

List of Publications, Prof. R. Mailach

(09/2020)

Book Contributions

Schmidt, R., Voigt, M., Mailach, R., 2019: "Latin Hypercube Sampling-Based Monte Carlo Simulation: Extension of the Sample Size and Correlation Control", in: Hirsch C., Wunsch D., Szumbariski J., Łaniewski-Wołk Ł., Pons-Prats J. (Eds.) "Uncertainty Management for Robust Industrial Design in Aeronautics". Notes on Numerical Fluid Mechanics and Multidisciplinary Design, Vol 140. Springer.

Seume, J., und Mailach, R., 2018: Dubbel: Taschenbuch für den Maschinenbau (Hrsg.: Grote, K.-H., Bender, B., Göhlich, D.), Kapitel R1 „Grundlagen der Strömungsmaschinen“, Springer-Verlag, 25. Auflage.

Seume, J., und Mailach, R., 2014: Dubbel: Taschenbuch für den Maschinenbau (Hrsg.: Grote, K.-H., Feldhusen, J.), Kapitel R1 „Grundlagen der Strömungsmaschinen“, Springer-Verlag, 24. Auflage.

Mailach, R., 2009: "Unsteady Flow in Turbomachinery“, Habilitation, Technische Universität Dresden, also published as: ISBN 978-3-941298-92-7, TUDpress, 2010, Dresden, Germany.

Mailach, R., and Vogeler, K., 2006: "Blade Row Interaction in Axial Compressors, Part I: Periodical Unsteady Flow Field", Von Kármán Institute for Fluid Dynamics (VKI), Lecture Series 2006-06 "Advances in Axial Compressor Aerodynamics", ISBN 2-930389-68-0, May 15-18, 2006, Rhode-Saint-Genèse, Belgium.

Mailach, R., and Vogeler, K., 2006: "Blade Row Interaction in Axial Compressors, Part II: Unsteady Behaviour of Boundary Layer, Pressure Distribution and Excited Pressure Force of Compressor Blades", Von Kármán Institute for Fluid Dynamics (VKI), Lecture Series 2006-06 "Advances in Axial Compressor Aerodynamics", ISBN 2-930389-68-0, May 15-18, 2006, Rhode-Saint-Genèse, Belgium.

Mailach, R., 2001: „Experimentelle Untersuchung von Strömungsinstabilitäten im Betriebsbereich zwischen Auslegungspunkt und Stabilitätsgrenze eines vierstufigen Niedergeschwindigkeits-Axialverdichters“, Dissertation, Technische Universität Dresden, zugleich: Fortschritt-Berichte VDI, Reihe 7, Nr. 410, VDI-Verlag, Düsseldorf, Germany.

Journal Articles

Böttger, M., Lange, M., Mailach, R., and Vogeler, K., 2020: "Experimental Study on the Influence of Film Cooling Hole Extraction on Heat Transfer and Flow Field in Internal Ribbed Cooling Channels of Turbine Blades", ASME Journal of Turbomachinery, Vol. 142 (10), 101005.

Högner, L., Voigt, M., Mailach, R., Meyer, M., and Gerstberger, U., 2020: "Probabilistic Finite Element Analysis of Cooled High-Pressure Turbine Blades - Part A: Holistic Description of Manufacturing Variability", ASME Journal of Turbomachinery, Vol. 142 (10), 101008.

Högner, L., Voigt, M., Mailach, R., Meyer, M., and Gerstberger, U., 2020: "Probabilistic Finite Element Analysis of Cooled High-Pressure Turbine Blades - Part B: Probabilistic Analysis", ASME Journal of Turbomachinery, Vol. 142 (10), 101009.

Böttger, M., Lange, M., Mailach, R., and Vogeler, K., 2019: “Experimental Study on the Influence of the Streamwise Position of Film Hole Extraction in Internal Ribbed Cooling Channels of Turbine Blades”, *Journal of the Global Power and Propulsion Society*. 3: 580–591. <https://doi.org/10.33737/jgpps/110621>.

Sinkwitz, M., Winhart, B., Engelmann, D., di Mare, F. and Mailach, R., 2019: “On the Periodically Unsteady Interaction of Wakes, Secondary Flow Development, and Boundary Layer Flow in An Annular Low-Pressure Turbine Cascade: An Experimental Investigation”, *ASME Journal of Turbomachinery*, Vol. 141 (9), 091001.

Voigt, P., Högner, L., Fiedler, B., Voigt, M., Mailach, R., Meyer, M., and Nasuf, A., 2019: “Comprehensive Geometric Description of Manufacturing Scatter of High Pressure Turbine Nozzle Guide Vanes for Probabilistic CFD Analysis”, *ASME Journal of Turbomachinery*, Vol. 141 (8), 081002.

Sinkwitz, M., Winhart, B., Engelmann, D., di Mare, F. and Mailach, R., 2019: “Experimental and Numerical Investigation of Secondary Flow Structures in an Annular Low Pressure Turbine Cascade under Periodic Wake Impact - Part 1: Experimental Results”, *ASME Journal of Turbomachinery*, Vol. 141, 021008.

Winhart, B., Sinkwitz, M., Schramm, A., Engelmann, D., di Mare, F. and Mailach, R., 2019: “Experimental and Numerical Investigation of Secondary Flow Structures in an Annular Low Pressure Turbine Cascade under Periodic Wake Impact - Part 2: Numerical Results”, *ASME Journal of Turbomachinery*, Vol. 141, 021009.

