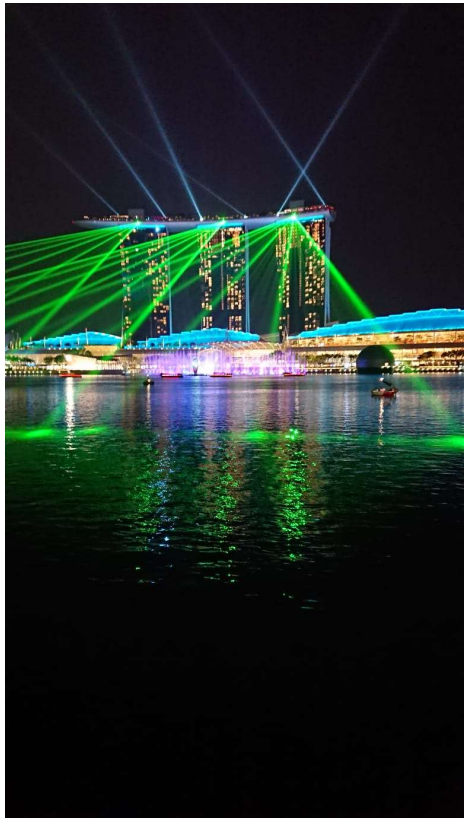
MST Review Academic Year 2018/19



Institute for Measurement Systems and Sensor Technology (MST)
Technical University of Munich (TUM)

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Team

Koch, Alexander W., Prof. Dr.-Ing. habil. Dr. h.c., Ordinarius
Schneider, Friedrich, Prof. Dr.-Ing., Extraordinarius (i.R.)
Schrüfer, Elmar, Prof. Dr. rer. nat. Dr. h.c. mult., Emeritus
Yetisen, Ali Kemal, Dr., Humboldt Scholarship Holder

Jakobi, Martin, Dr.-Ing., Academic Director
Plattner, Markus P., Dr.-Ing., Lecturer
Werthschulte, Kay, Dr.-Ing., Lecturer

Baier, Ulrich (until 31 Jan 2019)
Bierbaum, Rainer
von Grafenstein, Rita
Obermaier, Bernhard
Poplawski, Zbigniew (since 01 Jan 2019)
Schwanengel, Jutta (until 30 Apr 2019)
Striewski-Jäger, Regine, Dipl.-Finw. (FH) (until 02 Dec 2018)

Amann, Rupert, M.Sc. (01 Jan - 31 Aug 2019)
Baier, Valentin, M.Sc. *)
Bian, Qiang, M.Eng. (since 08 Oct 2019)
Dong, Jie, M.Sc.
Dong, Xingchen, M.Eng.
Dutz, Franz Josef, M.Sc. *)
Eble, Daniel, M.Sc. (since 01 Sep 2019)
Graf, Moritz A., M.Sc. (until 31 Oct 2019)
Grübler, Thomas, M.Sc. (01 Sep 2018 – 31 Aug 2019)
Grusche, Sascha, Dr.Phil. (since 01 Sep 2019)
Hoffmann, Marcel, M.Sc.
Kienitz, Sascha, M.Sc. *)
Kienle, Patrick, M.Sc.
Knappe, Christoph, M.Eng. (since 01 Sep 2019)
Köhler, Michael, M.Sc.
Lindner, Markus, M.Sc. *)
Mauracher Florian, M.Sc. (01 Sep 2018 - 31 Aug 2019)
Pöller, Franziska, M.Sc.
Rieger, Florian, M.Sc. *)
Smetanina, Evgeniya, Dr. (since 01 Sep 2019)
Stoffers, Björn, M.Sc. (01 Sep 2018 - 31 Aug 2019)
Wang, Kun, M.Eng.
Wang, Shengjia, M.Sc.

