

14th ETH Conference on Combustion Generated Nanoparticles
The Swiss Federal Office for the Environment is Patron of this Conference
 Zurich, 1st – 4th August 2010

Conference Venue: Zürich ETH Zentrum, Main Building, HG E7
 Welcome-Party Sunday 1st August, 7.00 pm, ETH Zentrum, Alumni Pavillon
 Conference Registration Monday 2nd August 7.30 am - see www.nanoparticles.ethz.ch

Agenda of Presentations

Monday 2nd August 2010

Welcome	09.00 – 09.15
Kasper M. / Matter Engineering, Switzerland <i>Welcome and Housekeeping</i>	
Key-Lecture	09.15 – 09.50
Maricq M. / Ford Research, USA <i>Particle free combustion: What are the possibilities and tradeoffs?</i>	
COFFEE BREAK	09.50 – 10.20
Session 1: Fundamentals	10.20 – 12.20
Chair: C.-D. Schegk	
Arnold F. / Max Planck Institut, Germany <i>Secondary nanoparticle formation in diesel vehicle exhaust: New insights from first on-line and off-line measurements of key precursor gases and ions</i>	
Bhave A.. / University of Cambridge, United Kingdom <i>Modelling soot formation in a direct injection spark ignition engine</i>	
Lee K. / Argonne National Laboratory, USA <i>Detailed morphological investigation of diesel nano-particles for their efficient control</i>	
Mätzing H. // ITC – TAB, Karlsruhe Institute of Technology, Germany <i>Particle mass spectrometry of soot particle formation</i>	
Mehring M. / Paul Scherrer Institut Villigen, Switzerland <i>Investigation of diesel soot reactivities with condensable and corrosive gases in a new TG-FTIR system</i>	
Seipenbusch M. / KIT, Institut für mech. Verfahrenstechnik und Mechanik, Germany <i>Interparticle forces in nanoparticle agglomerates</i>	
LUNCH	12.20 – 13.20

Session 2a: Vehicle Engine Emissions**13.20 – 15.00**

Chair: D. Kittelson

Adam T. / European Commission Joint Research Centre, Ispra, Italy
Simultaneous real-time analysis of gas phase and particulate phase of heavy duty (HD) vehicle exhaust

Khalek I.A. / Southwest Research Institute, USA
Particle mass and number emissions from a 2009 GDI engine using different U.S. commercially available fuels

Vogt R. / Ford Motor Company, Germany
Investigation of EURO-5/6 level particle number emissions of European diesel light duty vehicles

May J. / AECC, Belgium
AECC heavy duty NRMM test programme: particle measurement and characterisation

Steininger N. / European Union
Automotive particle emissions: an update of regulatory Euro 6/VI and UNECE developments

COFFEE BREAK and**POSTER SESSION****15.00 – 16.20****Session 2b: Vehicle Engine Emissions****16.20 – 17.40**

Chair: Chr. Barro

Merola S.S. / Istituto Motori – CNR, Napoli
In-cylinder investigations of particulate formation in SI boosted engine

Konstandopoulos, A. / CERTH / CPERI, Greece
Multistructural aspects of catalytic soot oxidation

Vojtisek M. / Technical University of Liberec, Czech Republic
Measurement of exhaust emissions of railroad locomotives using an on-board system

Kittelson D. / University of Minnesota, USA
Real time measurements of ash particle emissions

Session 3: Ambient**17.40 – 18.20**

Chair: A. Ulrich

Chirico R. / Paul Scherrer Institut Villigen, Switzerland
Primary emission and secondary formation of organic aerosol from vehicles

Tritscher T. / Paul Scherrer Institut Villigen, Switzerland
Transformation from hydrophobic to hygroscopic diesel soot particles by photochemical aging

APERITIF and**EXHIBITION of Particle Filter Systems and New Instruments****18.20 – 19.30****DINNER PARTY invited by Sponsors****19.30****Dinner Speaker: Dr. Otto Brändli / President Zurich Lung Association.**

Tuesday 3rd August 2010

Session 4a: Health Effects	08.00 – 09.15
Chair: P. Gehr	
Cascio W.E. / Brody School of Medicine at East Carolina University, USA	Key-Lecture
<i>Environmental health effects of combustion-related ultrafine particulate matter</i>	
Hesterberg T.W. / Navistar, USA	
<i>Human clinical studies with diesel exhaust particulate: implications for the potential human health hazards of nanoparticles</i>	
Karthikeyan S. / Environmental Health Science and Research Bureau, Canada	
<i>Treatment of Diesel Exhaust by a Diesel Particulate Filter enhances Lung Inflammation</i>	