Iseni, S., Micallef, D., Engelmann, D., Mailach, R., Nicke, E., and di Mare, F., 2018: “Influence of casing contouring on flutter boundaries of a jet engine fan “, *CEAS Aeronautical Journal*, DOI 10.1007/s13272-018-0351-y.

Lange, M., Rolfes, M., Mailach, R., and Schropp, H., 2018: “Periodic Unsteady Tip Clearance Vortex Development in a Low-Speed Axial Research Compressor at Different Tip Clearances”, *ASME Journal of Turbomachinery*, Vol. 140, 031005-1.

Rolfes, M., Lange, M., Vogeler, K., and Mailach, R., 2017: “Experimental and Numerical Investigation of a Circumferential Groove Casing Treatment in a Low Speed Axial Research Compressor at Different Tip Clearances”, *ASME Journal of Turbomachinery*, Vol. 139 (12), 121009.

Rolfes, M., Lange, M., and Mailach, R., 2017, “Investigation of Performance and Rotor Tip Flow Field in a Low Speed Research Compressor with Circumferential Groove Casing Treatment at Varying Tip Clearance,” *International Journal of Rotating Machinery*, Vol. 2017, Article ID 4631751, 2017. doi:10.1155/2017/4631751

Aulich, A.-L., Sauer, T., Iseni, S., Moreau, A., Peitsch, D., Mailach, R., Micallef, D., Enghardt, L., and Nicke, E., 2016: “Fan casing contouring under consideration of aeroacoustics, mechanics, aeroelasticity, and whole engine performance“, *CEAS Aeronautical Journal*, 2016, DOI 10.1007/s13272-016-0226-z.

Lange, M., Vogeler, K., Mailach, R., and Elorza-Gomez, S., 2013: “An Experimental Verification of a New Design for Cantilevered Stators with Large Hub Clearances“, *ASME Journal of Turbomachinery*, Vol. 135, No. 4, 041022.

Gottschall, M., Mailach, R., and Vogeler, K., 2012: “Penny Gap Effect on Performance and Secondary Flow Field in a Compressor Cascade“, *AIAA Journal of Propulsion and Power*, Vol. 28, No. 5, Sept.–Oct. 2012, pp. 927-935.

Fischer, A., Büttner, L., Czarske, J., Gottschall, M., Vogeler, K., and Mailach, R., 2012: "Investigation of the tip clearance flow in a compressor cascade using a novel laser measurement technique with high temporal resolution", *ASME Journal of Turbomachinery*, Vol. 134, No. 3, 051004.

Künzelmann, M., Urban, R., Mailach, R., and Vogeler, K., 2011: "Active flow control at a 1.5 stage low speed research compressor with varying rotor tip clearance", (*Best Paper Award of the European Turbomachinery Committee 2011*), *IMEchE Journal of Power and Energy Part A: Journal of Power and Energy*, Vol. 225, Issue 7, pp. 886-896.

Jia, H., Xi, G., Müller, L., Mailach, R., and Vogeler, K., 2010: "Unsteady Blade Loading with Clocking in Multistage Axial Compressors, Part 1: Numerical Investigation", *AIAA Journal of Propulsion and Power*, Vol. 26, No. 1, pp. 25-35.

Müller, L., Mailach, R., Vogeler, K., Jia, H., and Xi, G., 2010: "Unsteady Blade Loading with Clocking in Multistage Axial Compressors, Part 2: Experimental Investigation", *AIAA Journal of Propulsion and Power*, Vol. 26, No. 1, pp. 36-45.

Mailach, R., and Vogeler, K., 2009: "Recent German Research on Periodical Unsteady Flow in Turbomachinery", *Journal of Flow, Turbulence and Combustion*, Vol. 83, Issue 4, pp. 449-484.

Jia, H., Xi, G., Müller, L., Mailach, R., and Vogeler, K., 2008: "Effect of Clocking on Unsteady Rotor Blade Loading at Design and Off-Design Operating Conditions", *Proc. IMechE, Part G: Journal of Aerospace Engineering*, Vol. 222, pp. 895-906.

Mailach, R., Lehmann, I., and Vogeler, K., 2008: "Periodical Unsteady Flow Within a Rotor Blade Row of an Axial Compressor - Part I: Flow Field at Midspan", *ASME Journal of Turbomachinery*, Vol. 130, pp. 041004-1 - 041004-10.

Mailach, R., Lehmann, I., and Vogeler, K., 2008: "Periodical Unsteady Flow Within a Rotor Blade Row of an Axial Compressor - Part II: Wake - Tip Clearance Vortex Interaction", *ASME Journal of Turbomachinery*, Vol. 130, pp. 041005-1 - 041005-10.

Jia, H., Vogeler, K., Müller, L., and Mailach, R., 2007: "Numerical Investigation of Rotor-Stator-Interactions in a 1.5-Stage Low-Speed Axial Compressor", *Journal of Computational and Applied Mechanics (JCAM)*, Vol. 8, No. 1, pp. 71-83.

Mailach, R., and Vogeler, K., 2007: "Unsteady Aerodynamic Blade Excitation at the Stability Limit and During Rotating Stall in an Axial Compressor", *ASME Journal of Turbomachinery*, Vol. 129, pp. 503-511.

Mailach, R., and Vogeler, K., 2004: "Rotor-Stator Interactions in a Four-Stage Low-Speed Axial Compressor, Part I: Unsteady Profile Pressures and the Effect of Clocking", *ASME Journal of Turbomachinery*, Vol. 126, pp. 507-518.