*) External cooperation

Teaching and Research in Academic Year 2018/19

Teaching Courses

- Advanced Laboratory Training Course Optomechatronical Measurement Systems
- Basic Laboratory Course Electrical Engineering
- Electrical Measurement of Environmental Quantities
- Electrical Measurement Technology for Computer Scientists
- Electromagnetic Sensors and Measurement Systems Laboratory: Experiment Computer-Generated Holography
- Laboratory Course Measurement and Sensor Technology (teaching profession)
- Measurement Systems and Sensor Technology (MST)
- MST, TUM Asia, Singapore
- MST for Mathematicians
- MST in Mechanical Engineering
- Measurement and Sensor Technology (teaching profession)
- Non-contact Techniques for Material Testing, Athens Course
- Optomechatronical Measurement Systems, TUM Asia, Singapore
- Optomechatronical Measurement Systems (OMS)
- Photonic Measurement Systems (PM)
- Space Electronics for Sensor Systems

Bachelor Theses

Akrami, Yamo: Anwendung von maschinellem Lernen zur Klassifizierung von Messoberflächen und Segmentierung eines Laserpunktes für eine präzise Laserpunkterfassung

Boussarsar, Ines: Modelling and Simulation of Reflection and Scattering on Flat Surfaces

Castaneda, Carmen M.: Wearable Electrolyte Sensors

Demir, Can: Creating a Solar Charger with Ni-MH Batteries as Storage

Doppelfeld, Christoph: Entwicklung einer Ausleseeinheit für eine Wärmebildkamera auf Thermosäulen-Basis

Erenoglu, Izlen: Contact Lens Biosensor

Harder, Samuel: Entwicklung der Auswerteelektronik für einen integrierten photonischen Chip

Hartono, Ivan: Application of a Triangulation-Based Laser Profile Sensor for Precise Guide Rail Alignment and Adjustment

Hilscher, Thomas: Erweiterung eines abbildenden Infrarotspektrometers zur Fluidanalyse in Transflektanz

Huang, Zhanzhan: Design eines statischen FTIR-Spektrometers mit einem Common-Path-Interferometer

Jin, Benjamin: Interactive Parameterization of Point Cloud Processing Algorithms

Kamm, Lukas: Umweltsimulationen an einem MEMS-basierten LiDAR-System

Kart, Ömer: Wirtschaftlichkeitsanalyse der Algorithmenstrukturen in Windkraftanlagen

Käsdorf, Adrian: Conception of a Calibration Rig for a Line Laser Triangulation Device

Kompatscher, Lukas: Development of a Magnetic Angle Sensor for an Oscillating LiDAR System for Autonomous Driving

Lee, Jun Yong: Recapitulation and Comparative Study of Sensor Quality for Photovoltaic Maximum Power Point Tracking Techniques

Linhart, Nico: Fluorescent Dermal Sensors for pH and Electrolyte Monitoring

Netzer, Pascal: Analyse der Dimmkurve für die Lichtindustrie

Ong, Nicholas: Shearing-adjustable common-path shearography

Ritterhof, Stefan: Prüfsystem für Laser-/Detektor-Module in LiDAR-Sensoren

Sahin, Emre: Analysis of Influencing Factors on Laser Point Detection

Saurer, Matthias: Herstellung und optische Untersuchung metallisch bedampfter Faserenden hinsichtlich der Schalldetektionseigenschaften in einem Fabry-Pérot-Interferometer

Seifi, Sarah: Colorimetric Dermal Sensors for Metabolite Monitoring

Szymczyk, Pawel: Entwicklung und Implementierung eines Systems zur automatisierten Zustandsüberwachung für industrielle Anwendung mittels IO-Link Technologie

Tan, Wie Yen Yim: Simulating the performance and output measurements of modeled Photovoltaic (PV) Inverter

Vasilescu, Sebastian: Einfluss unterschiedlicher Kalibriermethoden auf die Distanzmessung mittels Lasertriangulation

Walser, Robert: Analyse von fertigungsbedingten Formabweichungen bei MEMS-Siliziumstrukturen und deren Einfluss auf das Schwingverhalten

Zainuddin, Siti Zafarah Binte: Off-Grid Hybrid Renewable Power System (Photovoltaic, Wind and Storage Battery System)

Advanced Seminars

Dißemond, Marcel: Overview of Methods for Sub-Pixel Detection of Circular Objects in Digital Images

Fink, Maximilian: Hyperspektral-Imager für den mittleren Infrarotbereich

Meyer, Fabian: Parallelität und Verkippung zweier Flächen

Müller, Michael: Increasing the Spectral Resolution and Bandwidth of Static Fourier Transform Spectrometers

Salihu, Arber: Unwrapping-Algorithmen für die Oberflächenvermessung mittels Speckle-Interferometrie

