

T. Salthammer - SCIENTIFIC LEADERSHIP PROFILE

I have received my Dr. rer. nat. in “Physical Chemistry” from the Technical University of Braunschweig in 1990. My supervisor was Herbert Dreeskamp. However, most of the experimental work on time-resolved fluorescence decay kinetics of PAH/metal complexes on a nanosecond time scale was performed with David Birch at the Department of Applied Physics at Strathclyde University in Glasgow. UK.

Then I have moved as a Post Doc to the Fraunhofer WKI, Wilhelm-Klauditz-Institut. Here I have designed and built a laboratory for gas chromatography – mass spectrometry in combination with thermal desorption. I have also studied the physical properties of chromophores for the determination of organic pollutants in the gas phase. Moreover, I have measured gaseous and particulate emissions in industrial exhaust fumes. During this phase I have published several papers on the analysis of formaldehyde, diisocyanates, PCBs, pentachlorophenol and PCDD/PCDF. In 1993 I was appointed as a section leader and in 1996 as head of the chemistry department at WKI. From January 2010 until October 2010 I was the acting director of WKI and since March 2011 I am the deputy director.

In 1996 I became a co-lecturer at the Technical University of Braunschweig and have started supervision of PhD and master students. In 1999 I have edited my first book on “Organic Indoor Air Pollutants” with WILEY-VCH. In the same year I became a lecturer at the Ostfalia - University of Applied Sciences Braunschweig/Wolfenbüttel and in 2003 I accepted a call as a full (W2) professor of “Indoor Hygiene”. Between 1996 and 2004 the Waseda University of Tokyo, Japan has invited me several times as a guest lecturer.

By the end of the last millennium I became interested in the interaction of volatile organic compounds with building materials and in the distribution of volatile and semi volatile organic compounds in different compartments (air, particles, dust) of the indoor environment. I have studied the release of phthalic acid esters and phosphorous organic flame retardants from building products in test chambers and have analysed the chemical composition of house dust. Our work on the release of phthalic acid esters from building products was one of the first to provide reliable data on the distribution of phthalates and human intake paths indoors. Our group has also studied the distribution and reactions of different flame retardants. Based on this work on SVOCs the University of Kuopio in Finland invited me as an external lecturer for “Advanced Environmental Chemistry – SVOCs in the Indoor Environment” in 2005.

Since 2001 I work in the field of airborne particles and dust in collaboration with Lidia Morawska from the International Laboratory for Air Quality and Health at Queensland University of Technology (QUT) in Brisbane. This collaboration is supported by different public organizations (the Federal Ministry of Education and Research via the German Aerospace Center, DAAD, etc...). From 2001 – 2006 I was a guest researcher at QUT and in 2007 QUT has appointed me as an adjunct professor. In 2003 I have published my second book on “Airborne Particles and Settled Dust in the Indoor Environment” with Lidia Morawska and WILEY-VCH. Our joint research currently has a strong focus on the emission of ultra fine particles from different sources. Our group has also investigated the phenomenon of “Black Magic Dust in Housings” and we have identified thermophoresis as one of its major causes.

In 2006-2007 I worked as Otto-Mønstedt professor at the Technical University of Denmark in Lyngby. Here I did research with Charles Weschler on the air/particle distribution of phthalates. We have measured and evaluated data to calculate phthalate exposure in dependence of gas/particle distribution coefficients and octanol/air coefficients. Furthermore I have published in the field of nanoparticle formation from terpene/ozone reactions under indoor related conditions together with Charles Weschler and Jorn Toftum.

Since 2004 my research has focused on the physical and chemical characterisation of natural, urban and engineered nanoparticles. I have studied the photocatalytic effect of nano titanium dioxide for the removal of air pollutants. In May 2007 I was appointed as a guest professor by the Tsinghua University of Beijing, China. Here I gave lectures on “General Indoor Chemistry” and “TiO₂ photocatalysis”. I am also interested in the impact of ambient air pollution on athletic activities.

In 2008 I have joined the Institute of Ecological and Sustainable at the Technical University of Braunschweig and have received my habilitation (state doctorate) from the Faculty of Life Sciences. The second edition of my book on “Organic Indoor Air Pollutants” (together with Erik Uhde) was published in September 2009. In December 2012 I was appointed as apl. Professor by TU Braunschweig.

