

CURRICULUM VITAE

Thomas H. CAROLUS

- Born 03/18/1954 in Frankfurt/Main, Germany
- Married to Elke Carolus, nee Holder
- Four children: Anne (11/10/1983), Lena (12/01/84), Almut (06/02/86), Johannes (11/07/88)



- 1974 Begin of studying mechanical engineering at the Technische Universität (TH) Karlsruhe
- 1978-79 One year student exchange to Georgia Institute of Technology, Atlanta, Georgia; Fulbright and WSF (Georgia Tech) scholarship
- Sept. 1979 Degree M.S.M.E. (Georgia Institute of Technology) awarded
- July 1980 Degree Dipl.-Ing. (Technische Universität (TH) Karlsruhe)
- 1980-86 Researcher at the Department of Fluid Dynamics and Fluid Flow Machinery (Prof. Dr.-Ing. Dr. h.c. K.O. Felsch), Technische Universität (TH) Karlsruhe
- 1984 Degree Ph.D.
(Thesis: Theoretical and Experimental Investigation of Surge in Fan Systems)
- 1986-91 Group leader Robert Bosch GmbH (automotive supplier)
- since 1991 Professor at the Department for Fluid- and Thermodynamics, Universität Siegen, Germany

Courses taught:

- Introduction into turbomachinery
- Energy Systems
- Advanced turbomachinery including turbines for wind, waves and tidal currents
- Technical Acoustics
- Fluid power
- Fan aerodynamics and acoustics
- Wind turbines

Publications:

- Approximately 200 publications (journal papers, text books, conference papers, patents), see attached list

Services provided to the University of Siegen and to students:

- For many years member of the faculty council
- For two periods member of the university senate
- From 2001 to 2004 Vice-Dean and Dean of the Faculty of Mechanical Engineering

- Visiting professor at the University of Portsmouth, UK, École Nationale d'Ingénieurs de Saint Étienne, France, Polytechnical University of Tirana, Albania, National University of Laos; Vientiane, Laos, Pennsylvania State, USA and Dedan Kimathi University of Technology, Nyeri, Kenya
- Since 1993: Co-ordinator of the European Exchange Program ERASMUS

Other services:

- Reviewer for student exchange programs of the German Academic Exchange Agency (DAAD)
- Peer reviewer in the national accreditation body AQAS for accreditation of new curricula in Mechanical and Industrial Engineering at German universities
- Reviewer for several international journals in turbomachinery, energy, acoustics

Membership and activities in professional societies:

- Member of the Deutsche Akustische Gesellschaft (DEGA)
- Member of the Verein Deutscher Ingenieure (VDI); head of the local VDI environmental and energy group

Awards and Fellowships:

- 2014 Arthur Charles Main Award by the British Institution of Mechanical Engineers (Power Industries Division)
- 2009 Fulbright grant for a sabbatical semestre at Pennsylvania State University; USA
- 1998 Fulbright travel grant to Pennsylvania State University; USA
- 1998 Volkswagen Research Grant
- 1978 Grant from the German-American Association for a one year student exchange to 1978 Fulbright travel grant to Georgia Institute of Technology, Atlanta

Community Service:

- Secretary of the foundation "Aktionsgemeinschaft zur Förderung wissenschaftlicher Projekte e. V. (AFP)"; the private foundation supports students and staff at the University of Siegen in case of financial problems
- Member of the protestant church in Westfalia; member of the local Bach-orchestra in the St. Martin congregation in Siegen

