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# CV Alfred Moser

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## Education

Degrees: Dipl. Ing. ETH-Zurich, Mechanical Engineering, 1966,
Dr. sc. techn. (Ph.D.), ETH-Zurich, Aerodynamics, 1984.

Alfred Moser received his mechanical engineering diploma in 1966 from the ETH Zurich. Prof. Jakob Ackeret supervised his final thesis in aerodynamics.

Between 1979 and 1984, he worked with Prof. N. Rott on non-linear gas oscillations and their representation by area-preserving mappings to obtain the degree of Doctor of Technical Sciences of the Swiss Federal Institute of Technology, ETH, in Aerodynamics.

## Industry employment

Ten years of industry employment: Six years in the USA and four years in Switzerland:

Wind tunnel experiments of high-lift devices on wing sections and development of numerical programs to analyze turbulent two- and three-dimensional boundary layers on wings. McDonnell Douglas Corporation in St. Louis, MO, and Long Beach, CA, USA, 1969 – 1975.

Gas turbine design: Numerical simulation of transonic flow in turbine and compressor bladings. Gas Turbine Development Section of Sulzer Corp. in Winterthur, Switzerland, 1975 – 1979.

## University employment

In 1984 Alfred Moser joined the Energy Systems Laboratory of Prof. Peter Suter at the ETH Zurich. In 1996, after the retirement of Prof. Suter, he transferred with his whole *Air & Climate* group to Building Services of Prof. Klaus Daniels. This laboratory belongs to the Institute of Building Technology, Department of Architecture at the ETH. Until his retirement in June 2006, Moser was head of the *Air & Climate* group that specialized in the simulation and measurement of room airflow and heat transfer with the purpose of developing methods for the design of ventilation, comfort and contaminant control, and safety in buildings. He lectured at ETH on “Methods to Simulate Indoor Air Quality.“

## Main Research activities

*1967*

Post-graduate course, University of the Witwatersrand, Johannesburg, South Africa

- Design of super-sonic wind tunnel nozzle for a blow-down experimental facility.

*1968 –1969*

Institute of Aerodynamics of the Swiss Federal Institute of Technology, ETH, Zurich

- Design of a water tunnel for flow visualization to investigate flow around road vehicles or delta wings. Facility is still in use for student demonstrations.

*1969 –1975*

McDonnell Douglas Corporation in St. Louis, MO, and Long Beach, CA, USA

- Wind tunnel experiments of high-lift devices on wing sections,

– Development of numerical programs to analyze turbulent two- and three-dimensional boundary layers on wings.

*1975 –1979*

Gas Turbine Development Section of Sulzer Corp. in Winterthur, Switzerland.

– Gas turbine design: Numerical simulation of transonic flow through turbine and compressor bladings.

*1979 –1983*

Institute of Aerodynamics of the ETH. Ph. D. studies with Prof. N. Rott

– Research on non-linear gas oscillations and their representation by area-preserving mappings (Ph.D. project).

*1984 –1996*

Energy Systems Laboratory, Institute of Energy Technologies, with Prof. Peter Suter.

– Development of simulation programs for energy systems in buildings,
– Computational Fluid Dynamics of building airflow.
– International project manager (Operating Agent) of Annex 26, *Energy-Efficient Ventilation of Large Enclosures,* of the International Energy Agency, IEA, Energy Conservation in Buildings and Community Systems Program.
– Project manager (Operating Agent) of IEA Annex 20, *Air Flow Patterns within Buildings.*

*1996 –2006*

Laboratory of Building Services, Institute of Building Technologies, ETH Zurich

– Computational Fluid Dynamics of building airflow and heat transfer.
– Leader of a Working Group and Swiss national delegate of the COST Action G3 on *Industrial Ventilation.*
– Swiss national delegate of the COST Action C17 *Built Heritage: Fire Loss to Historic Buildings.*

*2007*

Start of *Science Services Alfred Moser*, an individually owned firm founded in April 2007.

## Invited lectures

Moser Alfred, "Houses for our children," - Invited. - Public Lectures for Sapporo citizens and conference delegates, Ventilation 2003, 7th International Symposium on Ventilation for Contaminant Control, Hokkaido University, Sapporo, Japan, August 2003.

Moser Alfred, How to keep cool with global warming? IAQVEC 2001, 4th Int. Conf. on IAQ, Ventilation & Energy Conservation, Changsha, China, October 2001.

## Handbook chapters as editor or author

Moser Alfred, Chapter editor and author of the Industrial Ventilation Design Guide Book, Handbook, ISBN 0-12-289676-9, Academic Press, San Diego, April 2001.

Moser Alfred, Chapter on "Buildings and Heat Transfer" in "International Encyclopedia of Heat and Mass Transfer," edited by G. F. Hewitt, G. L. Shires, Y. V. Polezhaev, pp. 118-122, CRC Press, LLC, ISBN 0-8493-9356-6, New York, USA, December 1997.

## Guest lecturer

Moser Alfred, academic guest at Tohoku University, lectures on: “Computational Fluid Dynamics for Building Environmental Engineering.” July 30 – September 30, 1999, Master Course. Sendai, Japan.

## Evaluation and mentor committees

Moser Alfred, member of the Board of Appointment: Senior lecturer in energy technology with specialty in buildings ventilations and heating systems, the University of Gävle, Division of Energy and Mechanical Engineering, HIG, Sweden, March 9, 2009, ref no 820/08.

Moser Alfred: Member of Mentor's Group for KK-Foundation, on "Energy and Indoor Climate," HGS, University of Gävle HIG, Sweden, December 2002, 2000, 1998.

