

Manfred Kaltenbacher
Technische Universität Graz
Institut für Grundlagen und Theorie der Elektrotechnik (4370)



Scientific Career

2020 - Head of Institute of Fundamentals and Theory in Electrical Engineering, TU Graz, Austria
2012 - 2021 Full Professor for Measurement and Actuator Technology, Institute of Mechanics and Mechatronics, TU Wien, Austria
2008 - 2012 Full Professor for Applied Mechatronics, Institute of Smart System Technologies, University of Klagenfurt, Austria
1999 - 2008 PostDoc, Department of Sensor Technology, Friedrich-Alexander University Erlangen-Nuremberg, Germany
1992 - 1999 Research and teaching assistant, Institute of Measurement Technology, Johannes Kepler University Linz, Austria

Honors

Doctor Honoris Causa (Dr. h.c.) from Budapest University of Technology and Economics
Kaltenbacher, Manfred (Empfänger/-in), 2020

Österreichische Akademie der Wissenschaft
Kaltenbacher, Manfred (Empfänger/-in), 2017

Activities

Acta Acustica (Fachzeitschrift)
Manfred Kaltenbacher (Herausgeber/in)
1 Mai 2020 → ...

International Commission for Acoustics (Externe Organisation)
Manfred Kaltenbacher (Mitglied)
1 Okt 2019 → 30 Sep 2022

Österreichische Akademie der Wissenschaften (Externe Organisation)
Manfred Kaltenbacher (Mitglied)
1 Mai 2017 → ...

DEGA - Deutsche Gesellschaft für Akustik e.V. (Externe Organisation)
Manfred Kaltenbacher (Mitglied)
Mär 2017 → ...

Acta Mechanica (Fachzeitschrift)
Manfred Kaltenbacher (Mitglied des Herausbergremiums)
2017 → ...

Austrian National Committee for Theoretical and Applied Mechanics (Externe Organisation)
Manfred Kaltenbacher (Vorsitzende/r)
2017 → ...

Österreichische Akademie der Wissenschaften (Externe Organisation)
Manfred Kaltenbacher (Mitglied)

2017 → ...

Österreichische Gesellschaft für Akustik (Externe Organisation)

Manfred Kaltenbacher (Vorsitzende/r)

2017 → ...

Gesellschaft für Angewandte Mathematik und Mechanik e.V. (Externe Organisation)

Manfred Kaltenbacher (Mitglied)

2016 → ...

Journal of Theoretical and Computational Acoustics (Fachzeitschrift)

Manfred Kaltenbacher (Mitglied des Herausgebergremiums)

2013 → ...

American Institute of Aeronautics and Astronautics (Externe Organisation)

Manfred Kaltenbacher (Mitglied)

2005 → ...

International Compumag Society (Externe Organisation)

Manfred Kaltenbacher (Mitglied)

1999 → ...

IEEE Magnetics Society (Externe Organisation)

Manfred Kaltenbacher (Mitglied)

1997 → ...

Journal publications (at TU Graz)

Numerical Investigation of Signal Launch Imperfections for Edge Mount RF Connectors

Riener, C. M., Bauernfeind, T., Kvasnicka, S., Roppert, K., Hackl, H. & Kaltenbacher, M., 1 Jul 2022, in: Electronics. 11, 13, 1990.

Predicting Spatial Distributions of Lighthill's Aeroacoustic Source Terms Using Steady-State RANS Simulations in Turbocharger Compressors

Freidhager, C., Maurerlehner, P., Roppert, K., Heinisch, M., Renz, A., Schoder, S. & Kaltenbacher, M., 1 Jan 2022, in: Journal of Aerospace Engineering. 35, 1, 14 S., 04021101.

A New Method for Sound Generation Based on Digital Sound Reconstruction

Mayrhofer, D. & Kaltenbacher, M., Dez 2021, in: Journal of Theoretical and Computational Acoustics. 29, 4, 2150021.

Effiziente numerische Simulation der menschlichen Stimme basierend auf einem dreidimensionalen Modell mit hybridem aerodynamischen Ansatz

Maurerlehner, P., Schoder, S., Freidhager, C., Wurzinger, A., Hauser, A., Kraxberger, F., Falk, S., Kniesburgers, S., Echternach, M., Döllinger, M. & Kaltenbacher, M., Jun 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 219-228 10 S.