Siegen, Jan. 2019



LIST OF PUBLICATIONS

+ Journal, ++ Conference paper, # peer reviewed

§ download available at <http://www.mb.uni-siegen.de/iftsm/?lang=de>

1996

1. Fuest, T., Carolus, T.: Vergleich gemessener turbulenter Oberflächendrücke ungesicherter und gesicherter Axialventilatorschaufeln sowie Berechnung der Breitbandschalleistung. In: VDI-Berichte Nr. 1249, Düsseldorf 1996⁺⁺
2. Beiler, M., T. Carolus, T.: Instationäre Stromfeldmessung an Axialventilatoren. In: VDI-Berichte Nr. 1249, Düsseldorf 1996⁺⁺
3. Schulze Dieckhoff, B., Carolus, T.: Simulation des Betriebsverhaltens lufttechnischer Anlagen mit parallelgeschalteten Axialventilatoren. In: VDI-Berichte Nr. 1249, Düsseldorf 1996⁺⁺
4. Beiler, B.: Untersuchung der dreidimensionalen Strömung durch Axialventilatoren mit gekrümmten Schaufeln. VDI-Fortschrittberichte Nr. 298, Reihe 7: Strömungstechnik (zugl. Dr.-Ing. Diss. Univ.-GH Siegen), 1996
5. Carolus, T., Beiler, M.: Experimentelle Untersuchung der dreidimensionalen Strömung in Laufrädern von Axialventilatoren mit - in Umfangsrichtung - gekrümmten Schaufeln. Bericht Nr. F96 101 002 A des Institut für Fluid- und Thermodynamik, Univ.-GH Siegen an die Deutsche Forschungsgemeinschaft, 1995
6. Fuest, T.: Berechnung der Breitbandschalleistung eines Axialventilators mit Hilfe gemessener Schaufeloberflächenwechseldrücke. Aachen, Shaker, (zugl. Dr.-Ing. Diss. Univ.-GH Siegen), 1996
7. Beiler, M.: Book Review on: B. Lakshminaryana: Fluid Dynamics and Heat Transfer of Turbomachinery, J. Wiley&Sons, Chichester. In: J. Non-Equilib. Thermodynamics, 1996⁺
8. Carolus, T., Schulze Dieckhoff, B.: Betriebsverhalten lufttechnischer Anlagen mit parallelgeschalteten Axialventilatoren. Schlußbericht Nr. F96 101 004 A zum AiF-Forschungsvorhaben Nr. 9840 , 1996

1997

9. Schulze Dieckhoff, B., Carolus, T.: Simulation des Betriebsverhaltens lufttechnischer Anlagen mit parallelgeschalteten Ventilatoren. HLH - Heizung Lüftung/Klima Haustechnik, Bd. 48 (5/97) ⁺
10. Carolus, T., Funke A.: Axialspaltsensitivität bei radialen Kleinpumpen mit und ohne Deckscheibe. Industripumpen und Kompressoren, Vulkan-Verlag, Heft 3, Sept. 1997, pp. 167-170⁺
11. Stremel, M., Carolus, T.: Experimental Investigation of Surface-Pressure Fluctuations on a Rotating Fan Blade.
12. AIAA-97-1592-CP, presented at the 3rd CEAS/AIAA Aeroacoustics Conference, Atlanta, 1997⁺⁺
13. Carolus, T.: Swept Blades in Low Pressure Fans: A Survey of Noise Reduction Mechanisms. AIAA-97-1591-CP presented at the 3rd CEAS/AIAA Aeroacoustics Conference, Atlanta, 1997⁺⁺

1998

14. Carolus, T.; Detert, K.: Study Programmes for Collaboration with Foreign Partner Universities. Global J. of Engng. Educ., Vol. 2, No. 2, 1998⁺
15. Carolus, T.; Schulze Dieckhoff, B.: Simulation des Betriebsverhaltens lufttechnischer Anlagen mit parallelgeschalteten Ventilatoren. Forschungsberichte aus dem Gebiet der Luft- und Trocknungstechnik, Heft 22, 1998

