

**13<sup>th</sup> ETH Conference on Combustion Generated Nanoparticles**  
**The Swiss Federal Office for the Environment is Patron of this Conference**  
 Zurich, 22<sup>nd</sup> – 24<sup>th</sup> June 2009

Conference Venue: Zürich ETH Zentrum, Main Building, HG F1  
 Welcome-Party Sunday 21<sup>st</sup> June, 7.00 pm, ETH Zentrum, Alumni Pavillon  
 Conference Registration Monday 22<sup>nd</sup> June 8.00 am - see [www.nanoparticles.ethz.ch](http://www.nanoparticles.ethz.ch)

## Agenda of Presentations

### Monday 22<sup>nd</sup> June 2009

<b>Welcome and Key-Lectures</b>	<b>09.00 – 09.20</b>
Boulouchos K. / ETH, Switzerland <i>Welcome</i>	
Kasper M. / Matter Engineering, Switzerland <i>Housekeeping Announcements</i>	
<b>Session 1: Climate</b>	<b>09.20 – 10.20</b>
Chairman: U. Baltensperger	
Jacobson M./ Stanford University, U.S.A.	<b>Key-Lecture</b>
<i>The global and regional climate and air-pollution-health effects of fossil fuel versus biofuel soot</i>	
Gysel M. / PSI Villigen Switzerland <i>Is black carbon internally or externally mixed? An experimental answer from recent laboratory and field experiments</i>	
<b>COFFEE BREAK</b>	<b>10.20 – 10.50</b>
<b>Session 2: Ambient Air</b>	<b>10.50 – 12.10</b>
Chairman: H. Burtscher	
Chirico R. / PSI Villigen Switzerland <i>Primary organic aerosol and secondary aerosol formation potential from a Euro 3 diesel passenger car</i>	
Mohr C. / PSI Villigen Switzerland <i>Investigation of sources of ambient submicron aerosol using AMS mobile and stationary data</i>	
Morin J.P. / Université de Rouen France <i>The exposition of vehicle drivers to toxic air contaminants in french cities</i>	
Patel K.S. / Uni Raipur, India <i>Toxicants burning exposure in India</i>	
<b>LUNCH</b>	<b>12.10 – 13.30</b>

<b>Session 3: Legislation</b>	<b>13.30 – 15.20</b>
Chairman: M. Kasper	
Steininger N. / EC, DG Enterprise <i>Automotive particulate emissions in European legislation: state of the art and developments to come</i>	<b>Key-Lecture</b>
Ayala A. / West Virginia University U.S.A. <i>Regeneration, volatile nanoparticles, toxicity and other research questions for diesel emission controls</i>	
Baarbé H. / VROM The Netherlands <i>Harmonized requirements for retrofit particulate traps</i>	
Andersson J./ Ricardo , U.K. <i>Update on the UN-ECE GRPE PMP inter-laboratory exercise for HD- engines, summer 2009</i>	
Lauer P. / MAN Germany <i>Actual changes in emission limits for ships</i>	

**COFFEE BREAK and****POSTER SESSION****15.20 – 16.20**

<b>Session 4: Fundamentals</b>	<b>16.20 – 18.00</b>
Chairman: C.-D. Schegk	
Arnold F. / Max-Planck-Institut Heidelberg, Germany <i>Nanoparticle formation in modern Diesel vehicle exhaust: new insights from on-line exhaust measurements of the key precursor gases sulphuric acid and di-carboxylic acids</i>	
Ochoterena R. / Chalmers University of Technology Göteborg, Sweden <i>Determination of soot size and concentration in combusting diesel sprays by optical methods under conditions similar to low temperature combustion (LTC)</i>	
Kirchen P. / ETHZ Switzerland <i>Investigation of the In-cylinder soot formation and oxidation during transient engine operation</i>	
Besch M.C. / West Virginia University USA <i>Investigation of morphology and volatility of ultrafine Diesel particulate matter using AFM</i>	
Heeb N. / EMPA Switzerland <i>Effects of low and high oxidation Diesel particulate filters on genotoxic exhaust constituents</i>	

