

Curriculum Vitae

Prof. Dr. Hartmut Herrmann



Education & Employment

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| 1982 - 1990 | Study of Chemistry Georg-August University of Göttingen |
| 1990 | Ph.D. in Physical Chemistry in Göttingen |
| 1990 - 1992 | Postdoc, Institute of Physical Chemistry and Environmental Engineering Science, University of Hannover |
| 1992 – 1993 | Postdoc (NATO/DAAD-grant) as Visiting Associate at the California Institute of Technology, Pasadena, CA, USA |
| 1993 - 1998 | Research assistant (C1), Institute of Physical and Theoretical Chemistry at University in Essen. |
| 1998 | Habilitation, Venia Legendi in Physical Chemistry |
| since 1998 | Professor of Atmospheric Chemistry at the University of Leipzig, Head of the chemistry department at the Leibniz Institut für Troposphärenforschung (IfT) |

Research Expertise/Activities in Research:

The department of chemistry of the Leibniz-Institut für Troposphärenforschung, headed by Prof. Herrmann is active in the three research areas (i) Field measurements, analytics and process studies, (ii) Laboratory experiments and (iii) multiphase modelling. The department of chemistry works on a number of projects in the area of field measurements, chemical analysis and process studies. Apart from the directly funded projects, there are a number of IfT internal projects and collaborative projects within Europe, especially chemical analysis of particles, the development of particle measurement techniques for micro- and nanoparticles with emphasis on the elucidation of particle chemical composition.

In the laboratory experiments section of the group two working areas exist. One is the investigation of heterogeneous and gas phase reactions with emphasis on reactions where micro- and nanoparticles are formed or modified. A variety of flow tubes, reaction chambers and phase transfer experiments is deployed here. In the second area homogeneous aqueous phase processes are also studied by spectroscopic and laser-based techniques. Such studies are of relevance for all atmospheric particles dispersed in air which contain liquid water establishing the medium for chemical particle modification.

Multiphase modelling in the IfT chemistry department is performed in close collaboration with the IfT department of modelling for the implementation and study of chemical mechanisms which are not treated in current models. Based on laboratory experiments, different application (clouds or aerosol chemistry) modules are developed for the further improvement of higher scale models. All mechanisms, modules, extensions and comments can be found at the CAPRAM (Chemical Aqueous phase Radical Mechanism) homepage. The aqueous phase experimental and modelling work is heavily based on Prof. Herrmann's activities at the Universities of Göttingen, Hannover and Essen.

List of Publications (most important publications/ publications of the last 5 years):

Herrmann H., Ervens B., Jacobi H. W., Wolke R., Nowacki P., Zellner R., CAPRAM2.3: A chemical aqueous phase radical mechanism for tropospheric chemistry, *J. Atmos. Chem.* 36, 231-284 (2000)

Herrmann H., Ervens B., Weise D., Sulfur chemistry in clouds', in Newsletter of the International Global Atmospheric Chemistry Project (IGAC News) 23, 6-10 (2001)

Schütze M., Herrmann H., Determination of phase transfer parameters for the uptake of HNO₃, N₂O₅ and O₃ on single aqueous drops, *PCCP* 4, 60-67 (2001)

Schütze M., Herrmann H., Determination of phase transfer parameters for the uptake of OHNO₃, N₂O₅ and O₃ on single aqueous drops, *PCCP* 4, 60-67 (2002)

Umschlag T., Zellner R., Herrmann H., Laser-based studies of NO₃ radical reactions with selected aromatic compounds in aqueous solution, *PCCP* 4, 2975-2982 (2002)

Ervens B., Gligorovski S., Herrmann H., Temperature-dependent rate constants for hydroxyl radical reactions with organic compounds in aqueous solutions, *PCCP* 5, 1811-1824 (2003)

Herrmann H., Kinetics of aqueous phase reactions relevant for atmospheric chemistry, *Chemical Reviews* 103, 4691-4716 (2003)

Herrmann H., Majdik Z.-T., Ervens B., Weise D., Halogen production from aqueous tropospheric particles, *Chemosphere* 52, 485-502 (2003)

Iinuma Y., Herrmann H., Method development for the analysis of particle phase substituted methoxy phenols and aromatic acids from biomass burning using capillary electrophoresis/electrospray ionization mass spectrometry (CE/ESI-MS), *J. Chromatogr. A* 1018, 105-115 (2003)

Iinuma Y., Böge O., Gnauk T., Herrmann H., Aerosol-chamber study of the α -pinene/O₃ reaction: Influence of particle acidity on aerosol yields and products, *Atmos. Environ.* 38, 761-773 (2004)

Herrmann, H. (Editor), FEBUKO and MODMEP: A Combined Study of Aerosol-Cloud Interaction by Field Experiments and Model Development, *Atmos. Environ.* 39 (Special Issue 23-24), 4167-4418 (July-August 2005)