1999

16. Beiler, M., Carolus, T.: Computation and Measurement of the Flow in Axial Flow Fans with Skewed Blades. ASME J. of Turbomachinery, Jan. 1999, Vol. 121^{##}
17. Schulze Dieckhoff, B., Carolus, T.: Simulation of the Unsteady Interaction of Coupled Fans with Ventilating Systems. IMechE Conference Transactions 1999-1A, pp. 343-352, ISBN 1 86058 196 X, 1999^{##}
18. Stremel, M., Carolus, T.: Experimental Determination of the Fluctuating Pressure on a Rotating Fan Blade. Tagungsband zu 137th Meeting of the Acoustical Society of America and the 2nd Convention of the European Acoustics Association: Forum Acusticum. Berlin 1999⁺⁺
19. Schulze Dieckhoff, B.: Das instationäre Betriebsverhalten un geregelter und geregelter lufttechnischer Anlagen mit einem, zwei in Reihe oder zwei parallelgeschalteten Ventilatoren. VDI-Fortschrittberichte Nr. 365, Reihe 7: Strömungstechnik (zugl. Dr.-Ing. Diss. Univ.-GH Siegen), 1999
20. Carolus, T., Schulze Dieckhoff, B.: Schwingungen in lufttechnischen Anlagen. BWK - Brennstoff Wärme Kraft, Bd. 51 (1999), Nr. 10, pp. 50 - 52⁺

2000

21. Carolus, T., Schulze Dieckhoff, B.: Schwingungen in Ventilatoranlagen. HLH - Heizung Lüftung/Klima Haustechnik, Bd. 51 (2000) Nr.1, pp26 –32⁺
22. Schneider, M., Stremel, M., Carolus, T.: Tragflügelschall: Anwendung der Messung von Brooks, Pope und Marcolini auf Ventilatorlärm. Fortschritte der Akustik - DAGA 2000, Oldenburg⁺⁺
23. Basile, R., Carolus, T.: Numerical optimization of splitter blades in a centrifugal impeller. Proc. 8th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-8), Hawaii 2000^{##}
24. Carolus, T., McLaughlin, D.K., Basile, R.: Experimental investigation of the unsteady discharge flow field and the noise of a centrifugal fan impeller. Proc. 7th International Congress on Sound and Vibration, Garmisch-Partenkirchen 2000⁺⁺
25. Carolus, T., M. Schneider, M.: Review of noise prediction methods for axial flow fans. Internoise 2000, Nice 2000. ⁺⁺
26. Carolus, T., Stremel, M.: Sichelschaufeln bei Axialventilatoren. HLH Bd. 51 (2000), August, pp. 33 - 39⁺

2001

27. Schneider, M., Carolus, T.: Literaturüberblick über ausgewählte Verfahren zur Schallvorhersage bei Axialventilatoren. VDI-Berichte 1591, 2001, pp. 55 - 70⁺⁺
28. Basile, R., Carolus, T.: Einfluss von Zwischenschaufeln auf die aerodynamischen Eigenschaften von Radialventilatoren - Vergleich verschiedener numerischer Stromfeldberechnungsverfahren. VDI-Berichte 1591, 2001, pp. 221 - 236⁺⁺
29. Carolus, T.: Sichelschaufeln bei Axialventilatoren. VDI-Berichte 1591, 2001, pp. 443 - 458⁺⁺
30. Basile, R., Carolus, T.: Zwischenschaufeln in langsamläufigen Radialventilatorlaufräder, Abschlussbericht Nr. F01 101 001 A zum AiF-Forschungsvorhaben Nr. 12310 N, März 2001

2002

31. Basile, R.: Aerodynamische Untersuchungen von Zwischenschaufeln in Laufrädern spezifisch langsamläufiger Radialventilatoren. VDI-Fortschrittberichte Nr. 424, Reihe 7: Strömungstechnik (zugl. Dr.-Ing. Diss. Univ.-GH Siegen), 2002