**APERITIF and****EXHIBITION of Particle Filter Systems and New Instruments****18.00 – 19.30**

<b>DINNER PARTY invited by Sponsors</b>	<b>19.30</b>
<b>Dinner Speaker: Dr.T.Johnson / Corning U.S.A.</b>	

**Tuesday 23<sup>rd</sup> June 2009****Session 5A: Health Effects 08.30 – 09.40**

Chairman: P. Gehr

Kuenzli N. / University Basel Switzerland

*Chronic pulmonary effects of ambient nano-PM: Lessons learned from PM*

Latzin Ph. / Kinderspital, Inselspital Bern, Switzerland

*Air pollution during pregnancy and lung function in newborns: a birth cohort study*

Wick P. / EMPA Switzerland

*Placenta perfusion system: a human ex vivo model system to study the maternal – fetal barrier capacity for nanosized materials***COFFEE BREAK****09.40 – 10.10****Session 5B: Health Effects 10.10 – 11.30**

Chairman: P. Gehr

Stoeger T. / Helmholtz Zentrum München, Germany

*Deducing the inflammatory in vivo toxicity of combustion derived nanoparticles from in vitro data*

Ihalainen M. / University of Kuopio, Finland

*Biobased diesel fuels: particulate emissions and their inflammation response*

Verbeek R.P. / TNO The Netherlands

*Health Effects of Biofuels and Diesel Particulate Filter with a EURO-III Truck Engine*

Costantini M. / HEI USA

*HEI Critical Review of the Health Effects of Traffic-Related Air pollution***Panel Discussion on Health Effects 11.30 – 12.20**

Chairman: P. Gehr

**LUNCH****12.20 – 13.20**

**Session 6A: Emissions**

Chairman: D. Kittelson

**13.20 – 15.00**

Keller A. / Fachhochschule Nordwestschweiz Switzerland  
*Quantifying wood combustion emissions with on-line methods*

Heringa M.F. / PSI Villigen Switzerland  
*Investigation of primary and secondary organic aerosols from wood combustion with a high resolution time of flight aerosol mass spectrometer*

Lauber A. / Lucerne University Switzerland  
*Design and operation characteristics for electrostatic precipitators for wood combustion particles as function of combustion conditions*

Hagen D. / Missouri University, US  
*Impact of temperature on jet engine emissions tests using alternate fuels*

Wahl C. / DLR Germany  
*Online determination of "aircraft engine nanoparticle emission indices" at Zurich airport*

**COFFEE BREAK and****POSTER SESSION****15.00 – 16.00****Session 6B: Emissions**

Chairman: J. Czerwinski

**16.00 – 17.40**

Kittelson D. / University of Minnesota USA  
*Effect of organometallic fuel additives on nanoparticle emissions from a gasoline passenger car*

Leidenberger U. / BERG University Bayreuth, Germany  
*Influence of engine operating parameters on physical and chemical properties of emitted soot particles*

Niemi S. / University of Vaasa, Finland  
*Effects of several biofuels on the particle size distributions of an off-road diesel engine*

Surawski N. / Queensland University of Technology Brisbane, Australia  
*Particulate emissions from a dual-fuel compression ignition engine utilising ethanol fumigation*

Wang F. / Aarhus University, Denmark  
*Particulate emissions from road traffic under varying driving conditions*

**COFFEE BREAK****17.40 – 18.00****Session 7A: Particle Filter Systems****18.00 – 19.00**

Chairman: P. Kirchen

Reavell K. / Combustion UK  
*Performance evaluation of Diesel particulate filters during loading from clean*

Konstandopoulos A.G. / CERTH-CPERI, Greece  
*Soot deposits, catalyst coatings and ash layers: creation, function and fate in diesel particulate filters*

Müller, M. / Deutz Germany  
*Combined SCR - A novel approach for NOx and PM aftertreatment*

