

Curriculum Vitae

Christian Joachim Kähler, Bundeswehr University Munich, Germany

Education and scientific qualifications

- W3 professor for fluid dynamics, 30.04.2008
- Habilitation in fluid mechanics, Technical University Braunschweig, 15.01.2008
- PhD in physics, Georg August University Göttingen, very good, 01.07.2004
- Diploma in physics, Technical University Clausthal, very good, 11.04.1997
- Allgemeine Hochschulreife, Hamburg, 01.06.1989

Professional career

- 2008 – today Full professor (W3) and head of the Institute for Fluid Mechanics and Aerodynamics, Bundeswehr University Munich
- 2001 – 2008 Group leader for the Flow Control and Measurement Technology group, Institute for Fluid Mechanics, Technical University Braunschweig
- 2000 – 2001 Researcher at the Institute for Fluid Mechanics, German Aerospace Center (DLR), Göttingen
- 1997 – 2000 PhD candidate, Institute for Nonlinear Dynamics and Selforganisation, Georg-August-Universität Göttingen

Research activities abroad

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

Awards / Appointments

- 15.02.2017 Call from TU Darmstadt, Chair of Fluid Mechanics (W3), declined
- 17.10.2012 Call from TU Berlin, W3 Einstein-professorship for Aerodynamics, declined
- 03.11.2011 Invitation to apply for Dyson Chair of Fluid Mechanics, University of Cambridge, UK, declined
- 12.03.2008 Appointment professorship for Fluid Dynamics, Head of the Institute for Fluid Mechanics and Aerodynamics, Bundeswehr University Munich
- 15.10.2007 Call from Bundeswehr University Munich, W3 professorship for Fluid Dynamics
- 1998 Research fellowship, Center for Quantitative Visualization, USA
- 1997 – 2000 PhD grant, German Aerospace Center (DLR)
- 1996 Research fellowship, University of Illinois at Urbana Champaign (UIUC), USA

Nomination and elected position (selection)

- Elected member, senate committee on Collaborative Research Centres (SFB), Deutsche Forschungsgemeinschaft (DFG), term of office 2019 – 2021
- Elected member, grant committee on Collaborative Research Centres (SFB), Deutsche Forschungsgemeinschaft (DFG), term of office 2019 – 2021
- Guest editor, Experimental Thermal and Fluid Science, Elsevier, since 2018
- Elected member, international scientific advisory board of the 32nd International Conference on High-Speed Imaging and Photonics (ICH SIP-32), Twente, The Netherlands, since 2018
- Elected member, editorial advisory board, Flow, Turbulence and Combustion, Springer Nature, since 2015
- Elected member, editorial board, Theoretical & Applied Mechanics Letters, Elsevier, since 2015
- Elected member, board of trustees of the German Society for Laser Anemometry (GALA e.V.), since 2015
- Elected member, organizing committee, International Symposium on PIV, since 2014
- Elected member, scientific committee, International Conference on Experimental Fluid Mechanics, since 2014
- Elected member, review board 404 of the Deutsche Forschungsgemeinschaft (DFG), term of office 2012 – 2015 and 2016 – 2018
- Associate Editor, Experiments in Fluids, Springer Nature, since 2011
- Elected member, DFG annual round table discussion „Perspectives in Fluid Mechanics“, since 2010
- Elected member, editorial board of ISRN Mechanical Engineering, 2010 – 2013
- Elected member, editorial advisory board, Experiments in Fluids, Springer Nature, 2009 – 2010
- Elected member, organizing committee, 8th Euromech Fluid Mechanics Conference, Bad Reichenhall, Germany, 13.–16.09.2010
- Elected member, steering committee, International Conference on Fluid Control, Measurements, and Visualization, since 2007
- Elected member, scientific committee, International Symposium on PIV, since 2007
- Elected member, advisory committee, International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, since 2006
- Elected member, organizing committee, 4th International Symposium on Particle Image Velocimetry, Göttingen, 17.–19.09.2001
- Elected member, steering committee, International PIV Challenge, since 2001

Organizer of scientific conferences

- 13th International Symposium on Particle Image Velocimetry (ISPIV), Munich, 22. – 24.07.2019
- 5th International Conference on Experimental Fluid Mechanics (ICEFM), Munich, 02. – 04.07.2018
- 4th International PIV Challenge, Lisbon, 05.07.2014
- 21. National conference, Lasermethoden in der Strömungsmesstechnik, Munich, 03. – 05.09.2013

Memberships (selection)

- 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.)