Investigation of a new method for sound generation – Advanced Digital Sound Reconstruction

Mayrhofer, D. & Kaltenbacher, M., Jun 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 148-154 7 S.

Mikroperforierte Platten zur Schallreduktion

Floss, S., Czwielong, F., Becker, S. & Kaltenbacher, M., Jun 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 171-178 8 S.

Schallquellenlokalisierung: state of the art und neues inverses Verfahren

Gombots, S., Nowak, J. & Kaltenbacher, M., Jun 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 229-243 15 S.

Simulationen von Strömungsakustik in rotierenden Bauteilen zur Entwicklung von Antriebskonzepten der Autos der Zukunft

Freidhager, C., Maurerlehner, P., Roppert, K., Wurzinger, A., Hauser, A., Heinisch, M., Schoder, S. & Kaltenbacher, M., Jun 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 212-218 7 S.

3D-FV-FE aeroacoustic larynx model for investigation of functional based voice disorders

Falk, S., Kniesburgs, S., Schoder, S., Jakubaß, B., Maurerlehner, P., Echternach, M., Kaltenbacher, M. & Döllinger, M., 8 Mär 2021, in: Frontiers in Physiology. 12, 616985.

Aeroacoustic Sound Source Characterization of the Human Voice Production - Perturbed Convective Wave Equation

Schoder, S., Maurerlehner, P., Wurzinger, A., Hauser, A., Falk, S., Kniesburgs, S., Döllinger, M. & Kaltenbacher, M., 2 Mär 2021, in: Applied Sciences. 11, 6, 2614.

Sliding Non-Conforming Interfaces for Edge Elements in Eddy Current Problems

Roppert, K., Schoder, S., Wallinger, G. & Kaltenbacher, M., 1 Mär 2021, in: IEEE Transactions on Magnetics. 57, 3, S. 1-6 6 S., 9312633.

Application limits of conservative source interpolation methods using a low Mach number hybrid aeroacoustic workflow

Schoder, S., Wurzinger, A., Junger, C., Weitz, M., Freidhager, C., Roppert, K. & Kaltenbacher, M., Mär 2021, in: Journal of Theoretical and Computational Acoustics. 29, 1, 2050032.

Influence of a micro-perforated duct absorber on sound emission and performance of axial fans

Czwielong, F., Floss, S., Kaltenbacher, M. & Becker, S., Mär 2021, in: Applied Acoustics. 174, 107746.

Impact of the Sub-Grid Scale Turbulence Model in Aeroacoustic Simulation of Human Voice

Lasota, M., Šidlof, P., Kaltenbacher, M. & Schoder, S., 2 Feb 2021, in: Applied Sciences. 11, 4, S. 1-19 19 S., 1970.

A pseudo density topology optimization approach in nonlinear electromagnetism applied to a 3D actuator

Seebacher, P., Kaltenbacher, M., Wein, F. & Lehmann, H., 2021, in: International Journal of Applied Electromagnetics and Mechanics. 65, 3, S. 545-559 15 S.

Capabilities of inverse scheme for acoustic source localization at low frequencies

Gombots, S., Kaltenbacher, M. & Kaltenbacher, B., 2021, in: Acta Acustica. 5, 44.

Design of an in-duct micro-perforated panel absorber for axial fan noise attenuation

Floss, S., Czwielong, F., Kaltenbacher, M. & Becker, S., 2021, in: Acta Acustica. 5, 24.

Sound reduction in heat exchanger modules by integrating plate absorbers with sub-millimeter openings

Czwielong, F., Floss, S., Kaltenbacher, M. & Becker, S., 2021, in: Acta Acustica. 5, 35.

Helmholtz's decomposition for compressible flows and its application to computational aeroacoustics

Schoder, S., Roppert, K. & Kaltenbacher, M., 6 Nov 2020, in: Partial Differential Equations and Applications. 1, 20 S., 46.

Computational aeroacoustics of the EAA benchmark case of an axial fan

Schoder, S., Junger, C. & Kaltenbacher, M., 14 Okt 2020, in: Acta Acustica. 4, 5, 17 S., 22.

Bi-Stable Aluminum Nitride-Based Piezoelectric Micromachined Ultrasonic Transducer (PMUT)

Schneider, M., Dorfmeister, M., Moll, P., Kaltenbacher, M. & Schmid, U., Okt 2020, in: Journal of microelectromechanical systems. 29, 5, S. 948-953 6 S., 9130699.