Mailach, R., Müller, L., and Vogeler, K., 2004: "Rotor-Stator Interactions in a Four-Stage Low-Speed Axial Compressor, Part II: Unsteady Aerodynamic Forces of Rotor and Stator Blades", *ASME Journal of Turbomachinery*, Vol. 126, pp. 519-528.

Mailach, R., and Vogeler, K., 2004: "Aerodynamic Blade Row Interactions in an Axial Compressor, Part I: Unsteady Boundary Layer Development", *ASME Journal of Turbomachinery*, Vol. 126, pp. 35-44.

Mailach, R., and Vogeler, K., 2004: "Aerodynamic Blade Row Interactions in an Axial Compressor, Part II: Unsteady Profile Pressure Distribution and Blade Forces", *ASME Journal of Turbomachinery*, Vol. 126, pp. 45-51.

Mailach, R., and Vogeler, K., 2002: "Wake-Induced Boundary Layer Transition in a Low-Speed Axial Compressor", *Journal of Flow, Turbulence and Combustion*, Special Issue: Unsteady Flow in Turbomachinery, Vol. 69, Issue 3-4, pp. 271-294.

Mailach, R., Lehmann, I., and Vogeler, K., 2001: "Rotating Instabilities in an Axial Compressor Originating from the Fluctuating Blade Tip Vortex", *ASME Journal of Turbomachinery*, Vol. 123, pp. 453-463.

Conference Papers

Ventosa-Molina, J., Lange, M., Mailach, R., and Fröhlich, J., 2020: "Study of Relative Endwall Motion Effects in a Compressor Cascade through Direct Numerical Simulations", ASME Paper No. GT2020-14612, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Windemuth, C., Lange, M., and Mailach, R., 2020: "Investigation of Unsteady Pressure Fluctuations in a Simplified Steam Turbine Control Valve", ASME Paper No. GT2020-14632, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Voigt, P., Voigt, M., Mailach, R., Abu-Taa, K., and Rostamian, M., 2020: "Introduction of a Novel Parameter Model to Analyze the Geometric Variation of Airfoil Edges of Ex-In-Service Compressor Airfoils", ASME Paper No. GT2020-14668, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Schuchard, L.C., Cerutti, S., Voigt, M., and Mailach, R., 2020: "A Statistical Study on HCF Validation Data for Axial Gas Turbine Compressor Blades", ASME Paper No. GT2020-14946, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Koppe, B., Lange, M., and Mailach, R., 2020: "Influence of Boundary Layer Skew on the Tip Leakage Vortex of an Axial Compressor Stator", ASME Paper No. GT2020-15940, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Prots, A., Högner, L., Voigt, M., Mailach, R., and Danner, F., 2020: "Improved Quality Assessment of Probabilistic Simulations and Application to Turbomachinery", ASME Paper No. GT2020-16147, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Fiedler, B., Muller, Y., Voigt, M., and Mailach, R., 2020: "Comparison of Two Methods for the Sensitivity Analysis of a One-Dimensional Cooling Flow Network of a High Pressure Turbine Blade", ASME Paper No. GT2020-16295, ASME Turbo Expo, Sept. 21-25, 2020, Virtual, Online.

Högner, L., Voigt, M., Mailach, R., Meyer, M., and Gerstberger, U., 2019: "Probabilistic FE-Analysis of Cooled High Pressure Turbine Blades: Part A – Holistic Description of Manufacturing Variability", ASME Paper No. GT2019-91205, ASME Turbo Expo, June 17-21, 2019, Phoenix, AZ, USA.

Högner, L., Voigt, M., Mailach, R., Meyer, M., and Gerstberger, U., 2019: "Probabilistic FE-Analysis of Cooled High Pressure Turbine Blades: Part B – Probabilistic Analysis", ASME Paper No. GT2019-91214, ASME Turbo Expo, June 17-21, 2019, Phoenix, AZ, USA.

Magin, P., Danner, F., Voigt, M., and Mailach, R., 2019: "High Pressure Compressor Aerodynamic Performance at Uncertain Boundary Conditions", ASME Paper No. GT2019-90908, ASME Turbo Expo, June 17-21, 2019, Phoenix, AZ, USA.

Voigt, P., Voigt, M., Mailach, R., Münzinger, D., Abu-Taa, K., and Lange, A., 2019: "A Novel Methodology for Detecting Foreign Object Damage on Compressor Blading", ASME Paper No. GT2019-90378, ASME Turbo Expo, June 17-21, 2019, Phoenix, AZ, USA.

Windemuth, C., Lange, M., and Mailach, R., 2019: "Introduction of a Novel Test Rig for the Investigation of Fluid-Structure Interaction Effects in Steam Turbine Control Valves Using an Elastic Model", Paper No. ETC2019-006, 13th European Turbomachinery Conference, April 8-12, 2019, Lausanne, Switzerland.

Kowalski, J., di Mare, F., Theis, S., Wiedermann, A., Lange, M., and Mailach, R., 2019: "Investigation of the Ventilation Flow in a Gas Turbine Package Enclosure", Paper No. ETC2019-438, 13th European Turbomachinery Conference, April 8-12, 2019, Lausanne, Switzerland.

Böttger, M., Lange, M., Mailach, R., and Vogeler, K., 2019: "Experimental Study on the Influence of the Streamwise Position of Film Hole Extraction in Internal Ribbed Cooling Channels of Turbine Blades", GPPS Technical Conference 2019, Paper No. GPPS-TC-2019-0019, Jan. 16-17, 2019, Zurich, Switzerland.