Tran, Bach: Methoden zur Rauheitsmessung in der Speckle-Interferometrie

Project Laboratory Course Measurement Systems

Burkhard, Christoph: Entwicklung und Test einer Powerline Inter-PCB-Kommunikationsstrecke

Egenhofer, Ulrich: Praktischer Aufbau einer wissenschaftlichen Kamera mit einem Raspberry Pi

Naßl, Stefan: Konzeptprüfung eines statischen Spektrometeraufbaus mit Konkavspiegel

Engineering Practice

Akgül, Markus: Grenzen des Unwrapping-Algorithmus in der Speckle-Interferometrie

Bouzid, Jesser: Developing a driver for a pressure sensor (WESN PADS)

Chu, Marcel: Validierung des Einflusses der Schichtdicke metallisch bedampfter Glasfasern auf die Schallempfindlichkeit im optischen Mikrofon

Farhat, Fedy: Aufbau eines vollautomatisierten Messversuchs zur optischen Entfernungsmessung

Fitouri, Rafik Mohamed: Makermovement & 3D Printing

Greil, Johannes: Evaluation der messtechnischen Eigenschaften eines kapazitiven Einkanal-Abstandssensors

Kanzler, Julia: Bedampfte Faserenden als Sensorelemente für Schall

Schmiedel, Hans: Test Automation for 3D Ultrasound Sensor

Schreiber, Michael: Stabilitätsuntersuchung eines Aufbaus der Lasertriangulation

Sellami, Houssem: Verbesserung der Aufbereitung von Messdaten auf Windkraftanlagen

Spandri, Mattia: Verfassen eines Demo Guides und einer Application Card

Stemplinger, Anselm: Vermessung des Amplitudenverlaufs von Schallwellen zur Schallmodendiskriminierung

Szymczyk, Pawel: Implementierung einer Wireless Sensorlösung für Zustandsüberwachungen im industriellen Umfeld

Zouaghi, Mohamed: Test Automation for 3D Ultrasound Sensor

Engineering Practice for Mathematicians

Neu, Sebastian: Aufbau und Analyse eines Michelson-Interferometers für die Speckle-Interferometrie in FRED

Research Practice

Allani, Mondher: Biofeedback and Quality Assurance for Connectors in the Car Industry Assembly Lines

Berndlmaier, Christian: Analysis of Parking Space Occupancy with a LiDAR Sensor

Chavez, Ricardo: End-of-Line-Tester for Production, Test and Firmware Deployment of LTE Narrowband - Internet-of-Things Modules

Donkes, Laurence: Development of a Thermopile Array Imager Interface for CubeSat Embedded GPU Applications

Evangelisti, Gulio: Modeling and Identification of a Nonlinear Oscillation Mode

Fink, Maximilian: Entwicklung eines elektronischen Prüfstandes für MEMS-Scanner eines LiDAR-Systems

Gerg, Peter: Evaluierung und Anbindung von Sensorik zur Prozessabsicherung eines automatisierten Systems im industriellen Umfeld

Hartl, Patrick: Anbindung und Steuerung relevanter Teilprozesse der Tieftemperaturmikroskopie in C#

Hu, Yichen: Establishing an Interface between the Blickfeld LiDAR and the Apollo Platform

Leitenberger, Marcel: Konzepte und Techniken zur Erkennung von Glas- und Silizium-Wafern

Lippert, Janick: LiDAR Based Object Detection for Collision Avoidance with Robust Algorithms

Möller, Tobias: Weiterentwicklung eines faseroptischen Temperatursensors

Pöcheim, Simon: Faserrichtungserkennung eines CFK-Streifens mittels einer Zeilenkamera

Ren, Haoyu: Evaluation of Radar Field of View from Measurement Data and Development of Sensor Performance Database

Saurer, Matthias: Simulative Untersuchung von Rauheitsmodellen in der Speckle-Interferometrie

Schermer, Maximilian: Identification and Verification of a Highly Dynamic Deflection Unit for Laser Beams

Sperr, Maximilian: Implementation of a Hysteresis Based Controller on FPGA for a Large Volume Scanner Test Setup

WU, Yunhai: Research on Autonomous Driving Platforms

Interdisciplinary Project for Computer Scientists

Batzner, Kilian Thomas: Fortgeschrittene Deep Learning Methoden für die effiziente Datennutzung von Sensormessungen einer taktilen Haut