32. Schneider, M., Carolus, T.: Numerically determined boundary layer parameters employed in axial fan noise prediction models. Proc. 9th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-9), Honolulu, Hawaii⁺⁺⁺
33. Carolus, T., Stremel, M.: Blade surface pressure fluctuations and acoustic radiation from an axial fan rotor due to turbulent inflow. Proc. 9th International Symposium on Transport Phenomena and Dynamics of Rotating Machinery (ISROMAC-9), Honolulu, Hawaii⁺⁺⁺
34. Carolus, T., Stremel, M.: Blade surface pressure fluctuations and acoustic radiation from an axial fan rotor due to turbulent inflow. Acta Acustica united with ACUSTICA, Vol. 88(2002) 472 - 482[#]
35. Schneider, M., Carolus, T.: Berechnung des breitbandigen aeroakustischen Geräuschspektrums von Axialventilatorlaufrädern aus Stromfeldgrößen, Abschlussbericht Nr. F02-101/1 zum AiF-Forschungsvorhaben Nr. 12379 N/1, Okt. 2002
36. Bommers, L., Fricke, J., Grundmann, R. (Hrsg.): Ventilatoren; Beitrag: „Instationäres Betriebsverhalten“. 2. Auflage. Vulkan-Verlag, 2003
37. Vorländer, M., Schulz, D., Künzel, K., Költzsch, P., Fuder, G., Carolus, T.: Akustische Wellen und Felder; Beitrag: „Schallfelder in Rohren und Kanälen“. Herausgeber: Deutsche Gesellschaft für Akustik e.V. (DEGA) 2002

2003

38. Carolus, T.: Ventilatoren - Aerodynamischer Entwurf, Schallvorhersage, Konstruktion (Lehrbuch). B.G. Teubner-Verlag 2003
39. Schneider, M., Carolus, T.: Prognoseverfahren für den Breitbandlärm bei Axialventilatoren-Teil 1. HLH Bd. 54(2003) Nr. 4 pp. 40-43+
40. Schneider, M., Carolus, T.: Prognoseverfahren für den Breitbandlärm bei Axialventilatoren-Teil 2. HLH Bd. 54(2003) Nr. 5 pp. 28-32+
41. Carolus, T., Stremel, M.: Measurement of surface pressure fluctuations - a tool for identifying acoustic sources in fans. Proc, Fan Noise Symposium. CETIM Senlis, 2003⁺⁺⁺
42. Schneider, M., Carolus, T.: Calculation of broadband fan noise due to inflow turbulence employing noise prediction models. Proc. Fan Noise Symposium. CETIM Senlis, 2003⁺⁺⁺

2004

43. Reese, H., Kato, C., Carolus, T.: Large Eddy Simulation of a Low Pressure Axial Fan due to Highly Turbulent Inflow, 18th Computational Fluid Dynamic Symposium, JSFM, Dezember 2004, Tokyo, Japan⁺⁺
44. Pitsch, S.: Entwicklung von neuartigen offenen Windsystemen für Kirchenorgeln. Logos Verlag, Berlin, 2005 (zugl. Dr.-Ing. Diss. Univ. Siegen), ISBN 3-8325-0921-6

2005

45. Reese, H., Kato, C., Carolus, T.: Large Eddy Simulation of Acoustical Sources in a Low Pressure Axial-Flow Fan due to Highly Turbulent Inflow Conditions, Seisan Kenkyu, Vol . 57, No. 1, January 2005, Tokyo, Japan
46. Schneider, M., Carolus, T.: Turbulent Ingestion Noise form Axial Fans - Statistic Parameters of the Inflow and Noise Prediction. Proc. of the 12th Int. Congress on Sound and Vibration. Lissabon, 2005⁺⁺
47. Kato, C., Yamade, Y., Guo, Y., Miyazawa, M., Reese, H., Carolus, T., Wang, H., Takaishi, T., Yoshimura, S., Takano, Y.: Finite Element-based Large Eddy Simulation with Applications to Turbomachinery and Aeroacoustics Predictions. The Third International Conference on Vortex Flows and Vortex Models YOKOHAMA SYMPOSIA, YOKOHAMA, JAPAN, 21-23 Nov. 2005⁺⁺