COFFEE BREAK **09.15 – 09.45**

Session 4b: Health Effects	09.45 – 11.20
Chair: P. Gehr	
Weise F. / , University of Tübingen, Germany	
<i>Toxic effects of nanoparticles from biomass combustion</i>	
Müller L. / University of Bern, Institute of Anatomy, Switzerland	
<i>Higher toxic potential of 2-stroke scooter exhaust emissions compared to 4-stroke scooter and diesel car emissions</i>	
Gasser M. / Institute for Anatomy, University of Bern, Switzerland	
<i>Toxic effects of brake wear particles on epithelial lung cells in vitro</i>	
Hinds W.C. / UCLA, USA	Key Lecture
<i>Traffic related nanoparticles: results of an on-road exposure study</i>	

Panel Discussion on Health Effects	11.20 – 12.00
P. Gehr	

LUNCH **12.00 – 13.00**

Session 5: Particle Filter Systems	13.00 – 14.20
Chair: Th.W. Lutz	
Lee Ch. / KATECH South Korea <i>Experimental study on the PM emission characteristics of filter failure conditions</i>	
Mulone V. University of Rome, Italy <i>Exhaust soot model for advanced design and control of diesel engine aftertreatment systems</i>	
Wang, J. / University of Minnesota, USA, EMPA and ETHZ <i>Characteristics of diesel particulate matter loading on PTFE membrane filters</i>	
Wolff Th. / Auto-Filter Technology, Germany <i>Design of a high porosity SiC substrate for future Euro VI applications</i>	

COFFEE BREAK and**POSTER SESSION** **14.20 – 15.20**

Session 6a: Instrumentation	15.20 - 17.00
Chair: M. Fierz	
Baars E. / Robert Bosch GmbH Stuttgart, Germany <i>Particulate matter sensor for on board diagnosis (OBD) of diesel particulate filters (DPF)</i>	
Besch M.C. / West Virginia University, USA <i>In-line, real-time exhaust PM emissions sensor for emission control and OBD application</i>	
Migliorini F./ National Research Council of Canada <i>Constancy of soot refractive index absorption function - implications for optical measurements of nanoparticles</i>	
Popovicheva O. / Institute of Nuclear Physics, Moscow State University, Russia <i>Towards the development of tailored reference materials for black carbon measurements</i>	
Barro C. / ETH Zürich Switzerland <i>Comparison of soot measurement instruments during transient and steady state operation</i>	

COFFEE BREAK **17'00 – 17.30**

Session 6b: Instrumentation	17.30 – 18.50
Chair: O. Bischof	
Jung H. / University of California Riverside, USA <i>In-use PEMS correlations with UCR's MEL (Mobile Emission Laboratory)</i>	
Fierz M. / University of Applied Sciences Northwestern Switzerland <i>A portable instrument for PMP-like field measurements</i>	
Gilham R. / National Physical Laboratory, UK <i>Calibration of aerosol electrometers for PMP</i>	
Giechaskiel B. / AVL List GmbH, Germany <i>Validation of new, used and re-calibrated automotive CPCs</i>	

Wednesday, 4th August 2010

Session 7: Combustion Emissions	08.00 – 10.00
Chair: J. Czerwinski	
Fuglsang K. / FORCE Technology, Denmark <i>Characterization of fine and ultrafine particles in emissions from CHP plants in Denmark</i>	
Hagen D. / Missouri University of Science & Technology, USA <i>Influence of ambient temperature on the PM emissions from a gas turbine engine</i>	
Keller A. / University of Applied Sciences Northwestern Switzerland <i>Reconciling particulate emissions with ambient measurements for biomass combustion</i>	
Niemelä V. / Dekati Finland <i>Flue gas particle characterization at different points of a power plant</i>	
Ozgen S. / DIIAR Milano, Italy <i>Ultrafine particle emissions from small scale combustion installations</i>	
Wahl C. / DLR, Germany <i>Direct soot formation</i>	

