

# Lebenslauf

**Christian Joachim Kähler**, Universität der Bundeswehr München

## Ausbildung und akademischer Werdegang

- Ernennung zum W3 Professor für Fluidodynamik, 30.04.2008
- Habilitation, Strömungsmechanik, TU Braunschweig, 15.01.2008
- Promotion, Physik, Georg-August-Universität zu Göttingen, sehr gut, 01.07.2004
- Physikstudium an der TU Clausthal, sehr gut, 01.04.1990 – 11.04.1997
- Allgemeine Hochschulreife, Hamburg, 01.06.1989

## Wissenschaftliche Tätigkeit seit Beendigung des Studiums

- 2008 – heute W3 Professor für Fluidodynamik und Leiter des Instituts für Strömungsmechanik und Aerodynamik der Universität der Bundeswehr München
- 2001 – 2008 Leiter der Abteilung Strömungsbeeinflussung und Messtechnik am Institut für Strömungsmechanik der TU Braunschweig
- 2000 – 2001 Wissenschaftlicher Angestellter am Institut für Aerodynamik und Strömungstechnik des Deutschen Zentrums für Luft- und Raumfahrt in Göttingen
- 1997 – 2000 Doktorand am Institut für nichtlineare Dynamik und Selbstorganisation der Georg-August-Universität zu Göttingen

## Forschungstätigkeit im Ausland

- 29.07.2018 – 10.09.2018 Forschungsaufenthalt, Mechanical and Mechatronics Engineering Department, University of Waterloo, Kanada, Prof. Yarusevych
- 25.07.2015 – 12.09.2015 Forschungsaufenthalt, Engineering Graduate School, University of Southampton, England, Prof. Ganapathisubramani
- 06.09.1998 – 17.12.1998 Forschungssemester, California Institute of Technology (Caltech), Graduate Aeronautical Laboratories, Pasadena, California, USA, Prof. Gharib
- 18.03.1996 – 18.06.1996 Forschungssemester, University of Illinois at Urbana Champaign (UIUC), Department of Theoretical and Applied Mechanics, Urbana, Illinois, USA, Prof. Adrian

## Auszeichnungen

- 15.02.2017 Ruf der TU Darmstadt, Lehrstuhl für Technische Strömungsmechanik Ruf abgelehnt und Bleibeangebot der Universität der Bundeswehr München angenommen
- 17.10.2012 Ruf der TU Berlin, W3 Einstein-Professur für Aerodynamik Ruf abgelehnt und Bleibeangebot der Universität der Bundeswehr München angenommen
- Bewerbungsaufforderung der University Cambridge für den Dyson Chair of Fluid Mechanics, University of Cambridge, England, abgelehnt
- 12.03.2008 Ernennung zum Universitätsprofessor der Universität der Bundeswehr München
- 15.10.2007 Ruf der Universität der Bundeswehr München, Professur für Fluidodynamik
- 1998 Forschungsstipendium, Center for Quantitative Visualization, USA
- 1997 – 2000 Doktorandenstipendium, Deutsches Zentrum für Luft- und Raumfahrt
- 1996 Forschungsstipendium, University of Illinois at Urbana Champaign (UIUC), USA