Mugdal, Shristi: Simulating a LiDAR System with Blensor

Raj, Rishab: Simulating a LiDAR System with Blensor

Wehe, Andreas: Comparing Spaces: Towards Metric Results from New LiDAR Devices

Weigl, Simon: Volume Determination and Object Tracking Based on LiDAR 3D Point Clouds

Master Theses

Aziz, Ibrahim: Design and simulation of Erbium-doped (Er3+) and Ytterbium-doped (Yb3+) fiber laser setups in the near-infrared region

Ben Ghazala, Hamza: Entwicklung und Evaluierung eines breitbandigen statischen Fourier-Transformatios-Spektrometers mit kontinuierlicher Backgroundkorrektur

Egenhofer, Ulrich: Analyse und Weiterentwicklung der Hardware eines Strommesssystems

Eisermann, Christoph: Entwicklung eines Schadensdetektionssystems für mechanisch deformierte Kabelgeflechtsstrukturen mittels faseroptischen Reflektoren und Faser-Bragg-Gittern

Gonzales Pardo, Sandra Patricia: Setup and Validation of a Measurement System for the Positioning of the New BMW Touring Trunk Lid

He, Yangyang: 3D Object Detection Based on LiDAR Sensor Data Using Deep Learning Techniques

Heimerl, Christine: Optimierung eines faseroptischen Dehnungsmessstreifens zur experimentellen Messung in Rotorblättern von Windkraftanlagen

Kurz, Wolfgang J.: UV-Sensitive Wearable Device

Lang, David: Entwicklung eines Messsystems zur Reflektivitätsmessung von LiDAR-Targets

Leibl, Markus: Development and Implementation of a Control System

Li, Mingjian: Simulation of a Fiber Laser Using the Software OptiSystem

Möller, Tobias: Charakterisierung eines photonisch integrierten Chips

Nagy, Daniel Laszlo: 3-Channel Solar Array Simulator for CubeSat Power Budget Verification

Nallar, Elif: Analyse erweiterter Methoden auf die Genauigkeit der Laserpunkterfassung

Naßl, Stefan Simon: Design und Optimierung eines ATR-Moduls für ein statisches Fourier-Transformations-Infrarotspektrometer

Nguyen, The Thien: Entwicklung eines abbildenden Imagers für den mittleren Infrarotbereich

Rau, Christian: Development of an EtherCAT-based Sensor Electronics

Stabenow, Jonas: Sensor-based determination and evaluation of oil parameters for predictive maintenance using analytical methods

Weidner, Mathias: Freiraumdetektion in Punktwolken am Beispiel der Parkraumanalyse unter Verwendung eines LiDAR-Systems

Xu, Wenqian: Generation of Directional LiDAR Sensor Data in Autonomous Driving Simulators

Zahlheimer, Gerald: Design and Implementation of a Single-Photon Pulse Pattern Detection Scheme in FPGA for Automotive LiDAR

Zhang, Lingfeng: Deep Learning for 3D Object Recognition Using LiDAR Sensor Data

Zheng, Mingfei: Simultaneous 3D-Localization and 3D-Mapping with directional LiDAR systems

Doctorates

Bilgeri, Laura Maria, Dr.-Ing.: (Exam on 05.02.19) Wavefront Generator for Electronic Speckle-Pattern Interferometers
1. Examiner: Prof. Alexander W. Koch
2. Examiner: Prof. Félix Salazar Bloise, Universidad Politécnica de Madrid, Spanien

Hopf, Barbara, Dr.-Ing.: (Exam on 08.02.19) Faser-Bragg-Gitter-basierte Multiparametermessung zur Anwendung in Hochleistungsgeneratoren
1. Examiner: Prof. Alexander W. Koch
2. Examiner: Prof. Johannes Roths, HAW München

Lu, Min, Dr.-Ing.: (Exam on 05.02.19) Adjustable Aperture Multiplexing Technique in Electronic Speckle Pattern Interferometry
1. Examiner: Prof. Alexander W. Koch
2. Examiner: Prof. Félix Salazar Bloise, Universidad Politécnica de Madrid, Spanien

Rauscher, Markus S., Dr.-Ing.: (Exam on 08.02.19) Nicht-dispersive Infrarotsensoren für die Online-Ölzustandsüberwachung
1. Examiner: Prof. Alexander W. Koch
2. Examiner: Prof. Andreas Schütze, Universität des Saarlandes