Moser Alfred, appointed member of the Evaluation Committee: Professorship on Heat Transfer at the University of Gävle, HIG, Sweden, May 2000.

Moser Alfred, "Evaluation of the research activities within Indoor Environmental Technology at Aalborg University," A. Moser was elected member of the evaluation committee, Aalborg, Denmark, November 1995.

## External examiner or opponent for doctoral examination

Moser, A.: External Examiner (Opponent) for Patrik Rohdin, Energy efficiency and ventilation in Swedish industries, - barriers, simulation, and control strategy. Patrik Rohdin, Dissertation No. 1223. Doctoral Thesis, LIU, Linköping University, Linköping, Sweden. November 2008.

Moser, A.: External Examiner for Mathias Cehlin "CFD and whole field measuring techniques, absorption tomography infrared camera and a measuring screen", Ph. D. Thesis by Mathias Cehlin. – A. Moser was elected external "Opponent" by the KTH Research School, University of Gävle, The Royal Institute of Technology, KTH, Gävle, Sweden. May 2006.

Moser, A.: External Examiner for Klaus-Peter Neitzke, Dissertation. Inst. für Strömungsmechanik, Technische Universität Dresden, Deutschland, April 1999.

Moser, A.: External Examiner for Ms. June Richter Nielsen, Ph. D. Thesis. The University of Aalborg, AUC. Aalborg, Denmark, August 1998.

Moser, A.: External Examiner for Peter G. Schild. Ph. D. Thesis. – A. Moser was Opponent, Faculty of Mechanical Engineering, Norwegian University of Science and Technology, NTNU, Trondheim, Norway, March 1997.

Moser, A.: Korreferat für Nespor Vladislav. ETH Diss. 11060, Abteilung Erdwissenschaften XC, ETH Zürich, March 1995.

Moser, A.: External Examiner for Torsten V. Jacobsen, Ph. D. Thesis. – Faculty of Technology and Science, The University of Aalborg, Denmark, November 1993.

Moser, A.: External Examiner ("Opponent") for Yuguo Li. Ph. D. Thesis. Department of Mechanics, Applied Computational Fluid Dynamics, The Royal Institute of Technology, KTH, Stockholm, Sweden. October 1992.

## International project management

Alfred Moser appointed international project manager (Operating Agent) of Annex 26, "Energy-Efficient Ventilation of Large Enclosures," of the IEA Implementing Agreement on Energy Conservation in Buildings and Community Systems. With 12 participating Countries. International Energy Agency: April 1, 1992 – July 31, 1996.

Alfred Moser appointed international project manager (Operating Agent) of Annex 20, "Air Flow Patterns within Buildings," of the IEA Implementing Agreement on Energy Conservation in Buildings and Community Systems. With 13 participating Countries. International Energy Agency: May 1, 1988 – Oct. 31, 1991.

Alfred Moser, Local Coordinator of Ventilation 2009, the 9th International Conference on Industrial Ventilation, Clean Industrial Air Technology Systems for Improved Products and Healthy Environments, October 18-21, 2009, ETH Zurich, Switzerland, http://www.ventilation2009.ethz.ch/.

## Reviewer for professional Journals

ASHRAE HVAC&R Research,
Building & Environment,
Chemical Engineering Science,
Chemosphere,
Energy and Buildings, international journal,
Environment International,
IJV, International Journal of Ventilation,
INDOOR AIR, International Journal of Indoor Environment and Health,
International Journal of Energy & Buildings,
Progress in Computational Fluid Dynamics.

## Memberships

SHASE, the Society of Heating, Air-Conditioning and Sanitary Engineers of Japan, International Honorary Member, awarded May 19, 2009.

Arbeitsgruppe Ueberarbeitung SWKI-Richtlinie 96-2, Lüftungsanlagen in Gastwirtschaftsbetrieben, VA102-01, SWKI Zürich, 2005-2008.

ASHRAE, the American Society of Heating, Refrigerating and Air-Conditioning Engineers

AIAA, the American Institute of Aeronautics and Astronautics.

## Dissertations under the direction of Alfred Moser, ETH Zurich

Rusch Daniel, Turbulence model validation for fire simulation by CFD and experimental investigation of a hot jet in crossflow, Dissertation ETH Nr. 16966, Zürich, December 2006.

Barp Stefan, Numerical prediction of horizontal, thermally unstably stratified, turbulent wall flows by RANS modeling, Dissertation ETH Nr. 16016, Zürich, April 2005.

Moosberger-Kropf Sven, PV/T-Schiefer - Optimierung der Hinterlüftung und der Abwärmenutzung gebäudeintegrierter Photovoltaik, Dissertation ETH Nr. 15951, Zürich, April 2005.

Gubler Daniel, REEXS - Reinforced Exhaust System Optimization and Design, Dissertation ETH Nr. 14670, Zürich, June 2002.

Lengweiler, P. Modeling deposition and resuspension of particles on and from surfaces, Dissertation ETH Nr. 13734, Zürich, May 2000.

Scholzen F. “Bestimmung des dreidimensionalen Geschwindigkeitsfeldes in Räumen durch quantitative Strömungsvisualisierung,” Dissertation ETH Nr. 11963, Zürich, January 1997.

Off, F. “Numerische Kopplung von Strömung, Strahlung und Gebäudethermik,” Dissertation ETH Nr. 11805, Zürich, August 1996.

Yuan, X. “Wall Functions for Numerical Simulation of Natural Convection along Vertical Surfaces“, Dissertation ETH No. 11073, Zürich, March 1995.