI: 10.5445/KSP/1000128686, March 2021.

Wang, K.; Dong, X.; Köhler, M.H.; Kienle, P.; Bian, Q.; Fink, M.; Jakobi, M.; Koch, A.W.: *Optical fiber sensors based on multimode interference using square-core multimode fiber for temperature measurement*.  
Proc. SPIE Photonics West, Conference 11693, Paper 116930R, DOI: 10.1117/12.2577571, March 2021.

Lindner, M.; Stadler, A.; Hamann, G.; Fischer, B.; Jakobi, M.; Heilmeyer, F.; Bauer, C.; Volk, W.; Koch, A.W.; Roths, J.: *Fiber Bragg Sensors Embedded in Cast Aluminum Parts: Axial Strain and Temperature Response*.  
Sensors 21 (1680), DOI: 10.3390/s21051680, March 2021.

Dong, X.; Li, H.; Jiang, Z.; Grünleitner, T.; Güler, I.; Dong, J.; Wang, K.; Köhler, M.H.; Jakobi, M.; Menze, B.H.; Yetisen, A.K.; Sharp, I.D.; Stier, A.V.; Finley, J.J.; Koch, A.W.: *3D Deep Learning Enables Accurate Layer Mapping of 2D Materials*.  
ACS Nano 15 (2), 3139–3151, DOI: 10.1021/acsnano.0c09685, January 2021.

Wang, K.; Dong, X.; Köhler, M.H.; Kienle, P.; Bian, Q.; Jakobi, M.; Koch, A.W.:  
*Advances in Optical Fiber Sensors Based on Multimode Interference (MMI): A Review.*  
IEEE Sensors Journal 21(1), pp. 132-142, DOI: 10.1109/JSEN.2020.3015086, January 2021.

Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
Forschung auf dem Gebiet der statischen FTIR-Spektrometer.  
Annual Magazine Engineering Sciences Germany 2020/21: Measurement and Sensor Technology, Institute for Scientific Publications, pp. 126-128, November 2020.

Dong, J.; Yetisen, A.K.; Dong, X.; Pöller, F.; Jakobi, M.; Liu, Z.; Salazar Bloise, F.; Koch, A.W.:  
*Low-pass filtering compensation in common-path digital holographic microscopy.*  
Applied Physics Letters 117, 121105; DOI: 10.1063/5.0019209, September 2020.

Kienle, P.; Batarilo, L.; Akgül, M.; Köhler, M.H.; Wang, K.; Jakobi, M.; Koch, A.W.:  
*Optical Setup for Error Compensation in a Laser Triangulation System.*  
Sensors 20(17), 4949, DOI: 10.3390/s20174949, September 2020.

Dong, X.; Li, Z.; Dong, J.; Wang, K.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Line-scan hyperspectral imaging microscopy with structured illumination.*  
Proc. SPIE, Volume 11508, Unconventional Imaging and Adaptive Optics, 115080U,  
DOI: 10.1117/12.2565944, August 2020.

Kienle, P.; Köhler, M.H.; Wang, K.; Jakobi, M.; Koch, A.W.:  
*Increasing the sensitivity of laser triangulation systems using structured optical surfaces.*  
Proc. SPIE, Volume 11500, ODS 2020: Industrial Optical Devices and Systems,  
115000J, DOI: 10.1117/12.2566094, August 2020.

Köhler, M.H.; Schardt, M.; Müller, M.; Kienle, P.; Wang, K.; Dong, X.; Giebeler, C.;  
Wiesent, B.R.; Jakobi, M.; Koch, A.W.:  
*Static Fourier transform mid-infrared spectrometer with increased spectral resolution using a stepped mirror.*  
OSA Continuum 3(8), 2134-2142, August 2020.

Kienle, P.; Jakobi, M.; Koch, A.W. et al.:  
*System zur Streckenbestimmung mittels Triangulation von Lichtstrahlen.*  
German patent application DE 10 2020 XXX XXX.X, July 2020.

Jiang, N.; Yetisen, A.K.; Linhart, N.; Flisikowski, K.; Dong, J.; Dong, X.; Butt, H.; Jakobi, M.; Schnieke, A.; Koch, A.W.:  
*Fluorescent Dermal Tattoo Sensors for Electrolyte Analysis.*  
Sensors and Actuators B: Chemical Volume 320, 128378, available online 31 May 2020,  
DOI: 10.1016/j.snb.2020.128378, 2020.

