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, M. (Empfänger/-in), 2020

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

Activities

Acta Acustica (Fachzeitschrift)
Kaltenbacher, M. (Herausgeber/in)
1 Mai 2020 → …

International Commission for Acoustics (Externe Organisation)
Kaltenbacher, M. (Mitglied)
1 Okt. 2019 → 30 Sept. 2022

Österreichische Akademie der Wissenschaften (Externe Organisation)
Kaltenbacher, M. (Mitglied)
1 Mai 2017 → …

DEGA - Deutsche Gesellschaft für Akustik e.V. (Externe Organisation)
Kaltenbacher, M. (Mitglied)
März 2017 → …

Acta Mechanica (Fachzeitschrift)
Kaltenbacher, M. (Mitglied des Herausgebergremiums)
2017 → …

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

Österreichische Gesellschaft für Akustik (Externe Organisation)
Kaltenbacher, M. (Vorsitzende/r)

2017 → …

Gesellschaft für Angewandte Mathematik und Mechanik e.V. (Externe Organisation)
Kaltenbacher, M. (Mitglied)
2016 → …

Journal of Theoretical and Computational Acoustics (Fachzeitschrift)
Kaltenbacher, M. (Mitglied des Herausgebergremiums)
2013 → …

American Institute of Aeronautics and Astronautics (Externe Organisation)
Kaltenbacher, M. (Mitglied)
2005 → …

International Compumag Society (Externe Organisation)
Kaltenbacher, M. (Mitglied)
1999 → …

IEEE Magnetics Society (Externe Organisation)
Kaltenbacher, M. (Mitglied)
1997 → …

Journal publications (at TU Graz)

Revisiting the dry friction-like magnetic vector hysteresis model
Sauseng, A., Kaltenbacher, M. & Roppert, K., 15 Aug. 2024, in: Journal of Magnetism and Magnetic Materials. 604, 172285.

Comparison of a quasi Newton method using Broyden's update formula and an adjoint method for determining local magnetic material properties of electrical steel sheets
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Optimization of Sensor Placement for a Measurement System for the Determination of Local Magnetic Material Properties
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Incorporation of a 3D Energy-Based Vector Hysteresis Model into the Finite Element Method using a Reduced Scalar Potential Formulation
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Inverse Scheme to Locally Determine Nonlinear Magnetic Material Properties: Numerical Case Study
Kaltenbacher, M., Gschwentner, A., Kaltenbacher, B., Ulbrich, S. & Reinbacher-Köstinger, A., Mai 2024, in: Mathematics. 12, 10, 1586.

Evaluation of an Analytical Equivalent Hertzian Dipole Representation in TEM-Cells applying the Finite Element Method
Kreindl, D., Bauernfeind, T., Weiss, B., Stockreiter, C. & Kaltenbacher, M., 1 März 2024, in: IEEE Transactions on Magnetics. 60, 3, S. 1-4 4 S., 7401204.

Identification of Parameters to correctly adapt Energy-Based Hysteresis Models regarding Rotational Losses
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Experimental Prediction Method of Free-Field Sound Emissions Using the Boundary Element Method and Laser Scanning Vibrometry
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Modeling Anisotropic Electrical Conductivity of Blood: Translating Microscale Effects of Red Blood Cell Motion into a Macroscale Property of Blood
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Development of a PCB-Based Field Metric Measurement System for the Rotational Single Sheet Tester
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Employing automatic differentiation and neural networks for parameter identification of an energy based hysteresis model
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Computation of rotational hysteresis losses by vector Preisach models based on rotational operators
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A New Method for Sound Generation Based on Digital Sound Reconstruction
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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
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Efficient numerical simulation of the human voice: simVoice – a three-dimensional simulation model based on a hybrid aeroacoustic approach
Maurerlehner, P., Schoder, S., Freidhager, C., Wurzinger, A., Hauser, A., Kraxberger, F., Falk, S., Kniesburges, S., Echternach, M., Döllinger, M. & Kaltenbacher, M., 2021, in: Elektrotechnik und Informationstechnik. 138, 3, S. 219-228 10 S.

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