**Prof. Dr.-Ing. Heinz Pitsch**
**Institute for Combustion Technology**

# Curriculum vitae

Name: Univ.-Prof. Dr.-Ing. Heinz Pitsch

Address: Institute for Combustion Technology, RWTH Aachen University
Templergraben 64, 52056 Aachen, Germany

Nationality: German

**Current Positions**

- Professor and Director, Institute for Combustion Technology, RWTH Aachen University, since August 2010

**Academic Qualifications**

- Doctorate in Mechanical Engineering, RWTH Aachen University, Germany, 1998, Grade: with honors (summa cum laude), Borchers Dissertation Award
- Diploma in Mechanical Engineering, RWTH Aachen University, Germany, 1993

**Professional Career**

2010 – 2013 Associate Professor **(**Research**)**, Department of Mechanical Engineering, Stanford University
2008 – 2010 Associate Professor (with tenure), Department of Mechanical Engineering, Stanford University
2003 – 2008 Assistant Professor, Department of Mechanical Engineering, Stanford University
1999 – 2002 Research Associate, Flow Physics and Computation Division, Stanford University
1998 – 1999 Postdoctoral fellow under sponsorship of the Deutsche Forschungsgemeinschaft, Center for Energy and Combustion Research, University of California, San Diego
1993 – 1998 Wissenschaftlicher Angestellter (Research Assistant), Institut für Technische Mechanik, RWTH Aachen University

**Honors and Awards**

2021 Distinguished Paper Award in the Laminar Flames colloquium of the 38th International Symposium on Combustion
2020 Chaire André Jaumotte of the Royal Academy of Sciences, Belgium
2020 Air Breathing Propulsion Award of the American Institute of Aeronautics and Astronautics
2019 International Award of the Japanese Combustion Society
2018 Fellow of the Combustion Institute
2016 ERC Advanced Grant
2013 RWTH Fellow Award
2012 Fellow of the American Physical Society
2011 Distinguished Paper Award in the Spray and Droplet colloquium of the 33rd International Symposium on Combustion
2009 Bilger Lecture at the Australian Combustion Symposium
2008 Chambers Faculty Scholar Award
2007 Associate Fellow of the American Institute for Aeronautics and Astronautics
2007 NSF CAREER Award
2005 Excellence award in recognition of outstanding paper at the Fifth International Conference on Computational Science ICCS
2003 Frederick E. Terman Fellowship
2003 Dana Adams Griffin Award

**Other**

- Scientific output as of Jan 14, 2022
    - Over 460 peer-reviewed journal publications (Scopus)
    - H-index: 66 (Scopus), 81 (Google Scholar); ca. 2000 citations per year (Scopus)
- Graduated 40 PhD students. Among those, eleven presently hold tenure track or tenured faculty positions at Stanford University, California Institute of Technology, Princeton University, two at Cornell University, University of Texas, Austin, IIT Madras, Sharif University, Universite de Paris-Est, TU Munich, RWTH Aachen University
- Chair, German Section of the Combustion Institute, since 2017
- Co-Editor in Chief with Prof. Fei Qi, Applications in Energy and Combustion Science, since 2019
- Program Co-Chair with Prof. Hai Wang, 37$^{th}$ International Symposium on Combustion
- Editorial Board, Combustion and Flame, full term 2010 - 2014
- Board of Directors, International Combustion Institute, full term 2014 - 2020
- Board of Directors, German Section of the Combustion Institute, since 2013
- Colloquium Co-Chair and Coordinator at the 33$^{rd}$ and 34$^{th}$ International Symposium on Combustion
- Member of the organizing committees of the Turbulent Non-Premixed Flame Workshop, International Sooting Flame Workshop among others
- Co-organizer of annual International Conference on Tailor-Made Fuels from Biomass (now Fuel Design Conference), Aachen, Germany, since 2013
- Co-organizer of annual Symposium for Combustion Control, Aachen, Germany, 2015-2019
- Vice Chair, Expert Committee for Industrial and Engineering Applications, EXDCI: European eXtreme Data and Computing Initiative, starting 2015
- Member, Expert Committee for Industrial and Engineering Applications, EESI2: European Exascale Software Initiative, 2012-2015
- Member, Int. Review Committee of French Excellency Center CAPRYSSES, Orleans, since 2014
- Member Scientific Advisory Board, OWI Oel-Waerme-Institut GmbH, Aachen, since 2014
- Member, Organizing Committee, International Conference on Numerical Combustion, since 2019
- Member, Program Committee of biannual German Flame Day, since 2011
- Member, Scientific Committee, LES for Internal Combustion Engines (LES4ICE), since 2012
- Member, Advisory and Scientific Committee, Thiesel Conference, since 2011
- Scientific open source software: FlameMaster, laminar flame simulation code used by countless groups worldwide with about 150 download requests annually

**Summer Schools**

1. Combustion Summer School Tsinghua University (5-day course), 2013, 2015, 2017, 2021
2. Princeton Combustion Summer School (5-day course), 2012 and 2014, 2018

**Selected Important Publications**


1. Falkenstein, T., Kang, S., **Pitsch, H.**, Analysis of premixed flame kernel/turbulence interactions under engine conditions based on direct numerical simulation data, Journal of Fluid Mechanics, 885, Art. Nr. 995, 2020.
2. Berger, L., Kleinheinz, K., Attili, A., **Pitsch, H.**, Characteristic patterns of thermodiffusively unstable premixed lean hydrogen flames, Proceedings of the Combustion Institute, 37 (2), pp.1879-1886. 2019.
3. Bisetti, F., Attili, A., and **Pitsch, H.**, Advancing predictive models for particulate formation in turbulent flames via massively parallel direct numerical simulations, Phil. Trans. R. Soc. A, 372 (2022), Art. No. 20130324, 2014.

4. Cai, L., **Pitsch, H.**, Mechanism optimization based on reaction rate rules, Comb. Flame, 161 (2), 405-415, 2014.
5. Le Chenadec, V., **Pitsch, H.**, A 3D Unsplit Forward/Backward Volume-of-Fluid Approach and Coupling to the Level Set Method, J. Comp. Phys., 233, pp. 10-33, 2013.
6. Narayanaswamy, K., Blanquart, G., **Pitsch, H.**, A consistent chemical mechanism for oxidation of substituted aromatic species, Combust. Flame, 157 (10), pp. 1879-1898, 2010.
7. Ihme, M., Marsden, A. L., & **Pitsch, H.**, Generation of Optimal Artificial Neural Networks Using a Pattern Search Algorithm: Application to Approximation of Chemical Systems. *Neural Computation*, *20*(2), 573–601. http://doi.org/10.1162/neco.2007.08-06-316, 2008.
8. Desjardins, O., Blanquart, G., Balarac, G., **Pitsch, H.**, High order conservative finite difference scheme for variable density low Mach number turbulent flows, J. Comp. Phys, 227 (15), pp. 7125-7159, 2008.
9. Pepiot-Desjardins, **Pitsch, H.**, An Efficient Error Propagation Based Reduction Method for Large Chemical Kinetic Mechanisms, Combust. Flame, 154 (1-2), pp. 67-81, 2008.
10. **Pitsch, H.**, Large-Eddy Simulation of Turbulent Combustion, Ann. Rev. Fluid Mech., 38, pp. 453-483, 2006.