2006

48. Reese, H., Kato, C., Carolus, T.: Large Eddy Simulation of Gust Noise Sources in a Low Pressure Axial Compressor," AIAA 2006-2576, 12th AIAA/CEAS Aeroacoustics Conference 2006, Cambridge, Massachusetts⁺⁺⁺
49. Fedala, D., Koudri, S., Rey, R., Carolus, T., Schneider, M.: Incident Turbulence Interaction Noise from an Axial Fan, AIAA 2006-2477, 12th AIAA/CEAS Aeroacoustics Conference 2006, Cambridge, Massachusetts⁺⁺⁺
50. Schneider, M.: Der Einfluss der Zuströmbedingungen auf das breitbandige Geräusch eines Axialventilators. Fortschritt-Berichte VDI Reihe 7: Strömungstechnik (zugl. Dr.-Ing. Diss. Univ. Siegen). Vol. Nr. 478. Düsseldorf: VDI Verlag GmbH, 2006. - ISBN 3-18-347807-2
51. Tianwongsombat, P., Carolus, T., Fritzen, C.-P., Richter, W.: Implementation of an Active Noise Control Loop to an Aerofoil in a Turbulent Air Stream, Beitrag zur Jahrestagung der Deutschen Akustischen Gesellschaft (DAGA '06), Braunschweig, 2006⁺⁺
52. Schneider, M., Carolus, T.: Turbulenzreiche Zuströmung bei einem Axialventilator: Experimentelle Untersuchung der Zuströmung und des Ventilatorgeräuschs, VDI-Berichte Nr. 1922, 2006⁺⁺
53. Wolfram, D.: Gehäuseloses Radialventilatorrad: Ermittlung der Austrittsgeschwindigkeit mit der dreidimensionalen Hitzdrahtanemometrie und Verlustanalyse, VDI-Berichte Nr. 1922, 2006⁺⁺
54. Reese, H., Kato, C., Carolus, T.: Carolus: Berechnung von akustischen Quellen eines Niederdruckaxialventilators bei hochturbulenter Zuströmung, VDI-Berichte Nr. 1922, 2006⁺⁺
55. H.-U. Banzhaf, T. Carolus, M. Schneider, U. Mauch, C. Kirschinger: Kombiniertes aerodynamisches und akustisches Kennfeld zur Auswahl wirkungsgrad- und geräuschoptimaler Axialventilatoren, VDI-Berichte Nr. 1922, 2006⁺⁺
56. Schneider, M., Carolus, T.: Experimentelle Untersuchung der Zuströmung und des Ventilatorgeräuschs, KI Luft- und Kältetechnik 10/2006, pp. 433-438⁺

2007

57. Carolus, T., Schneider, M., Reese, H.: Axial flow fan broad-band noise and prediction, Journal of Sound and Vibration 300 (2007) pp. 50-70 ^{##}
58. Reese, H., Kato, C., Carolus, T.: Large Eddy Simulation of Acoustical Sources in a Low Pressure Axial-Flow Fan Encountering Highly Turbulent Inflow; ASME Journal of Fluids Engineering, March 2007, Vol 129, pp. 263 -272^{##}
59. Wolfram, D., Carolus, T.: Detection and Analysis of Azimuthal Rotating Modes in a Centrifugal Impeller; Fan Noise 2007, Lyon (France), 17 -19- Sept. 2007⁺⁺
60. Reese, H., Carolus, T., Kato, C.: Numerical Prediction of the Aeroacoustic Sound Sources in a Low Pressure Axial Fan with Inflow Distortion; Fan Noise 2007, Lyon (France), 17 -19- Sept. 2007⁺⁺
61. Winkler, J., Temel, F., Carolus, T.: Concept, Design and Characterization of a Small Aeroacoustic Wind Tunnel Facility with Application to Fan Blade Measurements; Fan Noise 2007, Lyon (France), Sept. 2007⁺⁺

2008

62. Wolfram, D., Carolus, Th.: Detection and analysis of azimuthal modes in a centrifugal impeller. 12th Intern. Symp. on Transport Phenomena and Dynamics of Turbomachinery, Honolu, Hawaii, Feb, 17-22, 2008⁺⁺⁺
63. Reese, H., Carolus, T.: Axial Fan Noise: Towards Sound Prediction Based on Numerical Unsteady Flow Data - a Case Study. Euronoise Paris, 2008, pp. 4069-4074⁺⁺
64. Winkler, J., Moreau, S.: LES of the Trailing-Edge Flow and Noise of a NACA6512-63 Airfoil at Zero Angle of Attack. In *Proceedings of the Summer Program 2008*, Center for Turbulence Research: Stanford, California, 2008, p. 331-342[#] (<http://www.stanford.edu/group/ctr/Summer/SP08/index.html>)