COFFEE BREAK**10.00 – 10.30**

Session 8: Legislation	10.30 – 12.20
Chair: G. D'Urbano	
Andersson J. / Ricardo, UK <i>Overview, conclusions and outlook from the UN-ECE GRPE particle measurement programme inter-laboratory exercise for heavy-duty-engines</i>	
Ayala A. / California Air Resources Board, USA <i>Update on the future of PM emission control in California</i>	
Sadler L. / Sadler Consult, Germany <i>The impact of low emission zones and some conclusions for particulate matter research</i>	
Schlatter J. / METAS Switzerland <i>Requirements for a portable particle counter for construction machinery</i>	
Mayer A. / TTM, Switzerland. <i>Engine emitted metal oxide nanoparticles</i>	
Liu X./ Beijing VEMC <i>The offroad particle filter retrofit project in Beijing 2011</i>	

Closing Remarks:**12.20****Andreas C.R. Mayer****Lunch****12.30 – 13.30**

Focus-Event 2010 (1)

13.45 – 15.20

Feinstaub in Städten und im ländlichen Raum

Chair: P. Straehl

Straehl P. / Bundesamt für Umwelt, Bern
Begrüßung und Einführung

Lutz M. / Senatsverwaltung für Gesundheit, Umwelt und Verbraucherschutz, Berlin
Umweltzone in Berlin – Top oder Flop ? Resultate einer Wirkungsanalyse nach zwei Betriebsjahren

Diskussion

Cyrys J. / Helmholtz-Zentrum München, Institut für Epidemiologie, München
Charakterisierung von Feinstaubpartikeln in städtischer und ländlicher Umgebung

Diskussion

Löschau G. / Sächsisches Landesamt für Umwelt, Landwirtschaft und Geologie, Dresden
Ultrafeine Partikel – Sondermessung im Luftgütemessnetz in Sachsen

Diskussion

COFFEE BREAK

15.20 – 15.50

Focus-Event 2010 (2)

15.50 – 17.00

Chair: P. Straehl

Gianini M.F.D. / EMPA Dübendorf
Chemische Charakterisierung und Quellen von Feinstaub (PM10) in der Schweiz: Vergleich von Untersuchungen aus den Jahren 1998-1999 und 2008-2009

Diskussion

Prévôt A. / Paul Scherrer Institut, Villigen
Zusammensetzung des Feinstaubs und Quellen der Kohlenstofffraktion im städtischen und ländlichen Raum

Diskussion

Straehl P. / Bundesamt für Umwelt, Bern
Zusammenfassung und Schlusswort

End of the 14. ETH-NPC

17.00

Don't miss at 13.00

***Presentation of the Vehicle Cabin Air Filter Project
 by the Zurich Lung Association
 on the ETH-Terrace***

POSTERS

1.	Bémer D	<i>Performance of a particulate filter for diesel engine for off-road applications operating with high sulfur content fuel</i>
2.	Bieniek A.	<i>Possibilities of PM emission reduction during cylinder pressure based control of diesel injection</i>
3.	Boulouchos K.	<i>ETH Institute of Energy Technology, Aerothermochemistry and Combustion Systems Laboratory</i>
4.	Bunge R.	<i>Emergency regeneration of DPF</i>
5.	Burtscher H.	<i>University of Applied Sciences Northwestern Switzerland</i>
6.	Crippa M.	<i>Source apportionment and aging of aerosol particles in the outflow of Paris during summer and winter time</i>
7.	Czerwinski J.	<i>Investigations of emissions with different filtration materials on a 2-stroke scooter Peugeot TSDI</i>
8.	De Iuliis, S.	<i>Soot characterization in premixed flames by three-angle scattering and TEM analysis</i>
9.	Ducret-Stich R.	<i>Residential exposure to highway traffic exhaust in a Swiss Alpine valley</i>
10.	Gianini M.F.D.	<i>Variation of PM10 chemical composition between kerbside, urban, suburban and rural sites in Switzerland</i>
11.	Hagendorfer H.	<i>Determination of Cr(VI), selected heavy metals, and elemental carbon in PM10 from a roadside sampling spot in Vienna</i>
12.	Imhof D.	<i>Particle number emissions of offroad engines in NRSC and NRTC using the EC-standardised PMP measuring method</i>
13.	Kasper M.	<i>Nanoparticle Filtration for Car Cabins</i>
14.	Keskinen H.	<i>Water adsorption on silica nanoparticles</i>
15.	Kittelson D.	<i>Nanoparticle emissions from an ethanol fueled HCCI engine</i>
16.	Kolodziej Chr.	<i>Injection timing effects on premixed low temperature combustion particle emissions from light and heavy duty diesel engines</i>
17.	Landis M.	<i>Particulate filters in rotary cultivators</i>
18.	Legerer F.	<i>Mass and Number: An algorithm for convolution of frequency-distributions with measured numerical results</i>
19.	Legerer F.	<i>Number Count – A plea for logarithmic scaling</i>
20.	Leidenberger U.	<i>Optical investigations to the influence of engine operating parameters on physical and chemical properties of soot particles</i>
21.	Lonati G.	<i>Ultrafine particle emissions from municipal solid waste incineration plants</i>
22.	Mayer H.	<i>Active DPF-System for nanoparticle-filtration und NO₂-reduction in real life at low exhaust temperatures</i>
23.	Multari A.	<i>Effective PM measurement for I/M programs</i>
24.	Nordin E.Z.	<i>Smog chamber experiments of SOA formation from gasoline exhaust and light aromatics</i>

