

## **Birgit Wehner:**

### **CONTACT:**

Dr. Birgit Wehner  
Research Scientist  
Leibniz Institute for Tropospheric Research  
Permoserstr. 15  
04318 Leipzig, Germany

### **EMAIL:**

birgit@tropos.de

### **PHONE:**

+49-341-235-2841

### **FAX:**

+49-341-235-2361



### **CURRICULUM VITAE**

1990 –1996	Diploma student at Institute for Meteorology and Climatology, University of Hannover, Germany
1996 – 2000	Ph.D. student at the Institute for Tropospheric Research Leipzig, Germany Focus: Measurement of aerosol number size distributions in urban areas Title of PhD thesis ‘Particle formation in the urban atmosphere’, June 2000
From June 2000	Research scientist at the Institute for Tropospheric Research Leipzig, Germany
Since 2007	Co-Chair of the Working Group Atmospheric Aerosols within the EAA (European Aerosol Assembly)
Since 2008	Member of the GAeF Board (Gesellschaft für Aerosolforschung)

### **Involved in the following projects (amongst others)**

- Volatile behaviour of submicrometer particles in the urban air and vehicle exhaust
- Transformation of particulate vehicle emissions and its precursors within the exhaust plume
- Characterization of the Number and Chemical Size Distribution as well as Hygroscopicity of Fine and Ultrafine Particles in Beijing, China
- New-particle formation events in a continental boundary layer during the SATURN experiment
- Physical and chemical characterization of marine aerosols on Crete, Greece

- Mixing state of non-volatile particle fraction in heavy polluted regions in China using volatility technique
- Development of a new device to measure ultrafine particles in ambient air within the project UFIPOLNET
- Development and application of an aerosol size spectrometer for the helicopter-borne measurement platform ACTOS

### Publications:

- Bond, T. C., M. Bussemer, B. Wehner, S. Keller, R. J. Charlson, and J. Heintzenberg, Light absorption by primary particle emissions from a lignite burning plant, *Environmental Science and Technology*, **33**, 3887-3891, 1999.
- Wehner, B., T.C. Bond, W. Birmili, M. Bussemer, J. Heintzenberg, A. Wiedensohler, and R. J. Charlson, Climate-relevant particulate emission characteristics of a coal fired heating plant, *Environmental Science and Technology*, **33**, 3881-3886, 1999.
- Wehner, B., A. Wiedensohler, and J. Heintzenberg, Submicrometer aerosol size distributions and mass concentration of the Millennium fireworks 2000 in Leipzig, Germany, *Journal of Aerosol Science*, **31**, 1489-1493, 2000.
- Dahmann, D., G. Riediger, J. Schlatter, A. Wiedensohler, S. Carli, A. Graff, M. Grosser, M. Hojgr, H.-G. Horn, L. Jing, U. Matter, C. Monz, T. Mosimann, H. Stein, B. Wehner, and U. Wieser, Intercomparison of mobility particle sizers (MPS), *Gefahrstoffe, Reinhaltung der Luft*, **61**, 423-428, 2001.
- Wehner, B., W. Birmili, T. Gnauk, and A. Wiedensohler, Particle number size distributions in a street canyon and their transformation into the urban background: Measurements and a simple model study, *Atmospheric Environment*, **36**, 2215-2223, 2002.
- Wehner, B., S. Philippin, and A. Wiedensohler, Design and calibration of an improved thermodenuder to study the volatility fraction of aerosol particles, *Journal of Aerosol Science*, **33**, 1087-1093, 2002.
- Wiedensohler, A., B. Wehner, and W. Birmili, Aerosol number concentration and size distributions at mountain-rural, urban-influenced, and urban- background sites in Germany, *Journal of Aerosol Medicine*, **15**, 237-243, 2002.
- Franck, U., O. Herbarth, B. Wehner, A. Wiedensohler, and M. Manjarrez, How do the indoor distribution of airborne submicron and ultrafine particles in the absence of significant indoor sources depend on outdoor distributions?, *Indoor Air*, **13**, 174-181, 2003.
- Heintzenberg, J., T. Tuch, B. Wehner, A. Wiedensohler, H. Wex, A. Ansmann, I. Mattis, D. Müller, M. Wendisch, S. Eckhardt, and A. Stohl, Arctic haze over Central Europe, *Tellus B*, **55**, 796-807, 2003.
- Stratmann, F., H. Siebert, G. Spindler, B. Wehner, D. Althausen, J. Heintzenberg, O. Hellmuth, R. Rinke, U. Schmieder, C. Seidel, T. Tuch, U. Uhrner, A. Wiedensohler, U. Wandinger, M. Wendisch, D. Schell, and A. Stohl, New-particle formation events in a continental boundary layer: First results from the SATURN experiment, *Atmospheric Chemistry and Physics*, **3**, 1445-1459, 2003.
- Tuch, T., B. Wehner, M. Pitz, J. Cyrus, J. Heinrich, W.G. Kreyling, H.E. Wichmann, and A. Wiedensohler, Long-term measurements of size-segregated ambient aerosol in two German cities located 100 km apart, *Atmospheric Environment*, **37**, 4687-4700, 2003.