I have inspired students in different parts of the world and have given input to their PhD or master thesis. To be specific, I have (or had) collaborations with TU Braunschweig, U Dresden, University of Kuopio, Technical University of Denmark in Lyngby, Queensland University of Technology in Brisbane, National University of Singapore, Waseda University in Tokyo, Virginia Tech in Blacksburg and Tsinghua University in Beijing. Most of my PhD students have done some experimental and/or theoretical work at universities in other countries, because I strongly support scientific student exchange. In return I have hosted many students and researchers from other countries at WKI.

One of my major motivations for this kind of research is interdisciplinarity. I am trained in Physical Chemistry but I work with other chemists, physicists, biologists, civil engineers, architects and medical doctors in a field between fundamental research, applied research and health related issues. In this way I contribute to the evaluation of indoor guidelines and recommendations in the indoor environment. As an example, I am the co-author of the German Government guideline for a better indoor air quality in schools (published 2008).

In 2002 I was elected as a member of the ISIAQ (International Society of Indoor Air Quality) Academy of Fellows. In 2008 I became the Secretary of the Academy, its Vice-president in 2011 and President in 2014. From 2003-2006 I worked in the Board of Directors of ISIAQ. In 2007 I was elected as a member of the Indoor Hygiene Commission (IRK) of the German Federal Environment Agency. Currently I serve as chairman of the IRK. I have received the Fellowship Award from the Dr. Michael-Rosenthal-Foundation in 2005. I have also received an Award of Excellence from the Fraunhofer Society in 2007.

The Fraunhofer Society is a public service non-profit organisation. My department “Material Analysis and Indoor Chemistry” has an annual budget of about four million Euros per year. We receive a partial payment of about 25% from the German Government. This means that I am responsible for an external project funding of more than three million Euros per year. We apply for grants and projects from German Ministries, the EU, Industry and other funding organisations like foundations.

T. Salthammer - CURRICULUM VITAE (extended)

Name:	Salthammer
First name:	Tunga
05/80	High School Diploma
09/80 – 07/85	Study of „Chemistry“, Technical University Braunschweig
05/86	Degree in Chemistry (Dipl. Chem.)
06/86 – 09/87	Study of „Computer Sciences“ at TU Braunschweig
11/88 – 06/89	Research at Physics Department, University of Strathclyde, Glasgow, Scotland
05/90	Dr.rer.nat. in „Physical Chemistry“, Technical University Braunschweig
08/90	Scientific Coworker (Post Doc) at the Fraunhofer Wilhelm-Klauditz-Institute (WKI) in Braunschweig
05/93	Head of Working Group „Environmental Chemistry and Analytics“ at WKI
since 93	Member of ISIAQ
since 07/95	Head of Department „Material Analysis and Indoor Chemistry“ at WKI
09/99 – 02/03	Lectureship for „Indoor Hygiene“ at the University of Applied Sciences in Braunschweig/Wolfenbüttel
since 01/01	Guest Researcher at Queensland University of Technology (QUT), Brisbane, Australia
since 07/02	Elected member of the International Academy of Indoor Sciences (IAIAS)
03/03 – 08/09	W2-Professor of Indoor Hygiene, Ostfalia - University of Applied Sciences Braunschweig/Wolfenbüttel
12/03 – 06/06	Member of the Board of Directors of the International Society of Indoor Air Quality and Climate (ISIAQ)
09/04 – 09/07	Sworn technical expert for indoor pollutants of the German Chamber of Commerce and Industry
01/06 – 12/07	Otto-Monstedt Professor at the Technical University of Denmark in Lyngby
since 6/06	Member of the “Indoor Air Hygiene Commission” of the German Federal Environment Agency
05/07	Guest Professor, Tsinghua University, Beijing, China.
since 09/07	Adjunct Professor at Queensland University of Technology (QUT), Brisbane, Australia
06/08	State Doctorate (Habilitation) from the Faculty of Life Sciences at the Technical University of Braunschweig
08/08 – 06/11	Secretary of the ISIAQ Academy of Fellows
01/10 – 10/10	Acting Director of WKI
since 03/11	Deputy Director of WKI
07/11 – 07/14	Vice-President of the ISIAQ Academy of Fellows
since 12/12	apl. Professor at the Technical University of Braunschweig
07/14 – 07/16	President of the ISIAQ Academy of Fellows

VISITS:

11/88 – 06/89	Guest Researcher Department of Applied Physics, University of Strathclyde in Glasgow, Scotland
02/00	Visiting Scientist, CSIRO, Melbourne, Australia
05/07	Visiting Professor, Tsinghua University, Beijing, China
01/06 – 12/07	Otto-Moensted Visiting Professor, International Centre for Indoor Environment and Energy, Technical University of Denmark, Lyngby
since 9/2001	International Laboratory for Air Quality and Health (ILAQH), Queensland University of Technology, Brisbane, Australia Annual 4 - 6 week stay at QUT (except 2003, 2005, 2007)

SCIENTIFIC JOURNALS - MEMBERSHIP TO EDITORIAL BOARDS:

- Atmospheric Environment (Member of the Editorial Board)
- CLEAN – Soil, Air, Water (Topical Editor until 31.12.2014)
- INDOOR AIR (Associate Editor)

Reviewer for about 20 scientific journals.

NATIONAL and INTERNATIONAL COMMITTEES:

- Commission on Air Pollution Prevention of VDI and DIN-Working Group 4/4/11: Indoor Air Pollution Measurement.
- Indoor Air Hygiene Commission of the German Federal Environment Agency (Chairman).
- Reviewer for the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (FORMAS) (2012-2015).
- Member of the BMU/VCI Body of Experts for population based human biomonitoring.

AWARDS and HONORS:

- "Emissions from the combustion of wood treated with organic and inorganic preservatives". The International Research Group on Wood Preservation - Ron Cockcroft Award, 1994.
- "Flame retardants in the indoor environment. Part 4: classification of experimental data from house dust, indoor air and chamber tests". Best Poster Award in the Category Best Overall Poster, INDOOR AIR 2002, Monterey, CA.
- "Plastics Additives in the Indoor Environment". Fellowship Award, Dr. Michael Rosenthal Foundation, 2003.
- Fraunhofer Award of Excellence, 2007.
- Atmospheric Environment Top Reviewer in 2009
- Atmospheric Environment Certificate of Excellence in Reviewing 2012
- Best Conference Paper Award, IEEE International Conference on Nano/Micro Engineered and Molecular Systems, Suzhou, China 2013 (Authors: H.S. Wasisto, S. Merzsch, A. Stranz, A. Waag, E. Uhde, T. Salthammer, E. Peiner).

INVITED PLENARIES and KEY NOTES

European Aerosol Conference	Milano, 2015
International Conference on Indoor Air Quality and Climate	Hong Kong, 2014
2 nd International Conference on Air Pollution and Control	Antalya, 2011
Indoor Air Quality – A Healthy Indoor Environment	Berlin, 2009
Exposure and Health in a Global Environment	Pasadena, 2008
International Conference on Indoor Air Quality and Climate	Copenhagen, 2008
Indoor Air Chemical Pollution Control	Tsinghua University, Beijing, 2007
Healthy Buildings Conference	Lisbon, 2006
Indoor Chemistry and Health	Santa Cruz, CA, 2004

ORGANISATION of INTERNATIONAL CONFERENCES

Indoor Air 2016	Ghent	Organizing Committee
Indoor Air 2014	Hong Kong	International Scientific Advisor
Healthy Buildings 2012	Brisbane	Chair of the Program Committee
Indoor Air 2011	Austin	International Scientific Advisor
3 rd Int. Conf. on Built Environment and Public Health	Guilin	International Scientific Advisor
Healthy Buildings 2009	Syracuse	International Scientific Advisor
Indoor Air 2008	Copenhagen	International Scientific Advisor
Healthy Buildings 2006	Lisbon	International Scientific Advisor
Indoor Air 2005	Beijing	International Scientific Advisor
Healthy Buildings 2003	Singapore	International Scientific Advisor

RECENT RESEARCH PROJECTS

- Removal of organic pollutants by TiO₂ photocatalysis (2007-2014), Industry.
- Release of ultrafine particles from electronic devices (2008-2015), Industry.
- Human intake and uptake of ultrafine particles from electronic devices (2011-2013), Industry.
- Indoor exposure to mercury from broken CFLs (2011), Federal Environment Agency.
- Strategies for a governmental program to improve indoor air quality (2011-2013), Federal Environment Agency.
- Impact of combustion sources on indoor air quality (2013-2014).
- Sensory evaluation of building products for indoor use (2013-2016) WKI, iVTH, Industry.
- Indoor air quality information platform and database for non-expert and expert users in the European region (2014-2016), Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB), in collaboration with ILAQH at QUT Brisbane.
- Release of VVOCs from building products (2015-2017)