Special Events

- On 13 October 2018 the Institute for Measurement Systems and Sensor Technology participated on the "Open House" with the following theme: "Laser: the luminous instrument of the future."
- Orbital Oracle Technologies GmbH has been founded in 2018 by B.Sc. Rupert Amann, M.Sc. Thomas Grübler, M.Sc. Björn Stoffers, and B.Sc. Florian Mauracher
- From 05-16 November 2018 Prof. Koch gave the lecture Optomechatronical Measurement Systems at the German Institute of Science and Technology in cooperation with the Nanyang Technological University, Singapore
- In November 2018, the ORORA.TECH team received the first prize of the "Virtual Investment Challenge" for the most promising start-up at the NEWSPACE EUROPE 2018 conference
- Lecture and company booth "First supplier of global real-time infrared satellite data" of the team ORORA.TECH (Orbital Oracle Technologies GmbH) at the conference NEWSPACE EUROPE 2018, 27-28.11.2018, Luxembourg, due to the invitation of the European Business Angel Network (EBAN)
- Shengjia Wang was from October 15 to December 02, 2018, for a research stay at the DTU Fotonik (Technical University of Denmark, Institute of Photonics) in Copenhagen
- Prof. Dr. Félix Salazar Bloise gave the Athens course "Non-contact techniques for material testing" for European students from 16-22 March 2019
- From 01-13 April 2019 Prof. Koch gave the lecture and the tutorial lecture Measurement Systems and Sensor Technology at the Singapore Institute of Technology, Singapore
- MST Summer Seminar 2019, Doctoral Colloquium, Haus der bayerischen Landwirtschaft, Herrsching, Ammersee, 11-13 July 2019
- In July 2019 the spin-off company Blickfeld GmbH has won the German start-up prize "Start me up!", endowed with 100,000 euros, which is organized by the business magazine "Bilanz" and the companies Daimler, HanseMerkur, and ProSiebenSat1 Media

Funding and Cooperation

- Since 1999 scientific cooperation with the Max Planck Institute for Plasma Physics (IPP), Garching, in the field of surface diagnostics
- Since 2009 cooperation with Klüber Lubrication, Munich, in the field of optical measurement technology
- Since 2012 cooperation with fos4X GmbH, Munich, in the field of fiber optical measurement technology
- Funding of the DFG research project "In-situ strain measurement during the solidification and the cooling down of aluminium alloys by means of regenerated Fiber Bragg gratings" in cooperation with Professor Roths (University of Applied Sciences Munich) and Professor Volk (TUM - Department of Mechanical Engineering) in the period 01.01.2019 - 31.12.2020
- Funding of the project "Condition monitoring systems for wind energy converters using rotor-blade load measurement data (CondWind)" by the Federal Ministry of Education and Research (BMBF) within the framework of the notice on the funding of the cooperation between science and technology (WTZ) with the Palestinian National Ministry, in cooperation with Prof. Hala El-Khozondar and fos4X GmbH in the period 01.02.2017-31.12.2019
- Funding of the project "Development of a broadband stationary Fourier-transform infrared spectrometer for the near and middle infrared range with high measuring rates" by the Federal Ministry of Economy and Energy (BMWi) due to a decision of the German Federal Parliament in the program "Central Innovation Program for SMEs (ZIM)" in cooperation with Comline Elektronik Elektrotechnik GmbH in the period 01.02.2017-15.12.2019
- Since 2017 cooperation with Blickfeld GmbH, Munich, in the field of fiber optical measurement technology
- Funding of the project "Laser measuring system for the determination of distance, parallelism, and tilting" by the Federal Ministry of Economy and Energy (BMWi) due to a decision of the German Federal Parliament in the program "Central Innovation Program for SMEs (ZIM)" in cooperation with Blau Optoelektronik GmbH in the period 13.03.2017-31.12.2019
- Funding of the project "Microfluidic Contact Lens Biosensors" within the program "Humboldt Research Fellowships for Postdoctoral Researchers" of the Alexander von Humboldt Foundation for Dr. Ali Kemal YETISEN, 01.03.2018-01.03.2020, in cooperation with Prof. Dr. Martin Elsner, Chair of Analytical Chemistry and Water Chemistry, Department of Chemistry, TUM
- Funding of the project "Advanced CubeSats for Weather Forecasting" within the program „The EXIST Business Start-up Grant" with funds of the Federal Ministry for Economic Affairs and Energy (BMWi), as well as funds of the European Social Fund for Germany (ESF) in the period 01.09.2018-31.08.2019 for Thomas Grübler, Florian Mauracher, and Björn Stoffers
- Funding of the project "EXIST Transfer of Research: APICBEAM" within the program „Business Start-ups from Science" with funds of the Federal Ministry for Economic Affairs and Energy (BMWi), as well as funds of the European Social Fund for Germany (ESF) in the period 01.09.2019-31.08.2021 for Daniel Eble, Dr. Sascha Grusche, Christoph Knappe, and Dr. Evgeniya Smetanina
- Funding of the project "iAir – Lab-on-Chip VOC sensor technology" by the German Federal Environmental Foundation (DBU) in cooperation with BioChip Systems GmbH in the period 01.10.2019-31.08.2020
- Funding of the scholarships of Mr. Shengjia Wang (01.10.15-30.09.19), Mr. Jie Dong (01.10.17-30.09.21), Mr. Xingchen Dong (01.10.17-30.09.21), Mr. Kun Wang (01.10.18-30.09.22), Dr. Yubo Huang (13.02.19-09.02.20), and Qiang Bian (01.10.19-30.09.23) in the field of Optical Metrology by the Chinese Ministry of Education under its funding organization China Scholarship Council (CSC)