### **Ernennungen und gewählte Positionen (Auswahl)**

- Wahl zum Mitglied des Senats- und Bewilligungsausschusses für die Sonderforschungsbereiche der Deutschen Forschungsgemeinschaft (DFG), Amtsperiode 2019 bis 2021
- Mitglied International Scientific Advisory Board of the 32<sup>nd</sup> International Conference on High-Speed Imaging and Photonics (IHSIP-32), Twente, Niederlande, ab 2018
- Mitglied Editorial Advisory Board, Flow, Turbulence and Combustion, Springer Nature, ab 2015
- Mitglied Editorial Board, Theoretical & Applied Mechanics Letters, Elsevier, ab 2015
- Mitglied des Kuratoriums der Deutschen Gesellschaft für Laser-Anemometrie, ab 2015
- Mitglied Organisation Committee, International Symposium on PIV, ab 2014
- Mitglied Scientific Committee, International Conference on Experimental Fluid Mechanics, ab 2014
- Wahl zum Fachkollegiaten der Deutschen Forschungsgemeinschaft (DFG) für das Fachkollegium 404 "Wärmeenergie-technik, Thermische Maschinen und Antriebe", Amtsperiode 2012 bis 2015 und 2016 bis 2019
- Associate Editor von Experiments in Fluids, Springer Nature, ab 2011
- Wahl zum Mitorganisator des jährlich stattfindenden DFG Rundgespräches „Perspektiven in der Strömungsmechanik“, ab 2010
- Mitglied Editorial Board of ISRN Mechanical Engineering, 2010 – 2013
- Mitglied Editorial Advisory Board of Experiments in Fluids, 2009 – 2010
- Mitorganisator 8<sup>th</sup> Euromech Fluid Mechanics Conference, Bad Reichenhall, Germany, 13.–16.09.2010
- Mitglied Steering Committee, International Conference on Fluid Control, Measurements, and Visualization, ab 2007
- Mitglied Scientific Committee, International Symposium on PIV, ab 2007
- Mitglied Advisory Committee, International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lissabon, Portugal, ab 2006
- Mitorganisator 4<sup>th</sup> International Symposium on Particle Image Velocimetry, Göttingen, 17.–19.09.2001
- Mitglied Steering Committee, International PIV Challenge, ab 2001

### **Veranstalter von wissenschaftlichen Fachtagungen**

- 13<sup>th</sup> International Symposium on Particle Image Velocimetry (ISPIV), 22. – 24.07.2019
- 5<sup>th</sup> International Conference on Experimental Fluid Mechanics (ICEFM), 02. – 04.07.2018
- 4<sup>th</sup> International PIV Challenge, Lissabon, 05.07.2014
- 21. Fachtagung Lasermethoden in der Strömungsmesstechnik, 03. – 05.09.2013

### **Mitgliedschaften (Auswahl)**

- American Physical Society (APS)
- Deutsche Physikalische Gesellschaft (DPG)
- Deutscher Hochschulverband (DHV)
- European Academy of Sciences (EUAS)
- European Research Community on Flow, Turbulence and Combustion (ERCOFTAC)
- German Association for Laser Anemometry (GALA e.V.)

### **Gutachterliche Tätigkeit (Auswahl)**

Forschungsförderungsorganisationen

- Austrian Science Fund (FWF)
- Deutsche Forschungsgemeinschaft (DFG)
- Dutch Technology Foundation (STW)

- French National Research Agency (ANR)
- Innovationszentrum Niedersachsen
- Netherlands Organisation for Scientific Research (NWO)
- Swedish Research Council (SRC)
- Swiss National Science Foundation (SNSF)

#### Fachzeitschriften

- European Journal of Mechanics - B/Fluids, Elsevier
- Experiments in Fluids, Springer Nature
- Experimental Thermal and Fluid Science, Elsevier
- International Journal of Heat and Fluid Flow, Elsevier
- International Journal of Multiphase Flow, Elsevier
- Journal of Aircraft (AIAA)
- Journal of Flow, Turbulence and Combustion, Springer Nature
- Journal of Fluids and Structures, Elsevier
- Journal of Fluids Engineering, American Society of Mechanical Engineers
- Journal of Fluid Mechanics, Cambridge University Press
- Journal of the Royal Society Interface, The Royal Society Publishing
- Journal of Visualization, Springer Nature
- Measurement Science and Technology, Institute of Physics Publishing
- Microfluidics and Nanofluidics, Springer Nature
- The Aeronautical Journal, Royal Aeronautical Society

#### Berufungsverfahren

- Delft University of Technology (2009, 2017, 2018)
- Indian Institute of Science Bangalore (2018)
- Karlsruher Institut für Technologie (2013)
- TU Braunschweig (2007)
- TU Bergakademie Freiberg (2016)
- TU Hannover (2011, 2016)
- TU Ilmenau (2014)
- TU München (2009, 2012)
- Universität Bremen (2016)
- Universität der Bundeswehr München (2010, 2011, 2013, 2015, 2016, 2017, 2018)
- Universität Rostock (2014)
- Universität Bochum (2012)
- University of Bristol (2017)
- Wageningen University Netherlands (2013)

#### Habilitationsverfahren:

- Bundeswehr Universität München (2014, 2016, 2018)
- TU Clausthal (2016)
- TU München (2012)