- Heilmeyer, F.; Koos, R.; Hornberger, P.; Hiller, J.; Weraneck, K.; Jakobi, M.; Koch, A.W.; Volk, W.:  
*Calibration of cast-in fibre Bragg gratings for internal strain measurements in cast aluminium by using neutron diffraction.*  
Measurement (163), 107939, DOI: 10.1016/j.measurement.2020.107939, 2020.
- Dong, X.; Yetisen, A.K.; Tian, H.; Dong, J.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Analyses of hyperspectral imaging microscopy data sets of semiconducting 2D materials.*  
Applied Physics Express (13) 052008, DOI: 10.35848/1882-0786/ab88c7, 2020.
- Dong, X.; Yetisen, A.K.; Tian, H.; Güler, I.; Stier, A. V.; Li, Z.; Köhler, M.H.; Dong, J.; Jakobi, M.; Finley, J. J.; Koch, A.W.:  
*Line-Scan Hyperspectral Imaging Microscopy with Linear Unmixing for Automated Two-Dimensional Crystals Identification.*  
ACS Photonics, IF 7.143, DOI: 10.1021/acsp Photonics.0c00050, 2020.
- Dong, X.; Köhler, M.H.; Wang, K.; Jakobi, M.; Koch, A.W.:  
*Mapping the optical dielectric response of isolated monolayer MoS<sub>2</sub> by push-broom microspectroscopy.*  
Proc. SPIE 11351, Unconventional Optical Imaging II, 113511I, DOI: 10.1117/12.2540501, March 2020.
- Dong, J.; Wang, S.; Yetisen, A.K.; Dong, X.; Pöller, F.; Ong, N.; Jakobi, M.; Liu, Z.; Salazar Bloise, F.; Koch, A.W.:  
*Shear-unlimited common-path speckle interferometer.*  
Optics Letters 45 (6), pp. 1305-1308, DOI: 10.1364/OL.382893, 2020.
- Lindner, M.; Bernard, D.; Heilmeyer, F.; Jakobi, M.; Volk, W.; Koch, A.W.; Roths, J.:  
*The transition from purely elastic to viscoelastic behavior of silica optical fibers at high temperatures characterized using regenerated Bragg gratings.*  
Optics Express 28 (5), pp. 7323-7340, DOI: 10.1364/OE.384402, 2020.
- Kurz, W.; Yetisen, A.K.; Kaito, M.V.; Jakobi, M.; Elsner, M.; Koch, A.W.:  
*UV-Sensitive Wearable Devices for Colorimetric Monitoring of UV Exposure.*  
Advanced Optical Materials, 1901969, DOI: 10.1002/adom.201901969, 2020.
- Yetisen, A.K.; Jiang, N.; Castaneda Gonzalez, C.M.; Erenoglu, Z.I.; Dong, J.; Dong, X.; Stöber, S.; Brischwein, M.; Butt, H.; Cordeiro, M.F.; Jakobi, M.; Hayden, O.; Koch, A.W.:  
*Scleral Lens Sensor for Ocular Electrolyte Analysis.*  
Advanced Materials, 1906762, DOI: 10.1002/adma.201906762, 2019.
- Koch, A.W.; Hurni, A.; Jakobi, M.; Kuhenuri, N.:  
*Hybrid Sensor Bus In-Orbit Verifikation auf H2Sat. Schlussbericht zum Fördervorhaben FZK 50YB1310 (HSB-H2Sat).*  
Technische Informationsbibliothek (TIB), www.tib.eu, project report from 2018, Submitted in September 2019, published December 2019, 2019.

Grusche, S.; Koch, A.W.; Jakobi, M.; Knappe, C.; Eble, D.; Smetanina, E.:  
*Forschung auf dem Gebiet der spektral kodierten Videoprojektion am MST der TUM.*  
Annual Magazine Engineering Sciences Germany 2019/20: Measurement and Sensor  
Technology, Institute for Scientific Publications, pp. 106-109, 2019.