Sinkwitz, M., Winhart, B., Engelmann, D., di Mare, F., and Mailach, R., 2018: "On the Periodically Unsteady Interaction of Wakes, Secondary Flow Development and Boundary Layer Flow in an Annular LPT Cascade. Part 1: Experimental Investigation", ASME Paper No. GT2018-76802, ASME Turbo Expo, June 11-15, 2018, Oslo, Norway.

Winhart, B., Sinkwitz, M., Engelmann, D., di Mare, F., and Mailach, R., 2018: "On the Periodically Unsteady Interaction of Wakes, Secondary Flow Development and Boundary Layer Flow in an Annular LPT Cascade. Part 2: Numerical Investigation", ASME Paper No. GT2018-76873, ASME Turbo Expo, June 11-15, 2018, Oslo, Norway.

Voigt, P., Högner, L., Fiedler, B., Voigt, M., Mailach, R., Nasuf, A., Meyer, M., Berridge, C., and Goenaga, F., 2018: "Comprehensive Geometric Description of Manufacturing Scatter of High Pressure Turbine Nozzle Guide Vanes for Probabilistic CFD Analysis", ASME Paper No. GT2018-76723, ASME Turbo Expo, June 11-15, 2018, Oslo, Norway.

Kniefs, M., Lange, M., Mailach, R., Iseni, S., Micallef, D., and di Mare, F., 2018: "The Influence of Circumferential Grooves on the Flutter Stability of a Transonic Fan", ASME Paper No. GT2018-76422, ASME Turbo Expo, June 11-15, 2018, Oslo, Norway.

Hodzic, O., Winhart, B., Sinkwitz, M., Engelmann, D., di Mare, F., and Mailach, R., 2018: "Experimental and Numerical Investigations of a Low-Pressure Turbine Control Stage", GPPS Forum 18, Paper No. GPPS-2018-98, May 7-9, 2018, Montreal, Canada.

Hodzic, O., Sinkwitz, M., Schramm, A., Iseni, S., Engelmann, D., di Mare, F., and Mailach, R., 2017: "Design of a Low Pressure Turbine Stage with Control Stage Characteristics for Investigations of Partial Admission Effects", ISROMAC: International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Dec. 16-21, 2017, Maui, Hawaii, USA.

Kowalski, J., Lauer, M., Engelmann, D., Cagna, M., Mailach, R., and di Mare, F., 2017: "Development of a Novel Test Rig to Investigate Explosion Safety in Gas Turbine Enclosures", ISROMAC: International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Dec. 16-21, 2017, Maui, Hawaii, USA.

Sinkwitz, M., Winhart, B., Engelmann, D., di Mare, F., and Mailach, R., 2017: "Experimental and Numerical Investigation of Secondary Flow Structures in an Annular LPT Cascade under Periodical Wake Impact – Part 1: Experimental Results", ISROMAC: International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Dec. 16-21, 2017, Maui, Hawaii, USA.

Winhart, B., Sinkwitz, M., Schramm, A., Engelmann, D., di Mare, F., and Mailach, R., 2017: "Experimental and Numerical Investigation of Secondary Flow Structures in an Annular LPT Cascade under Periodical Wake Impact – Part 2: Numerical Results", ISROMAC: International Symposium on Transport Phenomena and Dynamics of Rotating Machinery, Dec. 16-21, 2017, Maui, Hawaii, USA.

Reuter, I., Beschorner, A., Voigt, M., and Mailach, R., 2017 „Comparative Study to Improve Model Selection Based on Cross Validation“. Proceedings of 15th International Probabilistic Workshop & 10th Dresdner Probabilistik Workshop, Eds.: Voigt, M., Proske, D., Graf, W., Beer, M., Häußler-Combe, U., and Voigt, P., 27.-29. Sept. 2017, Dresden, TUDpress.

Backhaus, T., Harding, M., Schrape, S., Voigt, M., and Mailach, R., 2017: “Validation Methods for 3D Digitizing Accuracy Concerning Jet Engine BLISKs”, Deutscher Luft- und Raumfahrtkongress, Paper No. 450102, 05.-07. Sept. 2017, München, Germany.

Iseni, S., Micallef, D., Engelmann, D., Mailach, R., Nicke, E., and di Mare, F., 2017: “Influence of Casing Contouring on Flutter Boundaries of a Jet Engine Fan”, Deutscher Luft- und Raumfahrtkongress, Paper No. 450105, 05.-07. Sept. 2017, München, Germany.

Reuter, I., Voigt, M., Mailach, R., Becker, K.-H., Fischersworing-Bunk, A., Schlums, H., and Ivankovic, M., 2017: “Strukturmechanische Blisk-Auslegung unter Verwendung von Metamodellen”, Deutscher Luft- und Raumfahrtkongress, Paper No. 450129, 05.-07. Sept. 2017, München, Germany.

Stricker, M., Mailach, R., and Vogeler, K., 2017: “Anforderungen an das Sekundärluftsystem neuer, auf der isochoren Verbrennung basierender Flugantriebe”, Deutscher Luft- und Raumfahrtkongress, Paper No. 450059, 05.-07. Sept. 2017, München, Germany.