#### Promotionsverfahren ohne UniBw München:

- Delft University of Technology (2011, 2012, 2013, 2014, 2 x 2017, 2018)
- École Polytechnique Palaiseau (2017)
- Friedrich-Alexander-Universität Erlangen-Nürnberg (2015)
- Monash University Australia (2012)
- Politecnico di Torino (2011)
- RWTH Aachen (2009, 2014, 2019)
- TU Braunschweig (2008, 2015, 2019)
- TU Dresden (2014)
- TU Hannover (2012)
- TU München (2012, 2014, 2017, 2019)
- Universität der Bundeswehr Hamburg (2015)
- University of Melbourne (2014)

### **Eingeladene Plenarvorträge auf Konferenzen, Symposien und Workshops (Auswahl)**

- Time-resolved high-resolution 3D PTV investigations of near-wall turbulence. International Symposium on PIV, Busan, Korea, 18.–22.07.2017
- Visualization of 3D velocity and temperature fields with micron resolution. 2<sup>nd</sup> Marie Skłodowska-Curie action MIGRATE Workshop, 29.–30.06.2017, Sofia, Bulgarien
- Large-scale structures in turbulent boundary layers. Association of Applied Mathematics and Mechanics (GAMM), Braunschweig, 07.–11.3.2016
- Fundamentals of combined PSP and PIV measurements to determine the flow field pressure. 5<sup>th</sup> Workshop on Molecular Imaging Technology for Interdisciplinary Research. Tsukuba, Japan, 23.–25.09.2015
- Large-scale structures in turbulent boundary layers. Workshop on Wall Turbulence and Advanced Measurement Techniques. Lille, Frankreich, 18.–19.05.2015
- Experimental fluid mechanics. 10<sup>th</sup> International Symposium on Engineering Turbulence Modelling and Measurements. Marbella, Spanien, 17.–19.09.2014
- On the problem of measuring turbulence statistics in shear flows. International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lissabon, Portugal, 07.07.2014
- Three-dimensional visualization of velocity, temperature and pressure fields with micron resolution. 16<sup>th</sup> International Symposium on Flow Visualization (ISFV16), Okinawa, Japan, 24.–28.06.2014
- The structure of high-Reynolds number turbulent boundary layers. 85<sup>th</sup> Annual Meeting of the International Association of Applied Mathematics and Mechanics, Erlangen, 10.–14.03.2014
- Large Reynolds number boundary layer investigation with sophisticated high resolution imaging techniques. Workshop on High Reynolds Number Boundary Layer Turbulence: Integrating Descriptions of Statistical Structure, Scaling and Dynamical Evolution, University of New Hampshire, USA, 20.–22.11.2013
- Fundamentals in turbulence. VKI Lecture Series, Rhode Saint Genèse, Belgien, 04.11.2013
- Can PIV replace LDA and hot-wire techniques? 17<sup>th</sup> International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lissabon, Portugal, 07.–10.07.2013
- Simultane 3D Particle Image Velocimetry und Deformationsmessung an bewegten Objekten – Methodische Herausforderungen und physikalische Grenzen. 50. Heidelberger Bildverarbeitungsforum, Institut für Hydromechanik, Karlsruher Institut für Technologie, Karlsruhe, 02.10.2012
- Single pixel PIV, single particle PTV or optical flow analysis? Resolution and uncertainty aspects. PIV Uncertainty Workshop, Las Vegas, USA, 11.–13.05.2011
- State of the art PIV recording and evaluation approaches for flow separation research. 8<sup>th</sup> International Symposium for Particle Image Velocimetry, Melbourne, Australien, 25.–28.08.2009
- Long-range micro-PIV. VKI Lecture Series on Recent advances in Particle Image Velocimetry, Rhode Saint Genèse, Belgien, 27.01.2009
- Time resolved PIV: Systems, interrogation algorithms and applications. VKI Lecture Series on Recent advances in Particle Image Velocimetry, Rhode Saint Genèse, Belgien, 28.01.2009
- The significance of turbulent eddies for the mixing in boundary layers. IUTAM Symposium on "100 Years of Boundary Layer Research", Göttingen, 11.–14.08.2004
- Dynamic evaluation of time resolved PIV image sequences. 1st International Workshop on Dynamic PIV, Tokio, Japan, 23.03.2004
- Investigation of flows at low Reynolds number using optical techniques. VKI Lecture Series on Low Reynolds number aerodynamics on aircraft including applications in emerging UAV technology, Rhode Saint Genèse, Belgien, 24.–28.11.2003
- Advanced stereoscopic PIV systems. 3<sup>rd</sup> Workshop on Particle Image Velocimetry, Lissabon, Portugal, 07.–08.07.2000