2009

65. Wolfram, D., Carolus, T.: Akustik gehäuseloser Radialventilatoren - Akustische Quellen bei gehäuselosen Radialventilatoren: Analyse, Modelle, Minderung. Abschlussbericht des Instituts für Fluid- und Thermodynamik der Universität Siegen zum AiF-Vorhaben Nr. 14611 N/1, 27.01.2009
66. Winkler, J., Carolus, T.: Experimentelle Ermittlung der Auftriebs- und Schallpolaren von Ventilatorschaufelprofilen im Windkanal. Bericht Nr. F209 102 A des Instituts für Fluid- und Thermodynamik der Universität Siegen zum Vorhaben Nr. L 222 der Forschungsvereinigung für Luft- und Trocknungstechnik e. V. (FLT), Frankfurt/M, 27.4.2009
67. Wolfram, D., Carolus, T.: Detection and Analysis of Blade Tone Sources at Centrifugal Impellers without Casing. In 15th AIAA/CEAS Aeroacoustics Conference, AIAA-2009-3362. Miami, FL, 2009^{++#}
68. Winkler, J., Moreau, S., Carolus, T.: Large-Eddy Simulation and Trailing Edge Noise Prediction of an Airfoil with Boundary-Layer Tripping. In 15th AIAA/CEAS Aeroacoustics Conference, AIAA-2009-3197. Miami, FL, 2009^{++#}
69. Winkler, J., Carolus, T., Moreau, S.: Airfoil Trailing-Edge Blowing: Broadband Noise Prediction from Large-Eddy Simulation. In 15th AIAA/CEAS Aeroacoustics Conference, AIAA-2009-3200. Miami, FL, 2009^{++#}
70. Winkler, J., Carolus, T.: Concept, Design and Characterization of a Small Aeroacoustic Wind Tunnel Facility with Application to Airfoil Measurements; Noise Control Eng. J. 57 (4), July-Aug. 2009, pp. 370 - 383⁺⁺
71. Carolus, T.: Ventilatoren - Aerodynamischer Entwurf, Schallvorhersage, Konstruktion (Lehrbuch). 2. Auflage B.G. Teubner-Verlag 2009
72. Wolfram, D.: Analyse des Entstehungsmechanismus von Drehtönen bei gehäuselosen Radialventilatoren. Fortschritt-Bericht VDI Reihe 7 Nr. 496, VDI-Verlag, 2009 (zugl. Dr.-Ing. Diss. Univ. Siegen)
73. Winkler, J.; University of Siegen uses Gridgen for Turbo Research. FocalPoint Volume 13 Issue 3, Fall 2009

2010

74. Wolfram, D., Carolus, T.: Experimental and numerical investigation of the unsteady flow field and tone generation in an isolated centrifugal fan impeller. Journal of Sound and Vibration 329 (2010) 4380-4397^{++#}
75. Carolus, T., Winkler, J.: Ventilatorenlärm: Entstehungsmechanismen, Prognoseverfahren und Geräuschminderungsmaßnahmen. Zeitschrift für Lärmbekämpfung, Bd.5 (2010) Nr. 1, 6-15, Springer VDI Verlag⁺⁺
76. Kato, C., Carolus, T., Reese, H.: Simulation of Gust Noises in a Low Pressure Axial Fan. FocalPoint Volume 14 Issue 1, Spring 2010
77. Winkler, J., Carolus, T.: Schallentstehung bei Tragflügeln mit Hinterkantenausblasen. DAGA 2010, Berlin⁺⁺
78. Winkler, J., Moreau, S., Carolus, T.: Airfoil Trailing Edge Noise Prediction from Large-Eddy Simulation: Influence of Grid Resolution and Noise Model Formulation. AIAA 2010-3704^{++#}
79. Winkler, J., Carolus, T., Scheuerlein, J., Dinkelacker, F.: Trailing-Edge Blowing on Tandem Airfoils: Aerodynamic and Aeroacoustic Implications, AIAA 2010-3981^{++#}
80. Kohlhaas, M., Winkler, J., Carolus, T.: Aeroakustisches Potential des Hinterkantenausblasens bei Axialventilatoren. VDI-Berichte Nr. 2112, Düsseldorf 2010, pp. 139-150⁺⁺
81. Carolus, T., Starzmann, R.: Ein Entwurfsverfahren für Niederdruckaxialventilatoren mit integrierter Berechnung von Profilpolaren. VDI-Berichte Nr. 2112, Düsseldorf 2010, pp. 271-281⁺⁺