Backhaus, T., Maywald, T., Schrape, S., Voigt, M., and Mailach, R., 2017: “A Parametrization Describing Blisk Airfoil Variations Referring to Modal Analysis”, ASME Paper No. GT2017-64243. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Knebel, S., Baum, O., Högner, L., Voigt, M., Mailach, R., and Meyer, M., 2017: “Robust Detection and Characterization of Cooling Holes Based on Surface Meshes of Turbine Blades”, ASME Paper No. GT2017-64776. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Högner, L., Knebel, S., Voigt, M., Mailach, R., and Meyer, M., 2017: “Quantification of X-Ray Measurement Uncertainty Based on Optical Measurement Data of Turbine Blades”, ASME Paper No. GT2017-63704. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Rolfes, M., Lange, M., Vogeler, K., and Mailach, R., 2017: “Experimental and Numerical Investigation of a Circumferential Groove Casing Treatment in a Low Speed Axial Research Compressor at Different Tip Clearances”, ASME Paper No. GT2017-63051. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Lange, M., Rolfes, M., Mailach, R., and Schropp, H., 2017: “Periodical Unsteady Tip Clearance Vortex Development in a Low Speed Axial Research Compressor at Different Tip Clearances”, ASME Paper No. GT2017-64256. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Sinkwitz, M., Engelmann, D., and Mailach, R., 2017: “Experimental Investigation of Periodically Unsteady Wake Impact on the Secondary Flow in a 1.5 Stage Full Annular LPT Cascade With Modified T106 Blading”, ASME Paper No. GT2017-64390. ASME Turbo Expo, June 26-30, 2017, Charlotte, NC, USA.

Krug, A., Busse, P., Lange, M., Vogeler, K., and Mailach, R., 2017: “Challenges of Creating Realistic Periodical Unsteady Inflow Conditions in a Linear Compressor Cascade”, Paper No. ETC2017-241, 12th European Turbomachinery Conference, April 3-7, 2017, Stockholm, Sweden.

Beschorner, A., Lange, M., Mailach, R., and Vogeler, K., 2017: “Experimental and Numerical Investigation of a Low Aspect Ratio Transonic Linear Turbine Cascade”, Paper No. ETC2017-237, 12th European Turbomachinery Conference, April 3-7, 2017, Stockholm, Sweden.

Reuter, I., M. Voigt, R. Mailach, K.-H. Becker, A. Fischersworing-Bunk, H. Schlums, and M. Ivankovic. „Moving Least Squares Metamodels - Hyperparameter, Variable Reduction and Model

Selection“. In 14th International Probabilistic Workshop, Eds.: R. Caspeele, L. Taerwe, and D. Proske, 63–80. Cham: Springer International Publishing, 2017. http://dx.doi.org/10.1007/978-3-319-47886-9_5.

Iseni, S., Micallef, D., and Mailach, R., 2016: “Investigation of Inlet Distortion on the Flutter Stability of a Highly Loaded Transonic Fan Rotor”, ASME Paper No. GT2016-56593. ASME Turbo Expo, June 13-17, 2016, Seoul, South Korea.

Busse, P., Krug, A., Lange, M., Vogeler, K., and Mailach, R., 2016: “Effects of Turbulent Boundary Conditions on the Prediction of the Secondary Flow Field in a Linear Compressor Cascade”, ASME Paper No. GT2016-56455. ASME Turbo Expo, June 13-17, 2016, Seoul, South Korea.

Aulich, A.-L., Sauer, T., Iseni, S., Moreau, A., Nicke, E., Peitsch, D., Mailach, R., Micallef, D., and Enghardt, L., 2015: “Fan Casing Contouring under Consideration of Aeroacoustics, Mechanics, Aeroelasticity and Whole Engine Performance”, Deutscher Luft- und Raumfahrtkongress, September, 22-24, Rostock, Germany.

Lefor, D., Kowalski, J., Herbers, T., and Mailach, R., 2015: “Investigation of the Potential for Optimization of Hydraulic Axial Thrust Balancing Methods in a Centrifugal Pump”, 11th European Turbomachinery Conference, March 23-27, 2015, Madrid, Spain.

Engelmann, D. and Mailach, R., 2015: “A Detailed View on the Mixing and Loss Generation Process during Steam Admission concerning Geometry, Temperature and Pressure”, 11th European Turbomachinery Conference, March 23-27, 2015, Madrid, Spain.

Lefor, D., Kowalski, J., Kutschelis, B., Herbers, T., and Mailach, R., 2014: “Optimization of Axial Thrust Balancing Swirl Breakers in a Centrifugal Pump Using Stochastic Methods”, ASME Fluids Engineering Summer Meeting (FEDSM2014), August 3-7, 2014, Chicago, Illinois, USA.

Engelmann, D., Schramm, A., Polklas, T., and Mailach, R., 2014: “Losses of Steam Admission in Industrial Steam Turbines Depending on Geometrical Parameters”, ASME Paper No. GT2014- 25172, ASME Turbo Expo, June 16-20, 2014, Düsseldorf, Germany.

Schramm, A., Müller, T., Polklas, T., Brunn, O., and Mailach, R., 2014: “Improvement of Flow Conditions for the Adjacent Stages of Extraction Modules in Industrial Steam Turbines”, ASME Paper No. GT2014- 25390, ASME Turbo Expo, June 16-20, 2014, Düsseldorf, Germany.

Schramm, A., Müller, T., Polklas, T., Brunn, O., and Mailach, R., 2014: “Unsteady Flow in Extraction Modules of Industrial Steam Turbines”, ASME Paper No. GT2014- 25394, ASME Turbo Expo, June 16-20, 2014, Düsseldorf, Germany.

Witteck, D., Micallef, D., and Mailach, R., 2014: “Comparison of Transient Blade Row Methods for the CFD Analysis of a High-Pressure Turbine”, ASME Paper No. GT2014-26043, ASME Turbo Expo, June 16-20, 2014, Düsseldorf, Germany.