### **Eingeladene Seminarvorträge international (Auswahl)**

- A new look on coherent flow motions in turbulent boundary layers. Queen's University, Kingston, Canada, 06.09.2018
- A new look on coherent flow motions in turbulent boundary layers. University of Alberta, Edmonton, Canada, 23.08.2018
- A new look on coherent flow motions in turbulent boundary layers. University of Waterloo, Waterloo, Canada, 15.08.2018
- Characterization and interaction of coherent flow structures in turbulent boundary layers. Division of Mechanical Engineering, KAIST, Daejeon, Korea, 16.06.2017
- Large scale structures in turbulent boundary layers and the effect of pressure gradients. University of Southampton, Southampton, United Kingdom, 19.08.2015
- Visualization of 3D velocity and temperature fields with micron resolution. Division of Mechanical Engineering, Stanford University, California, USA, 19.11.2014
- Large scale structures in turbulent boundary layers. Division of Mechanical Engineering, University of Berkeley, California, USA, 20.11.2014
- Optical surface pressure measurements – The future for aerodynamic investigations? Lab. for Aerodynamics, Delft University of Technology, The Netherlands, 05.09.2014
- Pressure Sensitive Paint (PSP). Summer School, School of Aeronautical Science and Engineering, Beihang University (BUAA), Beijing, China, 25.08.2013
- Investigation of the base flow dynamics of a transonic rocket. Department of Aeronautics, Xiamen University, Xiamen, China, 21.08.2013
- Investigation of the base flow dynamics of a transonic rocket by means of time-resolved PIV and PSP. Fluid Mechanics Institute, Beihang University (BUAA), Beijing, China, 19.08.2013
- Recent progress on microfluidic measurements and applications. Fluid Mechanics Institute, Beihang University (BUAA), Beijing, China, 19.08.2013
- Near-wall resolution of laminar separation bubbles and turbulent boundary layers. Fluid Mechanics Institute, Beihang University (BUAA), Beijing, China, 17.08.2013
- Laminar separation bubbles and the transition to turbulence. Department of Applied Physics, University of Twente, The Netherlands, 06.03.2012
- On the resolution limit of digital particle image velocimetry. Laboratory for Aero and Hydrodynamics, Delft University of Technology, The Netherlands, 05.03.2012
- Frequency determination with time resolved PIV. European Windtunnel Association (EWA), Rom, Italy, 10.09.2007
- Particle Image Velocimetry for Aerodynamic Research. Division of Aeronautics, Harbin Aerodynamic Research Institute (HARI), Harbin, China, 18.10.1999
- Turbulent boundary layer investigations using Stereoscopic and Multiple Plane Stereo PIV. Division of Turbulence Research, Beijing University, Beijing, China, 14.10.1999
- Principles of Multiple Plane Stereo PIV. Division of Fluid Mechanics, Beijing University of Aeronautics and Astronautics (BUAA), Beijing, China, 12.10.1999
- Principles of Conventional and Stereoscopic PIV. Division of Fluid Mechanics, Beijing University of Aeronautics and Astronautics (BUAA), Beijing, China, 11.10.1999
- Multiple Plane Stereo PIV and its significance for turbulence research. Aero- and Hydrodynamics, Delft University of Technology, The Netherlands, 02.02.1999
- Multiple Plane Stereo PIV. Division of Mechanical Engineering, University of Berkeley, California, USA, 25.11.1998
- Multiple Plane Stereo PIV. Division of Mechanical Engineering, Stanford University, California, USA, 24.11.1998
- Multiple Plane Stereo PIV. University of Illinois at Urbana Champaign, Illinois, USA, 10.09.1998
- Multiple Plane Stereo PIV. National Aeronautics and Space Administration (NASA) Lewis Research Centre, Cleveland, USA, 08.09.1998
- PIV and its significance for turbulence research. Symposium on Optical Techniques for Flow Diagnosis, Surrey, England, 27.–30.07.1998