Aeroacoustic source term computation based on radial basis functions

Schoder, S., Roppert, K., Weitz, M., Junger, C. & Kaltenbacher, M., 15 Mai 2020, in: International Journal for Numerical Methods in Engineering. 121, 9, S. 2051-2067 17 S.

Hybrid aeroacoustic approach for the efficient numerical simulation of human phonation

Schoder, S., Weitz, M., Maurerlehner, P., Hauser, A., Falk, S., Kniesburgs, S., Doellinger, M. & Kaltenbacher, M., Feb 2020, in: The Journal of the Acoustical Society of America. 147, 2, S. 1179-1194 16 S., 1179.

Postprocessing of Direct Aeroacoustic Simulations Using Helmholtz Decomposition

Schoder, S., Roppert, K. & Kaltenbacher, M., 1 Jan 2020, in: AIAA Journal. 58, 7, S. 3019-3027 9 S.

Modeling Nonlinear Steady-State Induction Heating Processes

Roppert, K., Kaltenbacher, M. & Toth, F., 2020, in: IEEE Transactions on Magnetics. 56, 3, 4 S., 8959364.

Non-Conforming Nitsche Interfaces for Edge Elements in curl-curl Type Problems

Roppert, K., Schoder, S., Toth, F. & Kaltenbacher, M., 2020, in: IEEE Transactions on Magnetics. 56, 5, 7 S., 9034161.

Hybrid Aeroacoustic Computations: State of Art and New Achievements

Schoder, S. & Kaltenbacher, M., Dez 2019, in: Journal of Theoretical and Computational Acoustics. 27, 4, 1950020.

Comparison of different vector Preisach models for the simulation of ferromagnetic materials

Nierla, M., Loeffler, M., Kaltenbacher, M. & Rupitsch, S. J., 21 Okt 2019, in: COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering. 38, 5, S. 1696-1710 15 S.

Revisiting infinite mapping layer for open domain problems

Schoder, S., Toth, F., Freidhager, C. & Kaltenbacher, M., 1 Sep 2019, in: Journal of Computational Physics. 392, S. 354-367

Computational Models of Laryngeal Aerodynamics: Potentials and Numerical Costs

Sadeghi, H., Kniesburgs, S., Kaltenbacher, M., Schützenberger, A. & Döllinger, M., Jul 2019, in: Journal of voice. 33, 4, S. 385-400 16 S.

Towards a clinically applicable computational larynx model

Sadeghi, H., Kniesburgs, S., Falk, S., Kaltenbacher, M., Schützenberger, A. & Döllinger, M., 1 Jun 2019, in: Applied Sciences. 9, 11, 2288.

Aerodynamic impact of the ventricular folds in computational larynx models

Sadeghi, H., Döllinger, M., Kaltenbacher, M. & Kniesburgs, S., 1 Apr 2019, in: Journal of the Acoustical Society of America. 145, 4, S. 2376-2387 12 S.

On the Application of Acoustic Analogies in the Numerical Simulation of Human Phonation Process

Valášek, J., Kaltenbacher, M. & Sváček, P., 15 Jan 2019, in: Flow, Turbulence and Combustion. 102, 1, S. 129-143 15 S.

Numerical investigation of the resonance behavior of flow-excited Helmholtz resonators

Weitz, M., Schoder, S. & Kaltenbacher, M., 2019, in: Proceedings in Applied Mathematics and Mechanics . 19, 1, 2 S.

Simulating induction heating processes using harmonic balance FEM

Roppert, K., Toth, F. & Kaltenbacher, M., 2019, in: COMPEL - The International Journal for Computation and Mathematics in Electrical and Electronic Engineering. 2019, 5, S. 1562-1574

Computational Aeroacoustics Based on a Helmholtz-Hodge Decomposition

Kaltenbacher, M. & Schoder, S., 13 Jun 2018, in: SAE Technical Papers. 6 S., 2018-01-1493.

Hybrid computational aeroacoustics based on compressible flow data at low Mach numbers

Schoder, S., Toth, F. & Kaltenbacher, M., 15 Mär 2018, in: Proceedings in Applied Mathematics and Mechanics . S. 687-688 2 S.