25.	Okamura K.	<i>Measurement methods of the oxidative potential of automobile emissions</i>
26.	Patel K.S.	<i>Distribution and composition of mosquito coil fuming smoke</i>
27.	Phuleria Harish C.	<i>Trace metal composition of ambient PM_{2.5} and PM₁₀ and their spatio-temporal variation near a major highway in an Alpine valley in Switzerland</i>
28.	Pielecha J.	<i>PM Emission of diesel rail-road vehicles operated on Polish rail lines</i>
29.	Pielecha J.	<i>PM Emission from combat vehicle engine during start and warm-up</i>
30.	Pielecha J.	<i>Comparative investigations into particulate matter cold start emissions from Euro 1 to Euro 4 passenger cars</i>
31.	Popovicheva O.	<i>Quantification of water uptake by combustion (soot) particles</i>
32.	Reavell, K.	<i>Backpressure characteristics of a DPF loaded with as soot generator and a diesel engine under different operating cycles</i>
33.	Reith J.	<i>Exhaust gas aftertreatment by micro waves</i>
34.	Rose K.D.	<i>Impact of FAME in diesel on particle emissions from Euro4-compliant light-duty vehicles</i>
35.	Ruzal-Mendelevich M.	<i>Particle grouping, a new method for reducing the health risk associated with Diesel-particulate emission</i>
36.	Shinohara M.	<i>Evaluation of diverse engine exhaust particle emissions using a new solid particle counting system</i>
37.	Shirvastava M.	<i>Kinetics of soot oxidation by NO₂</i>
38.	Shokouhmand M.	<i>Mathematical investigation over the Lewis number effect on the combustion of biomass particle</i>
39.	Sioutas C.	<i>Physico-chemical characteristics and oxidative potential of semi-volatile and non-volatile fractions of quasi-ultrafine particles in an urban environment</i>
40.	Smits, M.	<i>Integrated NO_x and particulate matter photocatalytic removal process</i>
41.	Spielvogel J.	<i>Engine exhaust gas measurements: Comparison of a PMP-system and a fast particle mobility sizer</i>
42.	Tamarro M.	<i>An experimental device for growth of the submicron particles through heterogeneous condensation in order to separate them from gases with a conventional method</i>
43.	Tartakovsky L.	<i>Measurements of particulates concentrations inside vehicle cabin</i>
44.	Topinka J.	<i>An acellular assay to assess the genotoxicity of complex mixtures of organic pollutants bound on size segregated aerosol</i>
45.	Toro Gomez Maria V.	<i>Application of the Particulate Source Apportionment Tool in the Medellín City- Colombia</i>
46.	Trckova J.	<i>Electrospun TiO₂/WO₃ Nanofibers as a catalyst for combustion gases</i>
47.	Ulrich A.	<i>Tracer study to assess the effect of lubrication oil and fuel on catalyst aging for different combustion techniques, oil and fuel types</i>
48.	Vojtisek M.	<i>On the effects of a fuel-born DPF regeneration catalyst on vegetable oil used as a diesel engine fuel</i>