Micallef, D., Witteck, D., Wiedermann, A., and Mailach, R., 2014: “An Efficient Workflow for Accurate Flutter Stability Analyses and Application to a State of the Art Compressor Rotor”, ASME Paper No. GT2014-25646, ASME Turbo Expo, June 16-20, 2014, Düsseldorf, Germany.

Engelmann, D., Schramm, A., Polklas, T., Schwarz, M.A., and Mailach, R.: “Enhanced Loss Prediction for Admission through Circumferential Slots in Axial Steam Turbines”, 10th European Turbomachinery Conference, April 15 – 19, 2013, Lappeenranta, Finland.

Schramm, A., Engelmann, D., Polklas, T., Brunn, O., and Mailach, R.: “Influence of Vane Carrier Design in Steam Extraction Modules on the Flow Conditions of the Subsequent Turbine Stage”, 10th European Turbomachinery Conference, April 15 – 19, 2013, Lappeenranta, Finland.

Kalkkuhl, T., Polklas, T., and Mailach, R., 2012: "Unsteady Flow due to Partial Admission in a Steam Turbine Control Stage", 13th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines (ISUAAT13), Sept. 11-14, Tokyo, Japan.

Witteck, D., Micallef, D., Wiedermann, A., and Mailach, R., 2012: "Three-Dimensional Viscous Flutter Analysis of a Turbine Cascade in Supersonic Flow", 13th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines (ISUAAT13), Sept. 11-14, Tokyo, Japan.

Lange, M., Vogeler, K., and Mailach, R., 2012: "Tip And Hub Clearance Vortex Development Due To Rotor-Stator-Interaction in Axial Compressors", 13th International Symposium on Unsteady Aerodynamics, Aeroacoustics and Aeroelasticity of Turbomachines (ISUAAT13), Sept. 11-14, Tokyo, Japan.

Gottschall, M., Vogeler, K., and Mailach, R., 2012: "The Effect of Two Different Endwall-Penny Concepts for Variable Stator Vanes in a Compressor Cascade", ASME Paper No. GT2012- 68404, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Gottschall, M., Vogeler, K., and Mailach, R., 2012: "The Effect of Four Part Gap Geometry Configurations for Variable Stator Vanes in a Compressor Cascade", ASME Paper No. GT2012-69757, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Lange, M., Vogeler, K., Mailach, R., and Elorza-Gomez, S., 2012: "An Experimental Verification of a New Design for Cantilevered Stators with Large Hub Clearances", ASME Paper No. GT2012-68344, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Micallef, D., Witteck, D., Wiedermann, A., Kluß, D., and Mailach, R., 2012: "Three-Dimensional Viscous Flutter Analyses of a Turbine Cascade in Subsonic and Transonic Flows", ASME Paper No. GT2012-68396, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Engelmann, D., Kalkkuhl, T., Polklas, T., and Mailach, R., 2012: "Influence of Shroud Cavity Jet and Steam Admission through a Circumferential Slot on the Flow Field in a Steam Turbine", ASME Paper No. GT2012- 68465, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Kalkkuhl, T., Engelmann, D., Harbecke, U., and Mailach, R., 2012: "Numerical Analysis of Partial Admission Flow in an Industrial Steam Turbine", ASME Paper No. GT2012-68482, ASME Turbo Expo, June 12-15, 2012, Copenhagen, Denmark.

Fischer, A., Büttner, L., Czarske, J., Gottschall, M., Mailach, R., and Vogeler, K., 2011: "Investigation of the tip clearance flow in a compressor cascade using a novel laser measurement technique with high temporal resolution", ASME Paper No. GT2011-45176, ASME Turbo Expo, June 6-10, 2011, Vancouver, Canada.

Künzelmann, M., Urban, R., Mailach, R., and Vogeler, K., 2011: "Active flow control at a 1.5 stage low speed research compressor with varying rotor tip clearance", 9th European Turbomachinery Conference, March 21 – 25, 2011, Istanbul, Turkey.

Gottschall, M., Mailach, R., and Vogeler, K., 2011: "Effect of different penny gap geometries on performance and development of secondary flow field in a compressor cascade", 9th European Turbomachinery Conference, March 21 – 25, 2011, Istanbul, Turkey.

Fischer, A., Büttner, L., Czarske, J., Gottschall, M., Mailach, R., and Vogeler, K., 2010: „Untersuchung der Spaltströmung eines ebenen Verdichtergitters mittels Doppler-Global-Velozimeter mit Laserfrequenzmodulation“, 18. GALA-Fachtagung „Lasermethoden in der Strömungsmesstechnik“, 07.-09. September 2010, Cottbus, Germany.

Fischer, A., Büttner, L., Czarske, J., Gottschall, M., Mailach, R., and Vogeler, K., 2010: "Doppler Global Velocimetry With Laser Frequency Modulation for the Analysis of Complex Turbulent Flows", 15th International Symposium on Applications of Laser Techniques to Fluid Mechanics, Paper No. 1557, July 5-8, 2010, Lisbon, Portugal.

Lange, M., Mailach, R., and Vogeler, K., 2010: "An Experimental Investigation of Shrouded and Cantilevered Compressor Stators at Varying Clearance Sizes", ASME Paper No. GT2010-22106, ASME Turbo Expo, June 14-18, 2010, Glasgow, UK.

Lange, M., Mailach, R., Müller, R., and Vogeler, K., 2009: "Development of Velocity Profiles Through a 4-stage Low-Speed Compressor", 8th European Turbomachinery Conference, March 23 – 27, 2009, Graz, Austria.