**Wednesday, 24<sup>th</sup> June 2009**

<b>Session 7B: Particle Filter Systems</b>	<b>08.10 – 09.50</b>
Chairman: A. Mayer	
Rogers T. / CDTI U.K. <i>Investigation and speciation of platinum group metals (PGM) found in Diesel particulate matter emitted from heavy duty engines employing various emission control technology</i>	
Elmøe T.D. / ETHZ Switzerland <i>Filtration of nanoparticles: evolution of cake-structure and pressure build-up</i>	
Khalek I.A. / SWRI USA <i>Particle emissions from 2007 HD on-highway Diesel engines during active regeneration of catalyzed DPF</i>	
Phuleria H. C. / University of Basel, Switzerland <i>Assessment of self-pollution of school buses with various retrofit technologies</i>	
Kadijk G. / TNO, The Netherlands <i>Experimental program with retrofit open particulate filters for diesel trucks</i>	

**COFFEE BREAK****09.50 – 10.10**

<b>Session 8: Instrumentation</b>	<b>10.10 – 12.30</b>
Chairman: O.Bischof	
Fierz M. / Fachhochschule Nordwestschweiz Switzerland <i>Miniature diffusion size classifiers for personal monitoring and sensor networks</i>	
Horn H.-G. / TSI Germany <i>Comparison of primary and secondary PNC-calibration with electrosprayed poly-alpha-olefin particles and flame-generated soot particles</i>	
Spielvogel J. / GRIMM Germany <i>Comparison of two condensation particle counters for automotive applications using a combustion soot generator</i>	
Mölter L. / PALAS Germany <i>Clear function test of the PMP testing method with Diesel-soot-similar nano-particles</i>	
Schlatter J. / METAS Switzerland <i>International comparison of national standards for particle counting and sizing</i>	
Kobashi N. / TOYOTA Motor Corporation Japan <i>Investigation of the particle number emissions measurement proposed by PMP</i>	
Tonegawa Yoshio / JARI Japan <i>Crosscheck of particle number counting systems and influence of particle species on particle concentration reduction factor</i>	

**Closing Remarks:****12.30****Prof.Dr.H.Burtscher / FHNW****Lunch****12.40 – 13.40**

**Focus-Event 2009 (1)**

13.40 – 15.20

**Erfahrungen bei der Nachrüstung von Baumaschinen und Straßenfahrzeugen mit Partikelfiltern**

Chairman: A.Mayer

D'Urbano G./ BAFU, Schweiz

*Situationsanalyse und gesetzliche Rahmenbedingungen in der Schweiz*

Eberwein B. / Berliner Verkehrsbetriebe BVG

*Partikelfilternachrüstung bei den Berliner Verkehrsbetrieben: seit 2000 über 1'200 Busse nachgerüstet*

Middendorf A. / HJS Fahrzeugtechnik, Menden, Deutschland

*14 Jahre Erfahrung im Feld mit passiven und aktiven Abgasreinigungssystemen zur Nachrüstung von Bussen und Lastkraftwagen***COFFEE BREAK**