Köhler, M.H.; Nguyen, T.T.; Kienle, P.; Dong, X.; Schardt, M.; Jakobi, M.; Koch, A.W.:  
*Hyperspectral imager for the mid-infrared spectral range using a single-mirror  
interferometer and a windowing method.*  
OSA Continuum 2(11), pp. 3212-3222, DOI: 10.1364/OSAC.2.003212, 2019.

Dong, X.; Wang, K.; Dong, J.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Hyperspectral imaging microscopy and nanoscopy: theory and practice.*  
Proc. 8th doctoral conference on optics, DoKDoK, 2019.

Dong, X.; Dong, J.; Yetisen, A.K.; Köhler, M.H.; Wang, S.; Jakobi, M.; Koch, A.W.:  
*Characterization and layer thickness mapping of two-dimensional MoS<sub>2</sub> flakes via  
hyperspectral line-scanning microscopy.*  
Applied Physics Express 12(19), Appl. Phys. Express 12, 102004, DOI: 10.7567/1882-  
0786/ab3e51, 2019.

Lindner, M.; Bernard, D.; Jakobi, M.; Koch, A.W.; Roths, J.:  
*Force sensitivity of regenerated fiber Bragg gratings in the temperature range from room  
temperature to 400 °C.*  
Proc. SPIE 11199, Seventh European Workshop on Optical Fibre Sensors, 1119906,  
DOI: 10.1117/12.2539376, 2019.

Pöller, F.; Bilgeri, L.M.; Salazar Bloise, F.; Jakobi, M.; Wang, S.; Dong, J.; Koch, A.W.:  
*Rauheitsauswertung mit hoher lateraler Auflösung mittels räumlicher Lichtmodulatoren  
Roughness Evaluation with High Lateral Resolution by Spatial Light Modulators*  
tm – Technisches Messen 86(S1): S22–S26, DOI: 10.1515/teme-2019-0042, 2019.

Dong, X.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Hyperspectral imaging microscopy for thickness measurement and surface  
characterization of layered MoS<sub>2</sub>.*  
Proc. SPIE 11056, Optical Measurement Systems for Industrial Inspection XI, 110561S,  
DOI: 10.1117/12.2530384, 2019.

Kienle, P.; Nallar, E.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Analysis of sub-pixel laser spot detection in laser triangulation systems.*  
Proc. SPIE 11056, Optical Measurement Systems for Industrial Inspection XI, 110563O,  
DOI: 10.1117/12.2525669, 2019.

Yetisen, A.K.; Moreddu, R.; Seifi, S.; Jiang, N.; Vega, K.; Dong, X.; Dong, J.; Butt, H.;  
Jakobi, M.; Elsner, M.; Koch, A.W.:  
*Dermal Tattoo Biosensors for Colorimetric Metabolite Detection.*  
Angew. Chem. Int. Ed., DOI: 10.1002/anie.201904416 and DOI:  
10.1002/ange.201904416, 2019.



Dong, X.; Yetisen, A.K.; Köhler, M.H.; Dong, J.; Wang, S.; Jakobi, M.; Zhang, X., Koch, A.W.:

*Microscale Spectroscopic Mapping of 2D Optical Materials.*

Advanced Optical Materials, 1900324, DOI: 10.1002/adom.201900324, 2019.

Pöller, F.; Salazar Bloise, F.; Jakobi, M.; Wang, S.; Dong, J.; Koch, A.W.:

*Non-contact Roughness Measurement in Sub-micron Range by Considering Depolarization Effects.*

Sensors 19(10), 2215, DOI: 10.3390/s19102215, 2019.

Yetisen, A.; Soylemezoglu, B.; Dong, J.; Montelongo, Y.; Butt, H.; Jakobi, M.; Koch, A.W.:

*Capillary Flow in Microchannel Circuitry of Scleral Lenses.*

RSC Adv. (9), pp. 11186-11193, DOI: 10.1039/c9ra01094g, 2019.

Graf, M.; Ehmer, F.; Koch, A.W.; Jakobi M.:

*Vorrichtung zur Verknüpfung binärer optischer Signale zur faseroptischen Umsetzung von Logikgattern.*

German patent application DE 10 2019 001 739 A8, March 2019.