Künzelmann, M., Mailach, R., Müller, R., and Vogeler, K., 2008: "Steady and Unsteady Flow Field in a Multistage Low-Speed Axial Compressor – A Testcase", ASME Paper No. GT2008-50793, 53rd ASME Turbo Expo, June 9-13, 2008, Berlin, Germany.

Jia, H., Xi, G., Müller, L., Mailach, R., and Vogeler, K., 2007: "Effect of Clocking on the Unsteady Blade Loading in a Four-Stage Low-Speed Axial Compressor - Part 1: Numerical Investigation", ISABE-2007-1181, 18th International Symposium on Airbreathing Engines, Sept. 2-7, 2007, Beijing, China.

Müller, L., Mailach, R., Vogeler, K., Jia, H., and Xi, G., 2007: "Effect of Clocking on the Unsteady Blade Loading in a Four-Stage Low-Speed Axial Compressor - Part 2: Experimental Investigation", ISABE-2007-1182, 18th International Symposium on Airbreathing Engines, Sept. 2-7, 2007, Beijing, China.

Mailach, R., Lehmann, I., and Vogeler, K., 2007: "Periodical Unsteady Flow Within a Rotor Blade Row of an Axial Compressor - Part I: Flow Field at Midspan", ASME Paper No. GT2007-27210, 52nd ASME Turbo Expo, May 14-17, 2007, Montreal, Canada.

Mailach, R., Lehmann, I., and Vogeler, K., 2007: "Periodical Unsteady Flow Within a Rotor Blade Row of an Axial Compressor - Part II: Wake - Tip Clearance Vortex Interaction", ASME Paper No. GT2007-27211, 52nd ASME Turbo Expo, May 14-17, 2007, Montreal, Canada.

Jia, H., Vogeler, K., Müller, L., and Mailach, R., 2006: "Numerical Investigation of Rotor-Stator-Interactions in a 1.5-Stage Low-Speed Axial Compressor", in: Lajos, T., Vad, J. (eds.), Proceedings of the Conference on Modelling Fluid Flow (CMFF'06), Sept. 6-9, 2006, Budapest, Hungary.

Mailach, R., and Vogeler, K., 2006: "Unsteady Aerodynamic Blade Excitation at the Stability Limit and During Rotating Stall in an Axial Compressor", ASME Paper No. GT2006-90214, 51st ASME Turbo Expo, May 8-11, 2006, Barcelona, Spain.

Müller, L., Mailach, R., Vogeler, K., 2005: „Grenzschichtentwicklung auf den Laufschaufeln des vierstufigen Niedergeschwindigkeits-Axialverdichters Dresden“, 21. Strömungstechnische Tagung, 30. September 2005, ISBN 3-89959-354-5, Tagungsband S. 21-34, Dresden, Germany.

Müller, L., Mailach, R., and Vogeler, K., 2005: "Boundary Layer Development on the Rotor Blades of a Four-Stage Low-Speed Axial Compressor", ISABE-2005-1058, Proceedings of the 17th International Symposium on Airbreathing Engines, Sept. 4-9, 2005, Munich, Germany.

Mailach, R., Vogeler, K., 2004: „Strömungsinduzierte Schaufelanregung im stabilen Betriebsbereich und während Rotierender Ablösung in einem Axialverdichter“, Deutscher Luft- und Raumfahrt-kongress, 20.-23. September 2004, Dresden, Germany.

Mailach, R., and Vogeler, K., 2004: "Rotor-Stator Interactions in a Four-Stage Low-Speed Axial Compressor, Part I: Unsteady Profile Pressures and the Effect of Clocking", ASME Paper No. GT2004-53098, ASME Turbo Expo, June 14-17, 2004, Vienna, Austria.

Mailach, R., Müller, L., and Vogeler, K., 2004: "Rotor-Stator Interactions in a Four-Stage Low-Speed Axial Compressor, Part II: Unsteady Aerodynamic Forces of Rotor and Stator Blades", ASME Paper No. GT2004-53099, ASME Turbo Expo, June 14-17, 2004, Vienna, Austria.

Mailach, R., and Vogeler, K., 2003: "Aerodynamic Blade Row Interactions in an Axial Compressor, Part I: Unsteady Boundary Layer Development", ASME Paper No. GT2003-38765, 48th ASME Turbo Expo, June 16-19, 2003, Atlanta, Georgia, USA.

Mailach, R., and Vogeler, K., 2003: "Aerodynamic Blade Row Interactions in an Axial Compressor, Part II: Unsteady Profile Pressure Distribution and Blade Forces", ASME Paper No. GT2003-38766, ASME Turbo Expo, June 16-19, 2003, Atlanta, Georgia, USA.

Mailach, R., Müller, L., and Vogeler, K., 2003: "Experimental Investigation of Unsteady Forces on Rotor and Stator Blades of an Axial Compressor", in: Stastny, M., Sieverding, C. H., Bois, G. (eds.), Proceedings of the 5th European Conference on Turbomachinery - Fluid Dynamics and Thermodynamics, pp. 221-233, March 18-21, 2003, Prague, Czech Republic.

Mailach, R., Vogeler, K., 2002: „Experimentelle Untersuchung des instationären Grenzschichtverhaltens auf den Schaufeln eines Niedergeschwindigkeits-Axialverdichters“, DGLR-JT2002-071, Deutscher Luft- und Raumfahrtkongress, 23.-26. September 2002, Stuttgart, Germany.