15.20 – 15.50

**Focus-Event 2009 (2)**

15.50 – 17.20

**Erfahrungen bei der Nachrüstung von Traktoren, Kommunalfahrzeugen und Stationärmotoren mit Partikelfiltern**

Chairman: A.Mayer

Landis M. / Agroscope Reckenholz-Tännikon ART, Zürich

*Partikelfilternachrüstung von landwirtschaftlichen Fahrzeugen*

Wagner J. / Tiefbauamt, Kanton Zürich

*Erfahrungen mit der Partikelfilternachrüstung von Spezialfahrzeugen*

Kilchsperger R. / HUG ENGINEERING AG, Elsau

*Erfahrungen mit der Partikelfilternachrüstung bei stationären Motoren*

A.Mayer: Schlusswort

**End of the 13. ETH-NPC****17.30**

## POSTERS

1.	<b>Andersson J.</b>	<i>The Regulated and Unregulated Exhaust Emissions Performance of 5 Modern Motorcycles over Euro 3 &amp; WMTC Test Cycles</i>
2.	<b>Bergmann A.</b>	<i>Particle Number Counting - VPR Calibration – What are the Influences with Respect to Aerosol Materials Used?</i>
3.	<b>Büchel R.</b>	<i>Potassium in flame-made Pt/K/Al<sub>2</sub>O<sub>3</sub> NO<sub>x</sub> storage-reduction catalysts</i>
4.	<b>Bugarski A.</b>	<i>Metric for monitoring exposure to diesel aerosols</i>
5.	<b>Buonanno G.</b>	<i>Volatility of ultrafine particles emitted during cooking activities</i>
6.	<b>Czerwinski J.</b>	<i>The effect of (hydrous) ethanol on the emission and performances of 2- and 4-stroke scooters</i>
7.	<b>Doberer A.</b>	<i>Influence of operation type on particulate emissions from residential wood combustion</i>
8.	<b>Ducret-Stich R.</b>	<i>Exposure to highway traffic exhaust and its impact on childhood respiratory health in trans-Alpine highway valleys</i>
9.	<b>Geiser M.</b>	<i>Cellular responses after exposure of lung cell cultures to secondary organic aerosols</i>
10.	<b>Hauser G.</b>	<i>Measurements of Vehicles and Non-Road Applications</i>
11.	<b>Hirsch C.</b>	<i>Effects of single-walled carbon nanotubes on mixed neuro-glial cultures from chicken spinal cord and dorsal root ganglia</i>
12.	<b>Houle C..</b>	<i>Improving Heated Dilution Systems for Nanoparticles</i>
13.	<b>Hytönen K.</b>	<i>Soluble organic fraction of particle emissions and PAH emissions from a non-road engine fuelled with a sulphur free EN590 diesel fuel and biobased alternatives</i>
14.	<b>Johnson T.V.</b>	<i>Current Status and Future Directions/Opportunities in Diesel Particulate Control</i>
15.	<b>Kalberer M.</b>	<i>A new exposure system for an efficient and controlled deposition of aerosol particles onto cell cultures</i>
16.	<b>Kasper M.</b>	<i>Particle Number Exhaust Emission Measurement with Mobile Units</i>
17.	<b>Kasper M.</b>	<i>Nanofiltration for Healthy Vehicle Cabin Air</i>
18.	<b>Konstandopoulos A.</b>	<i>Nanoparticle measurements in urban routes with a mobile laboratory</i>
19.	<b>Kraft M.</b>	<i>New Developments in Modelling Soot Formation in Internal Combustion Engines</i>
20.	<b>Kureti S.</b>	<i>Is there a chance for the direct conversion of soot and NO<sub>x</sub> on a catalyst?</i>
21.	<b>Landis M.</b>	<i>Field test of agriculture tractors with low ash engine oil, Shell Rimula R6 LM</i>
22.	<b>Le Dur D.</b>	<i>PMP compliant particle number concentration measurement system using ejector diluters</i>
23.	<b>Lehmann A.</b>	<i>Diesel exhaust particles affect expression and arrangement of the tight junction protein occludin in lung cells in vitro</i>
24.	<b>Mandal Bijan Kumar</b>	<i>A Simplified Numerical Model of Transient Soot Formation and its Oxidation in Diffusion Flame</i>
25.	<b>Massling A.</b>	<i>A laboratory emission study on biodiesel fuelled light duty engines</i>