Dong, J.; Wang, S.; Min, L.; Jakobi, M.; Liu, Z.; Dong, X.; Pöller, F.; Bilgeri, L.M.; Salazar Bloise, F.; Yetisen, A.K.; Koch, A.W.:

*Real-time dual-sensitive shearography for simultaneous in-plane and out-of-plane strain measurements.*

Optics Express 27 (3), pp. 3276-3283, DOI: 10.1364/OE.27.003276, 2019.

Wang, S.; Dong, J.; Jakobi, M.:

*Vorrichtung und Verfahren für ein gleichzeitig in-plane- und out-of-plane-sensitives Shearographiesystem.*

German patent application DE 10 2019 000 564.3, January 2019.

Wang, S.; Dong, J.; Pöller, F.; Dong, X.; Min, L.; Bilgeri, L.M.; Jakobi, M.; Salazar Bloise, F.; Koch, A.W.:

*Dual-directional shearography based on a modified common-path configuration using spatial phase shift.*

Applied Optics 58 (3), pp. 593-603, DOI: 10.1364/AO.58.000593, 2019.

Heilmeyer, F.; Koos, R.; Weraneck, K.; Lindner, M.; Jakobi, M.; Roths, J.; Koch, A.W.; Volk, W.:

*In-situ strain measurements in the plastic deformation regime inside casted parts using fibre-optical strain sensors.*

Production Engineering (Springer Journals), published online 18 January, DOI: 10.1007/s11740-019-00874-7, 2019.

Koch, A.W.; Jakobi, M.; Amann, R.; Grübler, T.; Mauracher, F.; Stoffers, B.:

*Forschung auf dem Gebiet der CubeSat-Technologien zur Wettervorhersage am MST der TUM.*

Annual Magazine Engineering Sciences Germany 2018/19: Measurement and Sensor Technology, Institute for Scientific Publications, pp. 138-142, 2018.

Graf, M.A.; Ehmer, F.; Eisermann, Ch.; Jakobi, M.; Koch, A.W.:  
*Faseroptische Überwachung von mechanisch deformierten Kabelgeflechtsstrukturen mittels optischer Zeitbereichsreflektrometrie.*  
Technisches Messen, 85 (1): 73–79, DOI: 10.1515/teme-2018-0030, 2018.

Graf, M.A.; Eisermann, Ch.; Ehmer, F.; Köhler, M.H.; Jakobi, M.; Koch, A.W.:  
*Damage Detection in Cable Braidings Using Integrated Fiber Optic Reflectors.*  
Proceedings of the SPIE, Vol. 10755, 107550E, DOI: 10.1117/12.2319283, 2018.

Bilgeri, L.M.; Salazar Bloise, F.; Lu, M.; Wang, S.; Jakobi, M.; Koch, A.W.:  
*Intensity distortions due to phase-only spatial light modulation: Characterization for applications in electronic speckle-pattern interferometry.*  
Review of Scientific Instruments 89, 083701, DOI: 10.1063/1.5029914, 2018.

Lu, M.; Wang, S.; Bilgeri, L.M.; Song, X.; Jakobi, M.; Koch, A.W.:  
*Online 3D Displacement Measurement Using Speckle Interferometer with a Single Illumination-Detection Path.*  
Sensors 2018 (18), 1923, DOI: 10.3390/s18061923, 2018.

Lindner, M.; Tunc, E.; Weraneck, K.; Heilmeier, F.; Volk, W.; Jakobi, M.; Koch, A.W.; Roths, J.:  
*Regenerated Bragg Grating Sensor Array for Temperature Measurements during an Aluminum Casting Process.*  
IEEE Sensors Journal 18 (13), DOI: 10.1109/JSEN.2018.2837164, 2018.

Dong, X.; Jakobi, M.; Wang, S.; Köhler, M.H.; Zhang, X.; Koch, A.W.:  
*A review of hyperspectral imaging for nanoscale materials research.*  
Applied Spectroscopy Reviews, DOI: 10.1080/05704928.2018.1463235, 2018.

Wang, S.; Lu, M.; Bilgeri, L.M.; Jakobi, M.; Salazar Bloise, F.; Koch, A.W.:  
*Temporal electronic speckle pattern interferometry for real-time in-plane rotation analysis.*  
Optics Express 26(7), 8744-8755, 2018.