Guests

Abreu Matoso, Gabriel, IAESTE exchange student, Brazil, 04.08.19-30.09.19

El-Khozondar, Hala, Prof. Dr., Scientific Guest, Islamic University of Gaza, Palestine, 12.02.-31.10.18

Huang, Yubo, Dr., Scientific Guest, Sichuan University, China, 13.02.19-09.02.20

Salazar Bloise, F., Prof. Dr., Scientific Guest, Universidad Politécnica de Madrid, Spain, 07.09.18-07.10.19 and 16.03-30.03.19

Tadik, Serhat, IAESTE exchange student, Turkey, 01.07.-31.08.19

Thallemer, Axel Michael, Prof., Scientific Guest, National University of Singapore, 06.08.18-05.01.19

Yetisen, Ali Kemal, Dr., Scientific Guest, Humboldt scholarship holder, 01.03.18-01.03.20

Publications, Patents, and Talks

Bilgeri, L.M.: Wavefront Generator for Electronic Speckle-Pattern Interferometers. Doctoral Thesis, Technical University of Munich, Shaker-Verlag, 2019

Dong, J.; Jakobi, M.; Wang, S.: Vorrichtung und Verfahren für ein gleichzeitig in-plane- und out-of-plane-sensitives Shearographiesystem. German Patent Application, DE 10 2019 XXX XXX.X, 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), 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 MoS2 flakes via hyperspectral line-scanning microscopy. Applied Physics Express 12, 2019

Dong, X., Wang, K., Dong, J., Köhler, M.H., Jakobi, M., Koch, A.W.: Hyperspectral Imaging Microscopy and Nanoscopy: Theory and Practice. DokDok 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), 2019

Dutz, F.; Roths, J.: Lichtleitfaser mit einem Faser Bragg Gitter. German Patent Application, DE 202019002314.3, 2019

El-Khozondar, H.J.; Alshembari, A.; Shabat, M.; Koch, Alexander W.: Two layers corrugated semiconductor solar cell. Optik Volume 181, 2019

Graf, M.A.; Ehmer, F.; Koch, A.W.; Jakobi M.: Vorrichtung zur Verknüpfung binärer optischer Signale zur faseroptischen Umsetzung von Logikgattern. German Patent Application, DE 10 2019 XXX XXX.X, 2019

Heilmeier, F.; Koos, R.; Weraneck, K.; Lindner, M.; Jakobi, Roths, J.; M.; Koch, A.W.; Volk, W.: In-situ strain measurements in the plastic deformation regime inside casted parts using fibre-optical strain sensors. Production Engineering, 2019

Hoffmann, M.; Lardschneider, A.; Saurer, M.; Stemplinger, A.: Device for the interferometric evaluation of photoacoustic signals without moving components. German Patent Application, DE 10 2019 XXX XXX.X, 2019

