

CURRICULUM VITAE

PROF. JUERGEN CZARSKE

Full Professor and Head of Laboratory of Measurement and Sensor Systems Engineering, Faculty of Electrical Engineering, TU Dresden
Helmholtz Str. 18, 01069 Dresden, Germany
Born: December 20, 1962 in Bad Segeberg, Germany
Married, one daughter



PROFESSIONAL CAREER

- Affiliated Investigator of the Excellence Cluster “Physics of Life”, Dresden: since 1/2019
- Director of Institute of Circuits and Systems at TU Dresden: since 1/2016
- Founding of a Key Lab of Computational Adaptive Metrology at MST: since 1/2011
- Founding of a Key Lab of Digital Metrology in Harsh Environments at MST: since 1/2007
- Full Professor for measurement systems, Lab MST, TU Dresden: since 12/2004
- Laser Zentrum Hannover e. V. (industry-oriented private research institute); last position: head of department of measurement technique, Hannover: 10/1995 - 12/2004
- Dr.-Ing. habil., venia legendi in measurement systems engineering, Leibniz University: 10/2003
- Visiting Scholar in Japan (NTT Labs, Nippon Telegraph and Telephone Corporation, Ibaraki-ken) and USA (Bell Labs, Holmdel, New Jersey / MIT, Cambridge, Massachusetts / NASA Research, Langley, Virginia / Caltech, Pasadena, California / Stanford, Palo Alto, California / Virginia Tech, Blacksburg, Virginia), part time: 1996 - 2001
- Leibniz University, Scientific Member of the Institute of Measurement Systems: 10/1991 – 5/1996
- Ph.D. degree in engineering with distinction (summa cum laude), Leibniz University: 2/1995
- Siemens AG, Munich (part time, research student, consultant and Siemens Scholarship): 1986-1991
- Study electrical engineering and physics at Leibniz University of Hannover: until 9/1991
- AEG Telefunken AG & Deutsche Bahn AG, Neumünster (part time): 1983-1985

AWARDS, PRIZES AND HONORS INCLUDE (PARTIAL LIST)

- *Joseph Fraunhofer Award and Robert M. Burley Prize of the Optical Society (OSA), recognizing research accomplishments in optical engineering, <https://www.osa.org>, Washington, DC, USA, 2019*
- Best Paper Awards, 2nd and 3rd, OSA Imaging and Applied Optics Congress, Orlando, FL, USA, 6/2018
- Member of Saxon Academy of Science, Leipzig, 3/2018
- Fellow Award, EOS (European Optical Society), Joensuu, Finland, 8/2016
- Fellow Award, SPIE (The International Society for Optics and Photonics), Bellingham, USA, 12/2015
- Fellow Award, OSA (The Optical Society), Washington, DC, USA, 10/2015
- Outstanding Paper Award: Precision Measurement, Meas. Sci. Technol., IOP, Bristol, UK, 6/2015
- Senior Member, IEEE (Institute of Electrical and Electronics Engineers), New York City, USA, 6/2015
- *Reinhard Koselleck Project in systems engineering, German Research Foundation, Bonn, 7/2014*
- Selected paper - “Highlights of 2013”, Journal of Physics D - Applied Physics, UK, 1/2014
- Excellent paper, awarded at 33. Annual meeting of the Japan Laser Society, Tokyo, Japan, 5/2013
- ASME Turbo Expo, Award of Controls, Diagnostics and Instrumentation, Vancouver, Canada, 6/2011
- *Berthold Leibinger Innovation Prize (see en.wikipedia, international jury including Nobel laureate Ted Hänsch), awarded in Ditzingen, 9/2008*
- Highly commended article of Measurement Science and Technology (MST), Bristol, UK, 12/2001
- *Measurement Technique Prize of AHMT (Association of the University Professors of Measuring Technique) for a distinguished PhD thesis (see de.wikipedia), TU Munich, 9/1996*
- Honor of the Leibniz University for an outstanding doctorate, Hannover, 12/1995
- Scholarship and Stipend of Siemens AG, Munich, 1986-1991
- Young Researcher Prize (Jugend Forscht), Kiel, 4/1984

ORGANIZATION OF CONFERENCES INCLUDE (PARTIAL LIST)

- Planned conference in Dresden: ICO-25-OWLS-16, "Progress for society with light", International Commission for Optics, ICO ("Umbrella Organization" of Optics and Photonics), 2020
- Recently organized conference: 118th Annual Meeting Society of Applied Optics, Dresden, June 2017
- Memberships of advisory boards or program committee include: Photonics Europe, SPIE, Strasbourg, France, 2020; Photonics West, SPIE, San Francisco, USA, 2020; Iberoamerican Optics Meeting (RIO), Cancún, México, 2019; ICO-Meeting on Optics & Applications to Sustainable Development, Carthage, Tunisia, 2019; Information Photonics, Japan, 2019; Optical Technology and Measurement for Industrial Appl., SPIE, Yokohama, Japan, 2019; Opt. Meas. Syst. for Inspection SPIE, 2019; European Optical Society, Delft, NL, 2018; Symp. Appl. of Laser Techn. Fluid Mechanics, Lisbon, Portugal, 2018; icOPEN, Singapore, 2015; OSA, Opt. Sensors, Barcelona, Spain, 2014; Optomechatronic Technologies, Seattle, USA, 2014; Optoelectronic Technology and Application, Beijing, China, 2014

ELECTED MEMBERSHIPS INCLUDE (PARTIAL LIST)

Scientific Society for Laser Technology (WLT e.V.); Board of German Society of Applied Optics (DGaO) - The German Branch of the European Optical Society (EOS); Board of German Association of Laser Anemometry (GALA); Elected Member of Management Committee of COST Action BioBrillouin (European Cooperation in Science and Technology, EU, Brussels); Supervisor of Student Chapter Dresden of SPIE (The International Society for Optics and Photonics, USA); etc.