Koch, A.W.; Jakobi, M.; Baier, V.; Müller M.S.; Petit, F. et al.:  
*Forschung auf dem Gebiet der LiDAR-Scanner für das Einsatzgebiet „autonomes Fahren“ am MST der TUM.*  
Annual Magazine Engineering Sciences Germany 2017/18: Measurement and Sensor Technology, Institute for Scientific Publications, pp. 76-80, 2017.

Lu, M.; Wang, S.; Aulbach, L.; Jakobi, M.; Koch, A.W.:  
*Non-phase unwrapping interferometric approach for a real-time in-plane rotation measurement.*  
Optics Letters, 42 (10), pp. 1984-1989, DOI: 10.1364/OL.42.001986, 2017.

Weraneck, K.; Voigtländer, A.; Graf, M.A.; Krautblatter, M.; Jakobi, M.; Koch, A.W.:  
*Entwurf eines Sensors zur Ermittlung thermischer Ausdehnung in Sandstein mittels Faser-Bragg-Gitter.*  
Proceedings of the 5th Kolloquium Erhaltung von Bauwerken, January 24th-25th, Ostfildern/Stuttgart, TAE, Technische Akademie Esslingen (ed.), 2017.

Koch, A.W.; Jakobi, M. et al.:  
*Forschungsgebiete am Lehrstuhl für Messsystem- und Sensortechnik der Technischen Universität München.*  
Annual Magazine Engineering Sciences Germany 2016/17: Measurement and Sensor Technology, Institute for Scientific Publications, pp. 128-131, 2016.

Weraneck, K.; Heilmeier, F.; Lindner, M.; Graf, M.A.; Jakobi, M.; Volk, W.; Roths, J.; Koch, A.W.:  
*Strain Measurement in Aluminium Alloy during the Solidification Process Using Embedded Fibre Bragg Gratings.*  
Sensors, 16(11), 1853, DOI:10.3390/s16111853, 2016.

Rößner, M.R.; Graf, M.A.; Jakobi, M.; Koch, A.W.; Weraneck, K.:  
*Optische Messung von Kräften und Drehmomenten in Getrieben.*  
German patent application DE 10 2016 012 272.2, 2016.

Jakobi, M.:  
*New Member TUM @ Strategische Partnerschaft Sensorik e.V.*  
Oral presentation at the meeting of members of the Strategische Partnerschaft Sensorik e.V., Erlangen, 02.06.2016.

Graf, M. A.; Eichentopf, B.; Oelhafen, J.; Weraneck, K.; Jakobi, M.; Baltes, R.; Nienhaus, K.; Koch, A. W.:  
*Smart cable.*  
Book of Abstracts. 16th World Textile Conference AUTEX 2016, Ljubljana (Slovenia), June 8–10, 2016, p. 174.

Weraneck, K.; Jakobi, M.; Graf, M.A.; Koch, A.W.; Voigtländer, A.; Leith, K.; Krautblatter, M.:  
*Faseroptische Überwachung des Materialverhaltens von Naturstein auf Basis eines myRIO-Messsystems.*  
Tagungsband zum 20. VIP-Kongress "Virtuelle Instrumente in der Praxis 2015", 21.-23.10.2015, Jamal, R.; Heinze, R. (Hrsg.), ISBN: 978-3-8007-3669-0.

Penzel, F.; Meister, H.; Sehmer, T.; Koll, J.; Kannamüller, M. Shalaby, S.; Calia, J.B.; Yujia, X.; Jakobi, M.:  
*ITER Bolometry Group Cooperation.*  
Annual Report 2014, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 129-130, 2015.

Penzel, F.; Meister, H.; Sehmer, T.; Bernert, M.; Koll, J.; Trautmann, T.; Shalaby, S.; Calia, J.B.; Yujia, X.; Jakobi, M.:  
*Collimator Prototype Design for ITER.*  
Annual Report 2013, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 123-124, 2014.

Salazar Bloise, F.; Aulbach, L.; Jakobi, M.; Koch, A.W.:  
*Rauheitsmessung an pharmazeutischen Tabletten mittels Angularer Speckle-Korrelation.*  
Technisches Messen, 81: 289–295, 2014.