Hoffmann, M.; Stemplinger, A.; Amplatz, D.; Koch, A. W.: Membranlose optische Mikrofone - Schallmessung mittels differentieller Interferometrie. DAGA 2019, 2019

Hopf B., Fischer B., Bosselmann T., Koch A.W., Roths J.: Strain-Independent Temperature Measurements with Surface-Glued Polarization-Maintaining Fiber Bragg Grating Sensor Elements. Sensors (19), 2019

Hopf, B.: Faser-Bragg-Gitter-basierte Multiparametermessung zur Anwendung in Hochleistungsgeneratoren. Doctoral Thesis, Technical University of Munich, Shaker-Verlag, 2019

Kienle, P.; Nallar, E.; Köhler, M.H.; Jakobi, M.; Koch, A.W.: Analysis of sub-pixel laser spot detection in laser triangulation systems. SPIE Optical Metrology, 2019

Koch, A.W.; Jakobi, M.; Amann, R.; Grübler, T.; Mauracher, F.; Stoffers, B.: Forschung auf dem Gebiet der CubeSat-Technologien zur Wettervorhersage am Lehrstuhl für Messsystem- und Sensortechnik (MST) der Technischen Universität München (TUM). Annual Magazine Engineering Sciences Germany 2018/19: Measurement and Sensor Technology, Institute for Scientific Publications, pp. 138-142, 2018

Köhler, M.H.; Naßl, S.; Kienle, P.; Dong, X.; Koch, A.W.: Broadband static Fourier transform mid-infrared spectrometer. OSA The Optical Society Applied Optics, 2019

Köhler, M.H.; Müller, M.; Schardt, M.; Kienle, P.; Dong, X.; Koch, A.W.: Statisches Fourier-Transformationsspektrometer für den mittleren Infrarotbereich mit erhöhter spektraler Auflösung. DGaO Proceedings, 2019

Köhler, M.H.; Nguyen, T.; Kienle, P.; Dong, X.; Koch, A.W.: Setup and evaluation of a static imaging Fourier transform spectrometer for the mid-infrared spectral range. Optical Measurement Systems for Industrial Inspection XI. SPIE, 2019

Köhler, M.H.; Schardt, M.; Ghazala, H.B.; Colicchia, E.; Kienle, P.; Dong, X.; Wang, K.; Koch, A.W.: Static Fourier transform mid-infrared spectrometer with continuous background correction. Applied Optical Metrology III. Vol. 11102. SPIE, 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. Seventh European Workshop on Optical Fibre Sensors, 2019

Lu, M.: Adjustable Aperture Multiplexing Technique in Electronic Speckle Pattern Interferometry. Doctoral Thesis, Technical University of Munich, Shaker-Verlag, 2019.

Marchi, G.; Foehr, P.; Baier, V.; Kinne, R.W.; Burgkart, R.; Roths, J.: Discrimination between healthy and degenerated bovine articular cartilage with a fiber Bragg grating based microindenter. Journal of the Mechanical Behavior of Biomedical Materials, 2019

Pöller, F.; Bilgeri L.M.; Salazar Bloise F.; Jakobi, M.; Wang, S.; Dong, J.; Koch, A.W.: Roughness evaluation with high lateral resolution by spatial light modulators. tm-Technisches Messen 86(S1), 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), 2019

Rauscher, M.: Nicht-dispersive Infrarotsensoren für die Online-Ölzustandsüberwachung. Doctoral Thesis, Technical University of Munich, Shaker-Verlag, 2019

Stemplinger, A.; Amplatz, D.; Hoffmann, M.; Koch, A. W.: Kammfilterverhalten bei differentiellen akustischen Messungen mittels eines membranlosen optischen Mikrofons. DAGA 2019, 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), 2019

X. Dong, M.H. Köhler, M. Jakobi, A.W. Koch: Hyperspectral imaging microscopy for thickness measurement and surface characterization of layered MoS2. SPIE Optical Measurement Systems for Industrial Inspection XI, 2019

Yetisen, A.; 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. A Journal of the Gesellschaft Deutscher Chemiker, 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 Advances (9), pp. 11186-11193, 2019

Cover picture: Laser beams @ Marina Bay Sands, Singapore (Source: Prof. A. W. Koch)
Editing and Layout: Dr. M. Jakobi
Munich, 10 December 2019