26.	<b>Mayer A.</b>	<i>Properties of Partial Flow Filter Systems for Reduction of Particle Emissions with LDV and HDV</i>
27.	<b>Mehring M.</b>	<i>First investigation of the SCR reaction over diesel soot with new TG-FTIR system for research with condensable and reactive gases</i>
28.	<b>Müller L.</b>	<i>Cytotoxicity and inflammatory potential of two stroke scooter exhaust in lung cells in vitro</i>
29.	<b>Multari A.</b>	<i>Monitoring and Managing of PM Emissions</i>
30.	<b>Oravisjärvi K.</b>	<i>Effect of physical exertion on the deposition of traffic related aerosols in the children's respiratory system</i>
31.	<b>Petrea M.</b>	<i>Non-regulated emissions speciation in reference gasoline and gasoline-EtOH blend on passenger vehicles exhaust</i>
32.	<b>Pfiffner A.</b>	<i>"Emergency Regeneration" of DPF</i>
33.	<b>Pietikäinen M.</b>	<i>Assessment of the lung deposition of particulates originating from diesel and CNG fuelled engines</i>
34.	<b>Riediker M.</b>	<i>Contribution of smokers, ambient air pollution and establishment characteristics to fine particulate matter concentrations inside bars, restaurants and cafes</i>
35.	<b>Riediker M.</b>	<i>NanoImpactNet – the European Network on the Health and Environmental Impact of Nanomaterials</i>
36.	<b>Rogers Tim</b>	<i>Investigation and speciation of Platinum Group Metals (PGM) found in Diesel Particulate Matter (DPM) emitted from Heavy Duty Engines employing various DPM Emission Control Technology.</i>
37.	<b>Rubino L.</b>	<i>The SEMTECH Portable Particulate Measuring Device (PPMD) and the EU PEMS program experience</i>
38.	<b>Sadler L.</b>	<i>Introduction: European Air Quality Legislation and Management, including Low Emission Zones</i>
39.	<b>Sakurai Hiromu</b>	<i>Evaluation of uncertainties in the calibration of the volatile particle remover</i>
40.	<b>Sato Keiich</b>	<i>Characteristics of Nanoparticulate Matter Collected in Tokyo Metropolitan Area: Focusing on Particles Containing Heavy Metals</i>
41.	<b>Schlatter J.</b>	<i>New International standard for aerosol particle sizing (ISO 15900)</i>
42.	<b>Shinohara M.</b>	<i>Development of a New Solid Particle Counting System for Engine Exhaust Emission Measurement</i>
43.	<b>Takiff L.</b>	<i>A Real-time, Wearable Elemental Carbon Monitor for Use in Underground Mines</i>
44.	<b>Thirumalesha Ch.</b>	<i>Numerical prediction of soot emissions in ethylene flames based on DQMOM</i>
45.	<b>Thiruvengadam A.</b>	<i>PM Size Distributions from a DPF-SCR equipped 2010 compliant Heavy-Duty Diesel Engine during NTE Zone Operation</i>
46.	<b>Thurnherr T.</b>	<i>In vitro studies on pulmonary- and immunotoxic effects of industrially relevant multiwalled carbon nanotubes</i>
47.	<b>Tritscher T.</b>	<i>Change of physical aerosol properties during aging of combustion emissions in a smog chamber</i>
48.	<b>Uhrner U.</b>	<i>Volatile nanoparticle formation and growth simulations within a diluting diesel car exhaust</i>
49.	<b>Vojtisek M.</b>	<i>Diesel particulate trap regeneration on a turbodiesel engine powered by heated rapeseed oil</i>
50.	<b>Vojtisek M,</b>	<i>Low-cost instrumentation for on-board real-time diesel PM measurement</i>



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51.	<b>Wahl C.</b>	<i>“Aircraft Engine Nanoparticle Emission Indices” Measurements at Zurich Airport, Switzerland</i>
52.	<b>Yamada Hiroyuki</b>	<i>Particle Number emission from recent HD engines with PMP method</i>
53.	<b>Zahoransky R.</b>	<i>Non-Esterified Plant Oils as Fuel -Engine Characteristics, Emission Behaviour and Health Impact</i>

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## ***Instrument and Filter Exhibition***

***Company:***

- Cambustion
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- GRIMM Aerosol Technik GmbH & Co. KG
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- METAS Bundesamt für Metrologie und Akkreditierung, Bern-Wabern, Schweiz
- PROVENTIA PROVENTIA emission Control Oy, Oulunsalo, Finnland
- SHELL Shell Global Solutions, Hamburg, Deutschland
- TSI TSI GmbH, Particle Instruments, Aachen, Deutschland
- VERT VERT Association for Verification of Emission Reduction Technologies

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