Penzel, F.; Meister, H.; Koll, J.; Trautmann, T.; Kannamüller, M.; Nguyen, D.H.; Le, T.N.; Sehmer, T.; Jakobi, M.:  
*ITER Bolometry Group Cooperation.*  
Annual Report 2012, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 131-132, 2013.

Penzel, F.; Meister, H.; Koll, J.; Trautmann, T.; Jakobi, M.:  
*ITER Bolometry Group Cooperation.*  
Annual Report 2011, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 131-132, 2012.

Bodendorfer, T.; Jakobi, M.; Koch, A.W.:  
*Surface Shape and Surface Roughness Measurement.*  
Annual Report 2010, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 117-118, 2011.

Hirth, F.; Dudeck, S.; Jakobi, M.; Gerhard, D.:  
*Interferometry method for optically examining coatings.*  
International patent application WO 2010/046340, 2010.

de Marné, P.; Jakobi, M.; Koch, A.W.:  
*Temperature measurements in the lower divertor.*  
Annual Report 2009, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 119, 2010.

Hirth, F.; Dudeck, S.; Jakobi, M.; Gerhard, D.; Koch, A.W.:  
*Thin film interferometer using a light source with spectrally non-equidistantly distributed sampling points.*  
Proceedings of the SPIE Europe Optical Metrology Conference, ICM-International Conference Centre Munich, June 15th-18th, Munich, Germany, DOI: 10.1117/12.827537, 2009.

Hirth, F.; Buck, T.C.; Rößner, M.; Jakobi, M.; Koch, A.W.:  
*Impact of angle ranges on thickness resolution in thin film reflectometry.*  
Proceedings of ISOT 2009 - International Symposium on Optomechatronic Technologies, Istanbul, Turkey, pp. 104-109, 2009.

Hirth, F.; Dudeck, S.; Jakobi, M.; Gerhard, D.:  
*Interferometrie-Verfahren zum optischen Untersuchen von Schichten.*  
German patent application DE 10 2009 025 562.1, 2009.

de Marné, P.; Jakobi, M.; Koch, A.W.:  
*Thermography influenced by jitter.*  
Annual Report 2008, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 117, 2009.

Hirth, F.; Dudeck, S.; Jakobi, M.; Gerhard, D.:  
*Weißlichtinterferometer zur Bestimmung optischer Parameter an bewegten Objekten.*  
German patent application DE 10 2008 052 430.1, 2008.

Hirth, F.; Dudeck, S.; Jakobi, M.; Gerhard, D.:  
*Spektrales Reflektometer zur Bestimmung optischer Parameter an bewegten Objekten.*  
German patent application DE 10 2008 052 379.8, 2008.

De Marné, P.; Jakobi, M.; Koch, A.W.:  
*Lock-in thermography.*  
Annual Report 2007, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 113-114, 2008.

A. Purde, M. Jakobi, N. Werth, A.W. Koch.  
*Contouring of surfaces with discontinuities using ESPI.*  
Conference Proceedings, Speckle06 "Speckles, From Grains to Flowers", Nimes, France, pp. 6341261-6341266, DOI: 10.1117/12.695491, 2006.

A. Purde, M. Jakobi, A. Meixner, N. Werth, A.W. Koch.  
*Speckle metrology for surface diagnostics.*  
Annual Report 2005, Max-Planck-Institut für Plasmaphysik, Garching, Germany, 2006, pp. 107-108, 2006.

A. Purde, M. Jakobi, A. Meixner, T. Zeh, A.W. Koch.  
*Real-time speckle metrology for surface diagnostics.*  
Annual Report 2004, Max-Planck-Institut für Plasmaphysik, Garching, Germany, pp. 109-110, 2005.

B. Kurzan, M. Jakobi, H. Murmann, and ASDEX Upgrade Team.  
*Signal processing of Thomson scattering data in a noisy environment in ASDEX Upgrade.*  
Plasma Physics and Controlled Fusion 46, pp. 299-317, DOI: 10.1088/0741-3335/46/1/019, 2004.

