

JÖRN SESTERHENN

UNIV-PROF. DR. SC. TECHN. HABIL

scientific curriculum vitæ and important publications

General Information

Prof. Dr. sc. techn. habil. Jörn Sesterhenn
Universität Bayreuth
Lehrstuhl für Technische Mechanik und
Strömungsmechanik
Universität Bayreuth
Fakultät für Ingenieurwissenschaften
95440 Bayreuth

Academic education with a degree

Studies Mechanical Engineering, 1991, ETH Zurich

Scientific degrees

Doctorate Numerical calculation of compressible flows with
small Mach-Numbers (Dr. sc. techn.), 1995, ETH
Zurich

Habilitation Flow Mechanics, 2004, TU Munich

Professional career since graduation

- 2019 – Professor for Numerical Fluidynamics at Universität Bayreuth
- 2009 – Professor for Numerical Fluidynamics at TU Berlin
- 2019 – Professor for Numerical Methods in Aerospace and Space Technology at University of the Armed Forces, Munich
- 2006 – Researcher, TU Munich
- 2001 – Researcher, TU Munich
- 2006 – Research Assistant, TU Munich
- 1997 – Postdoc, University of Washington
- 2006 – Postdoc, University of Washington
- 1996 – Assistant, ETH Zürich
- 1997 – Assistant, ETH Zürich
- 1991 – Assistant, ETH Zürich
- 1996 – Assistant, ETH Zürich

Others

Scholarship on development of young academics by the Swiss National Fund

Silver medal of the ETH, the highest diploma award at ETH Zürich

Publications

Articles which at the time of proposal submission have been published or officially accepted by publication outlets with scientific quality assurance, listed in standard format; book publications.

1. J. Brouwer, J. Reiss, and J. Sesterhenn. Conservative time integrators of arbitrary order for skew-symmetric finite-difference discretizations of compressible flow. *Comput. & Fluids*, 100:1–12, 2014.
2. J. J. P. Fernandez and J. Sesterhenn. Compressible starting jet: pinch-off and vortex ring-trailing jet interaction. *J. Fluid Mech.*, 817:560–589, 2017.
3. J. Gray, M. Lemke, J. Reiss, C. O. Paschereit, J. Sesterhenn, and J. P. Moeck. A compact shock-focusing geometry for detonation initiation: Experiments and adjoint-based variational data assimilation. *Combust. Flame*, 183:144–156, 2017.
4. M. Lemke, J. Reiss, and J. Sesterhenn. Adjoint based optimisation of reactive compressible flows. *Combust. Flame*, 161(10):2552–2564, 2014.

5. M. Lemke, J. Schulze, and J. Sesterhenn. Adjoint-based reconstruction of an entropy source by discrete temperature measurements. *Int. J. Computational Science and Engineering*, 9(5–6):526–537, 2014.
6. M. Lemke and J. Sesterhenn. Adjoint-based pressure determination from PIV data in compressible flows – Validation and assessment based on synthetic data. *Eur. J. Mech. B-Fluid.*, 58:29–38, 2016.
7. C. J. Mack, P. J. Schmid, and J. Sesterhenn. Global stability of swept flow around a parabolic body: connecting attachment-line and crossflow modes. *J. Fluid Mech.*, 611:205–214, 2008.
8. J. Reiss and J. Sesterhenn. A conservative, skew-symmetric finite difference scheme for the compressible Navier-Stokes equations. *Comput. & Fluids*, 101:208–219, 2014.
9. J. Sesterhenn. A characteristic-type formulation of the navier–stokes equations for high order upwind schemes. *Comput. & Fluids*, 30(1):37–67, 2001.
10. Agati, G., Borello, D., Camerlengo, G., Rispoli, F., & Sesterhenn, J. (2020). DNS of an Oblique Jet in a Particle-Laden Crossflow: Study of Solid Phase Preferential Concentration and Particle-Wall Interaction. *Flow, Turbulence and Combustion*, 105(2), 517-535.
11. R. Wilke and J. Sesterhenn. Statistics of fully turbulent impinging jets. *Journal of Fluid Mechanics*, volume 825, 795-824, 2017
12. Cigala, V., Kueppers, U., Peña Fernández, J. J., Taddeucci, J., Sesterhenn, J., & Dingwell, D. B. (2017). The dynamics of volcanic jets: Temporal evolution of particles exit velocity from shock-tube experiments. *Journal of Geophysical Research: Solid Earth*, 122(8), 6031-6045.
13. J.J. Peña Fernández, V. Cigala, U. Kueppers, J.Sesterhenn, Acoustic analysis of starting jets in an anechoic chamber: implications for volcano monitoring. *Sci Rep* 10, 13576 (2020).