2011

82. Starzmann, R., Carolus, T., Tease, K., Arlitt, R.: Wells Turbine Rotors: A Comparison of the Predicted and Measured Aerodynamic Performance. 9th European Turbomachinery Conference, Istanbul 2011⁺⁺⁺
83. Gerhard, T., Kohlhaas, M., Carolus, T.: Numerische und experimentelle Untersuchung des Stromfelds in einem Axialventilator mit passivem Hinterkantenausblasen. DAGA 2011, Düsseldorf, 2011⁺⁺
84. Carolus, T., Starzmann, R.: An aerodynamic design methodology for low pressure axial fans with integrated airfoil polar prediction. Proceedings of the ASME Turbo Expo 2011, GT2011-45243, 2011⁺⁺⁺
85. Wolfram, D., Carolus, T.: Experimental and numerical investigation of the unsteady flow field and tone generation in an isolated centrifugal fan impeller. Proceedings of the ASME Turbo Expo 2011, GT2011-45244, 2011⁺⁺⁺
86. Winkler, J.: Carolus, Th. ; Moreau, S.: Effect of Trailing Edge Blowing Geometry on Broadband Noise Sources. 17th AIAA/CEAS Aeroacoustics Conference, AIAA-2011-2387. Portland, Oregon, 2011⁺⁺⁺
87. Winkler, J.: Investigation of Trailing-Edge Blowing on Airfoils for Turbomachinery Broadband Noise Reduction. Dr.-Ing. Dissertation, Universität Siegen, Juni 2011. Shaker-Verlag, Aachen. ISBN 978-3-8440-0350-5
88. Starzmann, R., Carolus, T.: Neuere Entwicklungen zur Wellsturbine. ANSYS Conference 2011, Stuttgart, 2011⁺⁺
89. Starzmann, R., Carolus, T., Tease, K., Arlitt, R.: Effect of design parameters on aero-acoustic and aerodynamic performance of wells turbines. Proceedings of the ASME 2011 30th International Conference on Ocean, Offshore and Arctic Engineering, OMAE2011-49127, 2011⁺⁺⁺
90. Starzmann, R., Moisel, C., Carolus, T., Tease, K., Arlitt, R.: Assessment Method of Sound Radiated by Cyclically Operating Wells Turbines. EWTEC 2011, Southampton, 2011⁺⁺⁺