A. Meixner, A. Purde, T. Zeh, M. Jakobi, A.W. Koch.  
*Speckle metrology for time resolved surface diagnostics.*  
Annual Report 2003, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 95, 2004.

W. Treutterer, K. Behler, R. Cole, J. Hobirk, M. Jakobi, A. Lohs, K. Lüddecke, G. Neu, G. Raupp, W. Suttrop, D. Zasche, T. Zehetbauer, M. Zilker, and ASDEX Upgrade Team.  
*The new ASDEX upgrade real-time control and data acquisition system.*  
Fusion Engineering and Design, 66-68, pp. 755-760, DOI: 10.1016/S0920-3796(03)00298-9, 2003.

H. Murmann, M. Jakobi, B. Kurzan, H.B. Schilling, and ASDEX Upgrade Team.  
*Dynamic laser alignment control for Thomson scattering on ASDEX Upgrade.*  
Review of Scientific Instruments, 74:4310-4313, DOI: 10.1063/1.1612000, 2003.

P.T. Lang, J. Neuhauser, L.D. Horton, T. Eich, L. Fattorini, J.C. Fuchs, O. Gehre, A. Herrmann, P. Ignacz, M. Jakobi, et.al.  
*ELM frequency control by continuous small pellet injection in ASDEX Upgrade.*  
Nuclear Fusion, 43:1110-1120, DOI: 10.1088/0029-5515/43/10/012, 2003.

A. Kallenbach, R. Dux, J. Gafert, G. Haas, L.D. Horton, M. Jakobi et al.  
*Edge transport and its interconnection with main chamber recycling in ASDEX Upgrade.*  
Nuclear Fusion, 43:573-578, DOI: 10.1088/0029-5515/43/7/310, 2003.

A.C.C. Sips, R. Arslanbekov, C. Atanasiu et al.  
*Steady state advanced scenarios at ASDEX Upgrade.*  
Plasma Physics and Controlled Fusion 44, pp. B69-B83, DOI: 10.1088/0741-3335/44/12B/306, 2002.

W. Suttrop, F. Ryter, J.G. Cordey, R. Barnsley, M. Beurskens, J.-M. Chareau, M. Jakobi, et al.  
*Testing H-mode parameter similarity in JET and ASDEX Upgrade.*  
Europhysics Conference Abstracts (CD-ROM), Proc. of the 29th EPS Conference on Controlled Fusion and Plasma Physics, Montreux, Switzerland, Vol. 26B (EPS, Geneva, 2002), pp. 1.030.1-4, 2002.

H.W. Müller, V. Bobkov, G. Haas, M. Jakobi, M. Laux, M. Maraschek, J. Neuhauser, M. Reich, V. Rohde, J. Schweinzer, E. Wolfrum, and ASDEX Upgrade Team.  
*Profile and transport studies in the outer scrape off layer of ASDEX Upgrade.*  
Europhysics Conference Abstracts (CD-ROM), Proc. of the 29th EPS Conference on Controlled Fusion and Plasma Physics, Montreux, Switzerland, Vol. 26B (EPS, Geneva, 2002), pp. O.2.06.1-4, 2002.

M. Jakobi, B. Kurzan, H. Murmann, J. Neuhauser, and ASDEX Upgrade Team.  
*Measurement of electron temperature and density of intermittent plasma objects by Thomson scattering in ASDEX Upgrade.*  
Europhysics Conference Abstracts (CD-ROM), Proc. of the 29th EPS Conference on Controlled Fusion and Plasma Physics, Montreux, Switzerland, Vol. 26B (EPS, Geneva, 2002), pp. 1.122.1-4, 2002.

J. Neuhauser, D. Coster, H.U. Fahrbach, J.C. Fuchs, G. Haas, A. Herrmann, L. Horton, M. Jakobi, A. Kallenbach, M. Laux, J.W. Kim, B. Kurzan, H.W. Müller, H. Murmann, R. Neu, V. Rohde, W. Sandmann, W. Suttrop, E. Wolfrum, and ASDEX Upgrade Team.  
*Transport into and across the scrape-off layer in the ASDEX Upgrade divertor tokamak.*  
Plasma Physics and Controlled Fusion, 44:855-869, DOI: 10.1088/0741-3335/44/6/316, 2002.