TEACHING INCLUDES (PARTIAL LIST)

Measurement and Sensor Technique, Laser Technique, etc. (over 15 000 exams within last 14 years)

EDITORIAL BOARDS INCLUDE (PARTIAL LIST)

Technical Measurement (Walter de Gruyter); Open Journal of Fluid Dynamics (Scientific Research Publishing); Journal of the European Optical Society (EOS) - Rapid publications, etc.

SERVICE AS REVIEWER - SCIENTIFIC JOURNALS - INCLUDES (PARTIAL LIST)

Optics Express, Optics Letters, IEEE Trans. on Instrumentation and Measurement, Optica, etc

SERVICE AS REVIEWER - GRANTING AGENCIES - INCLUDES (PARTIAL LIST)

German Research Foundation (Individual Grants Programs, Priority Programs, Research Training Groups, CRC, Core Facilities), AIF, Development Bank, The Netherlands Organization for Scientific Research, Israel Science Foundation, King Faisal Foundation Saudi Arabia, National Science Foundation US, etc

SERVICE AS CONSULTANT AND ADVISOR INCLUDES (PARTIAL LIST)

Review Board of German Research Foundation; Committee of Nanyang Techn. University Singapore; etc

RESEARCH

The research aims on the universal control and application of coherent wave fields (light and ultrasound) using adaptive digital systems. He is known for unconventional optical imaging with wavefront shaping, real-time holography, advanced biomedical imaging and non-intrusive precision measurements at harsh environments. His research is focused on advances in application areas including: "Information technologies and internet" (deep learning, physical layer security, multimode fiber transmission), "energy and process technique" (optical measurements of sound waves of aircrafts, tomography in refractive index measurements, in situ real time quality monitoring with Doppler sensors), and "health and biophotonics" (holographic needle-size fiber endoscopes, mechanical mapping of biological tissues using spontaneous and stimulated Brillouin microscopy, digital real-time holography in optogenetics, iPSC-derived neural networks, zebrafish studies with smart microscopes using adaptive lenses). Over 50 prizes and honors were awarded to the students and members of his laboratory within the last 10 years.

PUBLICATIONS AND TALKS

In total over 700 publications and talks, including more than 100 invited talks, more than 20 patents and more than 200 papers in renowned peer reviewed journals: Optics Express, Optics Letters, Optics and Lasers in Engineering, Mechanical Systems and Signal Processing, IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, and Journal of Visualized Experiments – JoVE, etc.

SELECTION OF 10 ARTICLES, RECENTLY PUBLISHED IN PEER REVIEWED INTERNATIONAL SCI JOURNALS

- R. Kuschmierz, E. Scharf, N. Koukourakis, J. Czarske, "Self-calibration of a lensless holographic endoscope using programmable guide stars", *Optics Letters* (2018)
- R. Schlüßler, ..., J. Czarske, J. Guck, "Mechanical Mapping of Spinal Cord Growth and Repair in Living Zebrafish Larvae by Brillouin Imaging", *Biophysical Journal* (2018)
- F. Schmieder, ..., J. Czarske, "Optogenetic Stimulation of Human Neural Networks Using Fast Ferroelectric Spatial Light Modulator-Based Holographic Illumination", *Appl. Sciences* (2018)
- R. Nauber, L. Büttner, K. Eckert, J. Fröhlich, J. Czarske, and S. Heitkam, "Ultrasonic measurements of the bulk flow field in foams," *Phys. Rev. E* 97(1), 013113 (2018)
- D. Haufe, N. Koukourakis, L. Büttner, J. Czarske, "Transmission of multiple signals through an optical fiber using wavefront shaping", *Journal of Visualized Experiments*, e55407 (2017)
- K. Mantvydas; R. Nauber; C. Kupsch; J. Czarske, „Flow Field Imaging with Ultrasonic Guided Waves for Exploring Metallic Melts”, *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*, Issue: 99 (2017)
- K. Philipp, A. Smolarski, N. Koukourakis, A. Fischer, M. Stürmer, U. Wallrabe, J. Czarske, "Volumetric HiLo microscopy employing an electrically tunable lens", *Optics Express* 24(13), 15029-15041 (2016)
- F. Schmieder, M. E. Kinaci, J. Wartmann, J. König, L. Büttner, J. Czarske, S. Burgmann, A. Heinzl, "Investigation of the flow field inside the manifold of a real operated fuel cell stack using optical measurements and Computational Fluid Mechanics", *Journal of Power Sources* 304C: 155-163 (2016)
- N. Koukourakis, B. Fregin, J. König, L. Büttner, J. Czarske, "Wavefront shaping for imaging based flow field measurements through distortions using a Fresnel guide star", *Opt. Express* 24(19), 22074-22087 (2016)
- J. König, K. Tschulik, L. Büttner, M. Uhlemann, J. Czarske, „Analysis of the Electrolyte Convection inside the Concentration Boundary Layer during Structured Electrodeposition of Copper in High Magnetic Gradient Fields”, *Analytical Chemistry*, 85(6):3087-3094 (2013)

April 30, 2019