- Wehner, B., and A. Wiedensohler, Long term measurements of submicrometer urban aerosols: Statistical analysis for correlations with meteorological conditions and trace gases, *Atmospheric Chemistry and Physics*, **3**, 867-879, 2003.
- Müller, D., I. Mattis, A. Ansmann, B. Wehner, D. Althausen, U. Wandinger, and O. Dubovik, Closure study on optical and microphysical properties of an urban/arctic haze plume observed with Raman lidar and sun photometer, *Journal of Geophysical Research (D)*, **109**, D13206, doi:10.1029/2003JD004200, 2004.
- Siebert, H., F. Stratmann, and B. Wehner, First observations of increased ultrafine particle number concentrations near the inversion of a continental planetary boundary layer and its relation to ground-based measurements, *Geophysical Research Letters*, **31**, L09102, doi: 10.1029/2003GL019086, 2004.
- van Dingenen, R., F. Raes, J.-P. Putaud, U. Baltensperger, A. Charron, M.-C. Facchini, S. Decesari, S. Fuzzi, R. Gehrig, H.-C. Hansson, R.M. Harrison, C. Hüglin, A.M. Jones, P. Laj, G. Lorbeer, W. Maenhaut, F. Palmgren, X. Querol, S. Rodriguez, J. Schneider, H. ten Brink, P. Tunved, K. Tørseth, B. Wehner, E. Weingartner, A. Wiedensohler, and P. Wählin, A European aerosol phenomenology 1: Physical characteristics of particulate matter at kerbside, urban, rural and background sites in Europe, *Atmospheric Environment*, **38**, 2561-2577, 2004.
- Wehner, B., S. Philippin, A. Wiedensohler, U. Scheer, and R. Vogt, Variability of non-volatile fractions of atmospheric aerosol particles with traffic influence, *Atmospheric Environment*, **38**, 6081-6090, 2004.
- Wehner, B., A. Wiedensohler, T. M. Tuch, Z. J. Wu, M. Hu, J. Slanina, C. S. Kiang, Variability of the aerosol number size distribution in Beijing, China: New particle formation, dust storms, and high continental background, *Geophys. Res. Lett.*, **31**, L22108, doi:10.1029/2004GL021596, 2004.
- Scheer, V., U. Kirchner, R. Casati, R. Vogt, B. Wehner, S. Philippin, A. Wiedensohler, N. Hock, J. Schneider, S. Weimer, S. Borrmann, Composition of semi-volatile particles from diesel exhaust, *SAE 2005-01-0197*, 2005.
- Wehner, B., T. Petäjä, M. Boy, C. Engler, W. Birmili, T. Tuch, A. Wiedensohler, M. Kulmala, The contribution of sulfuric acid and non-volatile compounds on the growth of freshly formed atmospheric aerosols, *Geophys. Res. Lett.*, **32**, doi:10.1029/2005GL023827, 2005.
- Schnaiter, M., C. Linke, O. Möhler, K.-H. Naumann, H. Saathoff, R. Wagner, U. Schurath, B. Wehner, Absorption Amplification of Black Carbon Internally Mixed with Secondary Organic Aerosol, *J. Geophys. Res.*, **110**, doi: 10.1029/2005JD006046, 2005.
- Lammel, G., T. Engelhardt, A. Leip, C. Neusüß, A. Röhl, B. Wehner, A. Wiedensohler, P. Wieser, Transformation of Aerosol Chemical Properties due to Transport Over a City, *Journal of Atmospheric Chemistry*, **51**, 95 – 117, 2005.
- Rose, D., B. Wehner, M. Ketzler, C. Engler, J. Voigtländer, T. Tuch, and A. Wiedensohler, Atmospheric number size distributions of soot particles and estimation of emission factors, *Atmospheric Chemistry and Physics*, **6**, 1021-1031, 2005.
- Heintzenberg, J., C. Leck, W. Birmili, B. Wehner, M. Tjernström, and A. Wiedensohler, Aerosol number-size distributions during clear and fog periods in the summer high Arctic: 1991, 1996, and 2001, *Tellus B*, **58**(1), 41-50, 2006.
- Tuch, T. M., O. Herbarth, U. Franck, A. Peters, B. Wehner, A. Wiedensohler, J. Heintzenberg, Weak correlation of ultrafine aerosol particle concentrations < 800 nm between two sites within one city, *Journal of Exposure Analysis and Environmental Epidemiology*, doi:10.1038/sj.jes.500469, 2006.