M. Jakobi, B. Kurzan, H. Murmann, and ASDEX Upgrade Team.  
*Measurement of fast local changes in electron temperature and density by Thomson scattering at ASDEX Upgrade.*  
Oral presentation, 43rd annual meeting of the division of plasma physics, Oct. 29th-Nov. 11th, Long Beach, California, USA, Bulletin of the APS, 46:252, 2001.

B. Kurzan, H. Murmann, M. Jakobi, D. Bolshukhin, and ASDEX Upgrade Team.  
*Neutral beam injection induced anisotropy of the electron velocity distribution on ASDEX Upgrade.*  
Europhysics Conference Abstracts (CD-ROM), Proc. of the 28th EPS Conference on Controlled Fusion and Plasma Physics, Madeira, Portugal, Vol. 25A (EPS, Geneva, 2001), pp. 29-32, 2001.

B. Kurzan, H. Murmann, M. Jakobi, D. Bolshukhin, W. Suttrop, and ASDEX Upgrade Team.

*Detection of neutral beam generated suprathermal electrons by Thomson scattering on ASDEX Upgrade.*

Poster presentation, DPG Frühjahrstagung des Arbeitskreises Atome, Moleküle Quantenoptik und Plasmen (AMOP), Berlin, Germany, 2001.

M. Jakobi.

*Laser Speckle based surface measurement techniques relevant to fusion devices.*

Reports on Measurement and Sensor Systems, Shaker Verlag, ISBN 3-8265-8799-3, Aachen, Germany, 2001. (identical with PhD thesis)

M. Jakobi.

*Laser Speckle based surface measurement techniques relevant to fusion devices.*

PhD thesis, Technische Universität München, Munich, Germany, 2000.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Räumliche Phase-Shifting-Speckle-Interferometrie mit vier Kameras.*

Technisches Messen, 67:155-159, 2000.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Remote sensing of surface structures.*

Proceedings of 16th IMEKO world congress, 26.-30.09.2000, Wien, 2000.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Detection of erosive areas.*

Annual Report 1999, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 152, 2000.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Vier-Kamera-System zur in-situ Phase-Shifting-Speckle-Interferometrie.*

Proceedings of XIII. Meßtechnisches Symposium des Arbeitskreises der Hochschullehrer für Meßtechnik (AHMT), Hannover, Germany, pp. 5.1-5.8, 1999.

E. Berger, V. Dose, M. Jakobi, A.W. Koch, and W. von der Linden.

*Reconstruction of surfaces from phase-shifting speckle interferometry: Bayesian approach.*

Applied Optics, 38:4997-5003, DOI: 10.1364/AO.38.004997, 1999.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Erosionsmessung an rauhen Oberflächen mittels Streifenkontrast in der Speckle-Interferometrie.*

Technisches Messen, 66:163-168, 1999. (identical with AHMT 1998)

P. Evanschitzky, M. Jakobi, and A.W. Koch.

*Untersuchung technischer Oberflächen mittels Speckle-Simulation.*

Poster presentation, 99. Jahrestagung der Deutschen Gesellschaft für angewandte Optik (DGaO), 02.-06.06.1998, Bad Nenndorf, Germany, p. 104, 1998.

M. Jakobi, P. Evanschitzky, J. Heinrich, and A.W. Koch.

*Spatial phase-shifting.*

Annual Report 1998, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 151, 1999.

M. Jakobi, P. Evanschitzky, and A.W. Koch.

*Erosionsmessung an rauhen Oberflächen mittels Streifenkontrast in der Speckle-Interferometrie.*

Proceedings of XII. Meßtechnisches Symposium des Arbeitskreises der Hochschullehrer für Meßtechnik (AHMT), Saarbrücken, Germany, pp. 133-140, 1998.

M. Jakobi, P. Evanschitzky, A.W. Koch, T. Krivosic, and M. Ruprecht.

*Measurement and simulation.*

Annual Report 1997, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 151, 1998.

M. Ruprecht, M. Jakobi, and A.W. Koch.

*Speckle measurement of thermal deformation of graphite tiles.*

Annual Report 1996, Max-Planck-Institut für Plasmaphysik, Garching, Germany, p. 143, 1997.