

# CV of Prof. Dr.-Ing. habil. Jürgen Czarske

Born: December 20, 1962 in Bad Segeberg, Germany

Married, one daughter

## Professional career

- Full Professor (Chair) at TU Dresden, Dresden, Germany:  
Director of Institute of Circuits and Systems: since 1/2016. Head of the laboratory of measurement and sensor system technique: since 9/2014. Head of the laboratory of measurement and testing technique and lecturer (over 1000 examinations/year): 12/2004 – 9/2014
- Laser Zentrum Hannover e. V. (industry-oriented private research institute; last position: head of department measurement technique), Hannover: 10/1995 - 12/2004
- 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): 1996 - 2001
- Leibniz University of Hannover, Germany (Institute of measurement technique): 10/1991 – 5/1996
- Siemens AG, Munich: 1986-91; AEG Telefunken AG & Deutsche Bahn AG, Neumünster: 1983-85



## Academic record of Leibniz University of Hannover, Germany

- Habilitation degree in measurement system technique: Oct. 16, 2003
- Ph.D. degree in electrical and mechanical engineering (summa cum laude): Feb. 9, 1995
- Study of electrical engineering and physics, until 9/1991

## Awards and honors include

- 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
- Senior Member, SPIE (The International Society for Optics and Photonics), Bellingham, USA, 7/2015
- 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
- First recipient of the prestigious Reinhart Koselleck Award in system engineering, awarded by the German Research Foundation (DFG), Bonn, Germany, 15<sup>th</sup> July 2014
- Excellent paper, awarded at 33. Annual meeting of the Japan Laser Society, Tokyo, Japan, 5/2013
- ASME Turbo Expo – Turbine Technical Conference & Exposition. Award of Controls, Diagnostics and Instrumentation, Vancouver, Canada, 6/2011
- Best Paper Award of the international OPTO conference, Nürnberg, Germany, 5/2009
- Prestigious international Berthold Leibinger Innovation Prize (see en.wikipedia, international jury including Nobel laureate Ted Hänsch). Among the graduates of the Leibinger Prize belong the Nobel laureate Stefan W. Hell. The prize was awarded in Ditzingen, Germany, 15<sup>th</sup> Sep. 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), awarded at TU Munich, 9/1996

## Organization of conferences include

- Memberships of advisory boards include: Sensor Conference 2017/ SPIE Opt. Meas. Syst. for Industrial Inspection 2017 / SPIE Photonics Europe - Micro- and Nanotechn. Brussels, Belgium, 2016 / Symp. Appl. of Laser Techn. Fluid Mechanics, Lisbon, Portugal, 2016 / Sensor and Measurement Sys-

- tems, 2016 / icOPEN, Singapore, 2015 / 11th Intern. Multi-Conference on Systems, Signals and Devices, Castelldefels-Barcelona, Spain, 2014 / OSA conference on Opt. Sensors, Barcelona, Spain, 2014 / Int. Symposium on Optomechatronic Technologies, Seattle, USA, 2014 / Optoelectronic Technology and Application 2014, Beijing, China
- Planned and recently organized conferences in Dresden: 118<sup>th</sup> Annual Meeting of DGaO, June 6 -10, 2017. Laser methods in flow measurement techniques (23<sup>rd</sup> conference of Gala e.V.), September 8 - 10, 2015.

### **Professional Memberships include**

Board of German Society of Applied Optics (DGaO); 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)

### **Teaching includes**

Measurement and Sensor Technique, System Engineering, Laser Measurement Technique

### **Editorial Boards include**

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

### **Service as Reviewer - Scientific Journals (partial list)**

Optics Express, Optics Letters, IEEE Trans. on Instrumentation and Measurement and many others

### **Service as Reviewer - Granting Agencies (partial list)**

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

### **Service as Consultant and Advisor includes**

Member Review Board on System Engineering of DFG; Member of review committee at Nanyang Technological University Singapore

### **Research**

Jürgen Czarske is heading one of the most creative research groups in modern measurement system technique world-wide. Research topics are modelling, design, manufacturing and application of novel non-intrusive measurement techniques using laser and ultrasound waves. He is known for precision measurements using the Doppler effect. Contactless measurements have been conducted in both engineering and scientific areas including: "Information technologies" (optoelectronics: digitally programmable optics), "production techniques" (industry 4.0: in-situ shape monitoring of lathes), "energy and environment" (electrical engineering: ultrasound flow mapping in magnetohydrodynamics), "aerospace" (system engineering: measurements of sound-flow interaction for noise reduction), "health/biophotonics" (biophotonics: contactless measurements of elastic modulus of biological tissue by photon-phonon interaction), "medicine" (optogenetics: stimulation of neuronal networks using digital holographic systems).

Jürgen Czarske has a strong record of inspiring the next STEM (Science, Technology, Engineering, and Mathematics) generation. Over 30 prizes have been awarded to the students and members of his chair.

### **Publications**

In total over 650 publications and talks, including more than 100 invited talks, more than 15 patents and more than 150 papers in renowned journals (e.g. Optics Express, Optics Letters, Optics and Lasers in Engineering, Journal of Power Sources, Mechanical Systems and Signal Processing, IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control, and Journal of Visualized Experiments - JoVE)

## **Selection of 5 articles, recently published in peer reviewed international SCI journals**

- Schmieder F; Kinaci ME; Wartmann J; König J; Büttner L; Czarske J; Burgmann S; Heinzl A: "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
- J. Czarske, D. Haufe, N. Koukourakis, L. Büttner: "Transmission of independent signals through a multimode fiber using digital optical phase conjugation", Optics Express 24(13), 15128-15136, 2016
- 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
- R. Kuschmierz, A. Davids, S. Metschke, F. Löffler, H. Bosse, J. Czarske, A. Fischer: „Optical, in situ, three-dimensional, absolute shape measurements in CNC metal working lathes“, The International Journal of Advanced Manufacturing Technology, Volume 84, Issue 9, pp 2739-2749, 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

Date: March 21, 2017