- Laakso, L., I.K. Koponen, P. Mönkkönen, M. Kulmala, V.-M. Kerminen, B. Wehner, A. Wiedensohler, Z. Wu, M. Hu, Aerosol particles in the developing world; a comparison between New Delhi in India and Beijing in China, *Water, Air, & Soil Pollution*, May 2006, DOI 10.1007/s11270-005-9018-5, 1 - 16, 2006.
- Bond, T., Wehner, B., Plewka, A., Wiedensohler, A., Heintzenberg, J., Charlson, R.J., 2006. Climate Relevant Properties of primary Particulate Emissions from Oil and Natural Gas Combustion. *Atmos. Environ.*, **40**, 3574 - 3587.
- Plitzko, S., B. Wehner, A. Johnen, 2006. Qualitative und quantitative Erfassung von Schweissrauchen als Grundlage für die Bewertung der inneren Manganbelastung (Biomonitoring). *Gefahrstoffe, Reinhaltung der Luft*, **66**(1/2), 25 - 32.
- Heintzenberg, J., Wehner, B. and Birmili, W., 2007. "How to find bananas in the atmospheric aerosol": New approach for analyzing atmospheric nucleation and growth events. *Tellus B*, **59B**: 273 - 282.
- Hermann, M., B. Wehner, O. Bischof, H.-S. Han, T. Krinke, W. Liu, A. Zerrath and A. Wiedensohler (2007), Particle counting efficiencies of new TSI condensation particle counters, *J. Aerosol Sci*, **38**, 374 - 682.
- Uhrner, U., S. von Löwis, H. Vehkamäki, B. Wehner, S. Bräsel, M. Hermann, F. Stratmann, M. Kulmala, and A. Wiedensohler (2007), Dilution and Aerosol Dynamics within a Diesel Car Exhaust Plume – CFD Simulations of On-road Measurement Conditions, *Atmos. Environ.*, **41**: 7440 – 7461.
- Siebert, H., B. Wehner, O. Hellmuth, F. Stratmann, M. Boy, M. Kulmala (2007). New-Particle Formation in Connection with a Nocturnal Low-Level Jet: Observations and Modeling Results. *Geophys. Res. Lett.* **34**(16): L16822, doi:10.1029/2007GL029891.
- Wehner, B., H. Siebert, F. Stratmann, T. Tuch, A. Wiedensohler, T. Petäjä, M. Dal Maso, M. Kulmala (2007), Horizontal homogeneity and vertical extent of new particle formation events, *Tellus*, **59 B**, 362 - 371.
- Wu, Z., M. Hu, S. Liu, B. Wehner, S. Bauer, A. Wiedensohler, T. Petäjä, M. Dal Maso, M. Kulmala, (2007), New particle formation in the mega-city: Beijing, China, *J. Geophys. Res.*, **112**, doi:10.1029/2006JD007406.
- Engler, C., D. Rose, B. Wehner, A. Wiedensohler, E. Brüggemann, T. Gnauk, G. Spindler, T. Tuch, and W. Birmili (2007), Size distributions of non-volatile particle residuals ( $D_p < 800$  nm) at a rural site in Germany and relation to air mass origin, *Atmos. Chem. Phys.*, **7**, 5785 - 5802.
- Engelmann, R., U. Wandinger, A. Ansmann, D. Müller, E. Zeromskis, D. Althausen, and B. Wehner (2008), Lidar observations of the vertical aerosol flux in the planetary boundary layer, *J. Atmos. Oceanic Tech.*, **25**, 1296 – 1306.
- Shang, L., M. Hu, Z. Wu, B. Wehner, A. Wiedensohler, Y. Cheng (2008), Aerosol number size distribution and new particle formation at a rural/coastal site in Pearl River Delta (PRD) of China, *Atmos. Environ.*, **42**, 6247 – 6260.
- Boy, M., T. Karl, A. Turnipseed, R. L. Mauldin, E. Kosciuch, J. Greenberg, J. Rathbone, J. Smith, A. Held, and B. W. K. Barsanti, S. Bauer, A. Wiedensohler, B. Bonn, M. Kulmala, and A. Guenther (2008), New particle formation in the Front Range of the Colorado Rocky Mountains, *Atmos. Chem. Phys.*, **8**, 1577–1590.
- Birmili, W., Schepanski, K., Ansmann, A., Spindler, G., Tegen, I., Wehner, B., Nowak, A., Reimer, E., Mattis, I., Müller, K., Brüggemann, E., Gnauk, T., Herrmann, H., Wiedensohler, A., Althausen, D., Schladitz, A., Tuch, T., and Löschau, G. (2008), A case of extreme particulate matter concentrations over Central Europe caused by dust emitted over the southern Ukraine, *Atmos. Chem. Phys.*, **8**, 997-1016.