Mailach, R., Vogeler, K., 2001: „Strömungsinduzierte Schaufelschwingungen in Axialverdichtern“, 33. Kraftwerkstechnisches Kolloquium: Zuverlässigkeit von Kraftwerksanlagen im liberalisierten Strommarkt, 23.-24. Oktober 2001, Tagungsband S. 155-164, Dresden, Germany.

Mailach, R., Vogeler, K., 2001: „Modalwellen im stabilen Betriebsbereich und an der Stabilitätsgrenze eines Niedergeschwindigkeits-Axialverdichters“, VDI-Berichte 1640, „Thermische Strömungsmaschinen: Turbokompressoren im industriellen Einsatz“, S. 107-122, ISBN 3-18-091640-0, Duisburg, Germany.

Mailach, R., Sauer, H., and Vogeler, K., 2001: "The Periodical Interaction of the Tip Clearance Flow in the Blade Rows of Axial Compressors", ASME Paper No. 2001-GT-0299, 46th ASME Turbo Expo, June 4-7, 2001, New Orleans, Louisiana, USA.

Sauer, H., Mailach, R., 2001: „Periodische Spaltströmungen und zeitgemittelte Korrelationen zu Verlustbeiwerten im Radialspaltbereich von Axialverdichtern“, in: Heller, W., Klingenberg, J. (Herausgeber): Beiträge zur Strömungsmechanik, S. 264-277, ISBN 3-86005-276-4, TU Dresden, Institut für Strömungsmechanik, Dresden, Germany.

Müller, R., Mailach, R., Lehmann, I., Sauer, H., 2000: „Strömungsvorgänge in rotierenden Schaufelkanälen von Axialverdichtern“, 20. Strömungstechnische Tagung, 06. Oktober 2000, Tagungsband S. 38-43, TU Dresden, Institut für Strömungsmechanik, Dresden, Germany.

Mailach, R., Lehmann, I., and Vogeler, K., 2000: "Rotating Instabilities in an Axial Compressor Originating from the Fluctuating Blade Tip Vortex", ASME Paper No. 2000-GT-0506, 45th ASME Turbo Expo, May 8-11, 2000, Munich, Germany.

Müller, R., Mailach, R., Lehmann, I., and Sauer, H., 1999: "Flow Phenomena Inside the Rotor Blade Passages of Axial Compressors", AIAA 99-7083, Proceedings of the 14th International Symposium on Airbreathing Engines, Sept. 5-10, 1999, Florence, Italy.

Mailach, R., 1999: "Experimental Investigation of Rotating Instabilities in a Low-Speed Research Compressor", ImechE C557/006/99, Vol. 2, pp. 595-604, 3rd European Conference on Turbo-machinery – Fluid Dynamics and Thermodynamics, March 2-5, 1999, London, GB.

Mailach, R., Breuer, T., Holste, F., Kameier, F., 1998: „Untersuchung von Verdichterinstabilitäten am Niedergeschwindigkeitsverdichter Dresden“, Tagungsband zum 6. Statusseminar der Arbeitsgemeinschaft „Hochtemperatur-Gasturbine“, S. 10.1-10.11, 3.-4. Dezember 1998, DLR, Köln, Germany.

Müller, R., Mailach, R., 1998: „Belastungsänderungen bei Verdichtern und deren Beurteilung anhand der Profildruckverteilungen“, Tagungsband „Ergebnisse des dreijährigen Versuchsbetriebs am Niedergeschwindigkeitsverdichter Dresden“, S. 5.1-5.14, ISBN 3-86005-214-4, 26.-27. November 1998, Dresden, Germany.

Mailach, R., 1998: „Experimentelle Untersuchung rotierender Instabilitäten“, Tagungsband „Ergebnisse des dreijährigen Versuchsbetriebs am Niedergeschwindigkeitsverdichter Dresden“, S. 6.1- 6.12, ISBN 3-86005-214-4, 26.-27. November 1998, Dresden, Germany.

Mailach, R., Müller, R., 1998: „Experimentelle Untersuchung von Verdichterinstabilitäten am Niedergeschwindigkeitsverdichter Dresden“, VDI-Berichte 1425, S. 167-176, ISBN 3-18-091425-4, VDI-Tagung: Thermische Strömungsmaschinen - Turbokompressoren im industriellen Einsatz, 6.-7. Oktober 1998, Hannover, Germany.

Müller, R., Mailach, R., 1998: „Belastungsänderungen bei Verdichtern und deren Beurteilung anhand von Messergebnissen am Niedergeschwindigkeitsverdichter Dresden“, VDI-Berichte 1425, S. 157-166, ISBN 3-18-091425-4, Thermische Strömungsmaschinen: Turbokompressoren im industriellen Einsatz, 6.-7. Oktober 1998, Hannover, Germany.

Müller, R., Mailach, R., and Lehmann, I., 1997: "The Design and Construction of a Four-Stage Low-Speed Research Compressor", in: Badur, J., Bilicki, Z., Mikielwicz, J., Sliwicki, E. (eds.), Proceedings of the IMP '97 Conference on Modeling and Design in Fluid-Flow Machinery, pp. 523-530, November 18-21, 1997, Gdansk, Poland.

Mailach, R., 1996: „Einsatz zeitauflösender Messtechnik zur Untersuchung von Verdichterinstabilitäten am Niedergeschwindigkeitsverdichter Dresden“, ISBN 3-86005-168-7, 28. Kraftwerkstechnisches Kolloquium: Messtechnik in Energieanlagen, 29.-30. Oktober 1996, Tagungsband S. 69-78, Dresden, Germany.