Review activities (selection)

Research Funding Organizations

- Austrian Science Fund (FWF)
- Deutsche Forschungsgemeinschaft (DFG)
- Dutch Technology Foundation (STW)
- French National Research Agency (ANR)
- Innovationszentrum Niedersachsen
- Netherlands Organization for Scientific Research (NWO)
- Swedish Research Council (SRC)
- Swiss National Science Foundation (SNSF)

Scientific journals

- 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
- Physical Review Fluids, APS's Division of Fluid Dynamics (DFD)
- The Aeronautical Journal, Royal Aeronautical Society

Appeal procedure professor

- Bundeswehr University Munich (2010, 2011, 2013, 2015, 2016, 2017, 2018)
- 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 Rostock (2014)
- Universität Bochum (2012)
- University of Bristol (2017)
- Wageningen University Netherlands (2013)

Habilitation:

- TU Braunschweig (2018); Bundeswehr University Munich (2014, 2016, 2018); TU Clausthal (2016); TU Munich (2012)

Doctoral procedure without Bundeswehr University Munich:

- Delft University of Technology (2011, 2012, 2013, 2014, 2 × 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); Bundeswehr University Hamburg (2015); University of Melbourne (2014)

Invited plenary lectures at conferences, symposia and workshops (selection)

- 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. 2nd Marie Skłodowska-Curie action MIGRATE Workshop, 29.–30.06.2017, Sofia, Bulgaria
- Large-scale structures in turbulent boundary layers. Association of Applied Mathematics and Mechanics (GAMM), Braunschweig, Germany, 07.–11.3.2016
- Fundamentals of combined PSP and PIV measurements to determine the flow field pressure. 5th 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, France, 18.–19.05.2015
- Experimental fluid mechanics. 10th International Symposium on Engineering Turbulence Modelling and Measurements. Marbella, Spain, 17.–19.09.2014
- On the problem of measuring turbulence statistics in shear flows. International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, Portugal, 07.07.2014
- Three-dimensional visualization of velocity, temperature and pressure fields with micron resolution. 16th International Symposium on Flow Visualization (ISFV16), Okinawa, Japan, 24.–28.06.2014
- The structure of high-Reynolds number turbulent boundary layers. 85th Annual Meeting of the International Association of Applied Mathematics and Mechanics, Erlangen, Germany, 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, Belgium, 04.11.2013
- Can PIV replace LDA and hot-wire techniques? 17th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Lisbon, 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, Germany, 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. 8th International Symposium for Particle Image Velocimetry, Melbourne, Australia, 25.–28.08.2009
- Long-range micro-PIV. VKI Lecture Series on Recent advances in Particle Image Velocimetry, Rhode Saint Genèse, Belgium, 27.01.2009
- Time resolved PIV: Systems, interrogation algorithms and applications. VKI Lecture Series on Recent advances in Particle Image Velocimetry, Rhode Saint Genèse, Belgium, 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, Tokyo, 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, Belgium, 24.–28.11.2003
- Advanced stereoscopic PIV systems. 3rd Workshop on Particle Image Velocimetry, Lisbon, Portugal, 07.–08.07.2000

Invited seminar lectures international (selection)

- 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, UK, 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, Beijing University (BUAA), Beijing, China, 19.08.2013
- Recent progress on microfluidic measurements and applications. Fluid Mechanics Institute, Beijing University (BUAA), Beijing, China, 19.08.2013
- Near-wall resolution of laminar separation bubbles and turbulent boundary layers. Fluid Mechanics Institute, Beijing 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