- Massling, A., M. Stock, T. Tuch, B. Wehner, Z. Wu, M. Hu (2008), Size-segregated determination of differently hygroscopic particle fractions and soluble volume size distributions of the urban submicrometer Beijing aerosol, *Atmos. Environ.*, accepted.
- Wu, Z., M. Hu, Pen, L., S. Liu, B. Wehner, A. Wiedensohler (2008), Particle number size distribution in the urban atmosphere in Beijing, China, *Atmos. Environ.*, 42, 7967-7980.
- Frey, A., Rose, D., Wehner, ., Müller, T., Cheng, Y., Wiedensohler, A., Virkkula, A. (2008), Application of the Volatility-TDMA Technique to Determine the Number Size Distribution and Mass Concentration of Less Volatile Particles, *Aerosol Sci. Technol.*, 42(DOI: 10.1080/02786820802339595): 817–828.
- Kalivitis, N., W. Birmili, M. Stock, B. Wehner, A. Massling, A. Wiedensohler, E. Gerasopoulos, and N. Mihalopoulos (2008), Particle size distributions in the Eastern Mediterranean troposphere, *Atmos. Chem. Phys.*, 8, 6729-6738, 2008.
- Wehner, B., W. Birmili, F. Ditas, Z. Wu, M. Hu, X. Liu, J. Mao, N. Sugimoto, and A. Wiedensohler (2008), Relationships between submicrometer particulate air pollution and air mass history in Beijing, China, *Atmos. Chem. Phys.* 8: 6155-6168.
- Hamed, A., A. Asmi, W. Birmili, J. Joutsensaari, B. Wehner, G. Spindler, A. Wiedensohler, K. E.J. Lehtinen, A. Laaksonen (2008). Production Rates of Secondary Organic Aerosols and CCN in Central Europe in View of Decreasing SO<sub>2</sub> Emissions between 1996 and 2006. *Env. Sci. Technol.* submitted.
- Wu, Z., L. Poulain, B. Wehner, A. Wiedensohler, H. Herrmann (2008), Characterization of the volatile fraction of laboratory-generated aerosol particles by Thermodesorption-Aerosol Mass Spectrometer coupling experiments, *J. Aerosol Sci.*, submitted.
- Wehner, B., U. Uhrner, S. von Löwis, M. Zallinger, A. Wiedensohler (2008). Aerosol number size distributions within the exhaust plume of a diesel and a gasoline passenger car under on-road conditions and determination of emission factors. *Atmos. Environ.* accepted.
- Helsper, C., H.-G. Horn, F. Schneider, B. Wehner, A. Wiedensohler (2008). Intercomparison of five mobility size spectrometers for measuring atmospheric submicrometer aerosol particles. *Gefahrstoffe - Reinhaltung der Luft* 68 (11/12 - Nov./Dez): 475 - 481.
- Cheng, Y. F., J. Heintzenberg, B. Wehner, Z. J. Wu, M. Hu, and J. T. Mao (2008). Traffic restrictions in Beijing during the Sino-African Summit 2006: Aerosol size distribution and visibility compared to long-term in situ observations. *Atmos. Chem. Phys.*, 8, 7583–7594, 2008.
- Hillemann, L., A. Zschoppe, C. Helsper, R. Caldow, and H. G. G. J. Sem, H.-G. Horn, B. Wehner, A. Wiedensohler (2008). A novel device to quantify ultrafine particles in urban air. *J. Aerosol Sci* submitted.
- Costabile, F., Birmili, W., Klose, S., Tuch, T., Wehner, B., Wiedensohler, A., Franck, U., König, K., and Sonntag, A.: Spatio-temporal variability and principal components of the particle number size distribution in an urban atmosphere, *Atmos. Chem. Phys. Discuss.*, 8, 18155-18217, 2008