49.	Vojtisek M.	<i>On the fate of uncombusted vegetable oil in a diesel engine</i>
50.	Von Sonntag J.	<i>Monitoring of particle separators for emission control of small furnaces. Influences of test set-up and fuel type</i>
51.	Wagloehner St.	<i>Towards a fundamental understanding of the catalytic soot oxidation on Fe₂O₃: Coupling the catalytic kinetics with the fluid dynamics</i>
52.	Wahl C,	<i>Particle formation in aircraft engines</i>
53.	Wellinger M..	<i>Monitoring of alkali particles from thermal processing of bio-mass</i>
54.	Yanagisawa N.	<i>VOCs and particle emission from DPF equipped diesel engine during regeneration measured by on-line PTR mass spectrometer</i>
55.	Zabdiel Dominguez Trinidad	<i>Carbon coated metallic copper nanoparticles produced by an enclosed FSP for dielectric elastomers</i>
56.	Zheng Zhongqing	<i>Metal particles from combustion of heavy fuel Oil (HFO)</i>

Instrument and Filter Exhibition

Company	Homepage	Booth
▪ AVL	www.avl.com	14
▪ Baumot	www.baumot.ch	1
▪ Cambustion	www.cambustion.com	17
▪ CATech	www.catech.co.kr	6
▪ CPK	www.cpk-automotive.com	2
▪ Dekati	www.dekati.com	9
▪ Diesel Emission Control	www.dieselectioncontrol.com	4
▪ Dinex	www.dinex.dk	5
▪ Grimm	www.grimm-aerosol.com	7
▪ Hug Engineering	www.hug-filtersystems.ch	20
▪ Innospec	www.innospecinc.com	3
▪ Jing	www.sootgenerator.com	16
▪ LiqTech	www.liqtech.dk	10
▪ Matter Aerosol	www.matter-aerosol.com	18
▪ Physitron	www.physitron.de	11
▪ Pirelli	www.pirelliecotechnology.com	12
▪ Proventia	www.proventia.fi	15
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▪ TSI	www.tsi.com	19

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- BAFU Bundesamt für Umwelt, Bern, Schweiz
- BAUMOT Baumot Ag, Fehraltorf, Schweiz
- BECO Berner Wirtschaft – Immissionsschutz, Schweiz
- BFE Bundesamt für Energie, Bern, Schweiz
- BOSAL Bosal International, Lummen, Belgien
- CAMBUSTION Cambustion Ltd. / Cambridge
- CARB California Air Resources Board, CA, U.S.A.
- CPK CPK Automotive / Münster, Deutschland
- DEZA Schweizerisches Departement für Entwicklung und Zusammenarbeit
- DINEX Dinex A/S, Middelfart, Denmark
- ESYTECH esytech AG, Feusisberg, Schweiz
- GILLET Gillet-Tenneco , Edenkoben, Germany
- HJS HJS-Fahrzeugteile, Menden, Germany
- HORIBA Horiba Ltd, Kyoto, Japan
- HUG Hug Engineering SA, Rätterschen, Schweiz
- INNOSPEC INNOSPEC Limited, Herne, Deutschland
- KREBSLIGA Krebsliga Schweiz / Bern, Schweiz
- LIEBHERR Liebherr Machines Bulle S.A., Schweiz
- LIQTECH LiqTech ApS, Gentofte, Denmark
- LUNGENLIGA Lungenliga Zürich, Schweiz
- MANN+HUMMEL Mann + Hummel GmbH, Speyer, Germany
- ME Matter Engineering AG, Wohlen, Schweiz
- METAS Bundesamt für Metrologie und Akkreditierung, Bern-Wabern, Schweiz
- PHYSITRON Physitron GmbH, Wirges, Germany
- PIRELLI Eco Technology S.p.A., Arese, Italia
- PROVENTIA PROVENTIA Emission Control Oy, Oulunsalo, Finnland
- SHELL Shell Global Solutions, Hamburg, Deutschland
- SÜDCHEMIE Süd-Chemie AG, Bruckmühl, Germany
- SUVA Schweizerische Unfallversicherungsanstalt, Luzern, Schweiz
- TESTO Testo AG, Lenzkirch, Germany
- TSI TSI GmbH, Particle Instruments, Aachen, Deutschland
- UGZ Umwelt- und Gesundheitsschutz der Stadt Zürich
- VERT VERT Association for Verification of Emission Reduction Technologies