2012

91. Winkler, J., Moreau, S., Carolus, T.: Airfoil Trailing-Edge Blowing: Broadband Noise Prediction from Large-Eddy Simulation, AIAA Journal Vol. 50, No. 2, February 2012, pp. 294 - 303⁺⁺
92. Kohlhaas, M., Carolus, T.: Trailing Edge Blowing for Reduction of Rotor-Stator Interaction Noise: Criteria, Design and Measurements. ISROMAC-14, 2012, Honolulu, USA⁺⁺⁺
93. Starzmann, R., Carolus, T., Tease, K., Arlitt, R.: Aero-Acoustic Performance Prediction of Wells Turbines. ISROMAC-14, 2012, Honolulu, USA⁺⁺⁺
94. Carolus, T. Aeroacoustics of Fluid Flow Machinery: Experimental Techniques for Noise Characterization and Source Detection. Intern. Conference on Noise and Vibration: Emerging Methods. (NOVEM). Sorrento, Italy, 2012 (also Keynote lecture) ⁺⁺
95. Carolus, T.: Noise Proves Nothing - Sources of Fan Noise and Their Prediction. Fan2012, Senlis, France, 2012 (Keynote lecture) ⁺⁺
96. Bamberger, K., Carolus, T.: Optimization of Axial Fans with Highly Swept Blades With Respect to Losses and Noise Reduction. Fan2012, Senlis, France, 2012⁺⁺⁺
97. Sturm, M., Carolus, T.: Tonal Fan Noise of an Isolated Axial Fan Rotor due to Inhomogeneous Coherent Structures at the Intake. Fan2012, Senlis, France, 2012⁺⁺⁺
98. Knirsch, S., Mandt, D., Mauch, U., Dochtermann, T., Carolus, T.: Locomotive Cooling Systems: A Multi-Domain System Strategy for Efficient and Quieter Cooling Units. Transport Research Arena– Europe 2012, Athens, see Procedia - Social and Behavioral Sciences (2012), Elsevier⁺⁺
99. Knirsch, S., Mandt, D., Mauch, U., Bamberger, K., Carolus, T.: Entwicklungsmethodik für leise und energieeffiziente Kühlanlagen und Fahrzeuge. Bahnakustik – Infrastruktur, Fahrzeuge, Betrieb, München 2012⁺⁺⁺

100. Starzmann, R., Zhu, T., Moisel, C., Carolus, T.: Aero-Acoustic Analysis of the Wells Turbine with Guide Vanes. ICOE 2012, Dublin^{++#}
101. Sturm, M., Carolus, T.: Tonal Fan Noise of an Isolated Axial Fan Rotor due to Inhomogeneous Coherent Structures at the Intake. *Noise Control Engr. J.* 60 (6), November-December 2012, pp. 699-706^{++#}
102. Bamberger, K., Carolus, T.: Optimization of Axial Fans With Highly Swept Blades with Respect to Losses and Noise Reduction. *Noise Control Engr. J.* 60 (6), November-December 2012, pp. 716-725^{++#}
103. Starzmann, R.: Aero-Acoustic Analysis of Wells Turbines for Ocean Wave Energy Conversion. *Fortschritt-Bericht VDI Reihe 7 Nr. 500*, VDI-Verlag, 2012 (zugl. Dr.-Ing. Diss. Univ. Siegen)

2013

104. Carolus, T.: *Ventilatoren - Aerodynamischer Entwurf, Schallvorhersage, Konstruktion (Lehrbuch)*. 3. Auflage. Springer Vieweg 2013
105. Starzmann, R., Carolus, Th.: Effect of Blade Skew Strategies on the Operating Range and Aeroacoustic Performance of the Wells Turbine. *ASME Journal of Turbomachinery* 136, 011003 (2013); doi: 10.1115/1.4025156^{++#}
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Patents

- EP 2245298B1 Rotor Blades for a Wells Turbine
- DE102008007616A1 [DE] Rotorblattgestaltung für eine Wellsturbine
- DE102007016805B4 Axialventilator, insbesondere für die Kühlanlage eines Schienenfahrzeuges
- DE000004105378A1 [DE] Axiallüfter [EN] Axial fan esp. for radiator of motor vehicle engine
- DE000003804217A1 [DE] Axiallüfter
- DE000003739737C2 [DE] Klappe zum Leiten der Luft, in einem Kanalabzweig der Luftführung
- DE000003739737A1 [DE] Vorrichtung zum Klimatisieren des Fahrgastraumes eines Kraftfahrzeuges
- DE000003343284C2 Strömungsarbeitsmaschine
- DE000003343284A1 Turbomaschine [EN] Turbine machine
- EP000000358731B1 AXIAL FAN
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- WO002009098007A3 ROTORBLATTGESTALTUNG FÜR EINE WELLSTURBINE [EN] ROTOR BLADE DESIGN ...
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