

22. ETH Conference on Combustion Generated Nanoparticles

Organization: Verein zur Durchführung der ETH-Nanopartikel-Konferenz - CHE-456.865.592
The Swiss Federal Office for the Environment FOEN is Patron of this Conference

Zurich, June 19th – 21st 2018

Conference Venue: Zürich ETH Zentrum, Main Building, HG E7

Welcome-Party June 18th, 7.00 pm – Alumni Pavilion

Conference Registration opens Tuesday June 19th, 7.30 am
www.nanoparticles.ethz.ch

Agenda of Presentations

Tuesday June 19th 2018

Welcome	09.00-09.20
Burtscher Heinz / FHNW, Switzerland <i>Welcome</i>	
Barro Christophe / ETH Zürich & Vir2sense, Switzerland <i>Housekeeping</i>	
Opening Address	09.20 - 09.35
Moser Tiana Angelina / Member of the Swiss Parliament <i>Politicians Care, Legislate and Enforce Measures for Public Health but Need Guidance from Experts</i>	
Key Lecture	09.35 - 10.10
Kreyling Wolfgang / Scientific Advisor to Helmholtz-Center München, Germany <i>Is there Sufficient Evidence of Adverse Effects of Nanoparticles on Neuro-degenerative Diseases when Compared to their Cardiovascular and Respiratory Health Effects?</i>	
COFFEE BREAK	10.10 - 10.40
Session 1: Ambient Air	10.40 - 12.00
Chair: Hüglin Christoph	
Helmers Eckard / Umwelt-Campus Birkenfeld, Germany <i>Radiative Forcing from European Passenger Vehicles in the Years 1995-2015 Based on Real-World Use</i>	
Mahrt Fabian, ETH Zürich, Switzerland <i>Soot Aerosols as a Source for Ice Nucleating Particles in the Cirrus Regime – the Role of Soot Particle properties.</i>	
Rönkkö Topi / Tampere University of Technology, Finland <i>Vehicles are a Major Source of Atmospheric Sub-3nm Particles</i>	
Vojtisek Michal / University Prague, Czech Republic <i>Roadside and Riverside Measurement of PM/PN Emissions from Individual Vehicles and Ships in Prague</i>	

LUNCH**12.00 - 13.00**

Session 2: Fundamentals	13.00 - 14.20
Chair: Heeb Norbert	
Kelesidis Giorgios / ETH Zürich, Switzerland <i>From Nascent to Mature Soot Light Absorption During Agglomeration and Surface Growth</i>	
Kholghy M. Reza / ETH Zürich, Switzerland <i>Reactive Polycyclic Aromatic Hydrocarbon Dimerization Drives Soot Nucleation</i>	
Li Zepeng / King Abdullah University, Saudi Arabia <i>Effect of Dimethyl Ether Addition on Sooting Limits in Counterflow Diffusion Flames at Elevated Pressures</i>	
Pagels Joakim / Lund University, Sweden <i>Similarities between Soot Properties from Low Temperature Combustion to a Heavy Duty Diesel Engine and MiniCAST Flame Soot</i>	

Session 3: Aircraft and Airports	14.20 - 15.40
Chair: Rindlisbacher Theo	
Arnold Frank / MPIK Heidelberg, Germany <i>Nucleation-Particle Formation in Jet-Aircraft and Diesel-Car exhaust: Formation-Mechanisms and Implications for Air Quality and Climate</i>	
Brem Benjamin / EMPA, Switzerland <i>Non-volatile Particulate Matter Mass and Number Emissions of an Aero Gas Turbine Fueled with Alternative Fuel Blends</i>	
Schripp Tobias / AEROSPACE, Germany <i>Ground Measurements on Aircraft Exhaust for a Series of Alternative Jet Fuels during the ECLIF and ND-MAX Campaign</i>	
Durdina Lukas / EMPA, Switzerland <i>Non-volatile PM Emissions of a Business Jet Aircraft: Ground Measurements and Cruise Estimates</i>	

COFFEE BREAK**POSTER SESSION: Posters of the Topics 1 ÷ 5 (34)****15.40 - 17.30**

Session 4: Non-Road Sources	17.30 - 18.30
Chair: Stratmann Martin	
Corbin Joel C. / National Research Council, Canada <i>Insoluble Brown Carbon Emitted by Marine Engines: Relevance to a Warming Arctic</i>	
Køcks Morten / Danish Technological Institute, Denmark <i>Retrofit of Three Danish Ferries with DPF and NOx-reducing Technology – a New Danish Venture</i>	
Lehtoranta Kati / VTT Finland <i>Particle Mass and Number Emissions from Marine Engines Preparing for the Upcoming Sulphur Cap Limits</i>	

APERITIF offered by the EXHIBITORS**from 18.30**

Wednesday, June 20th, 2018

Session 5: Emission Control of Diesel and Gasoline Engines	08.30 – 10.10
Chair: Czerwinski Jan	
Barro Christophe / ETH Zürich & Vir2sense, Switzerland <i>Impact of the Operation Strategy and Fuel Composition on the Emissions of a Heavy Duty Diesel Engine</i>	
Lawyer Matthew / Florida University, USA <i>Global Real Driving Emissions (RDE) Reduction Technology Modeling and Vehicle Demonstration Results</i>	
Notheis Denis / Karlsruhe Institute for Technology, Germany <i>Investigation on PN Formation at GDI Engines at High Loads</i>	
Vlachos Nickolas / APTL/CPERI/CERTH Greece <i>THE SUREAL-23 PROJECT: Understanding and Measuring sub-23 nm Particle Emissions from Direct Injection Engines Including Real Driving Conditions</i>	
Hamzehlouyan Tayebah / Sharif University Tehran, Iran <i>Sulfur Storage and Release over a Diesel Oxidation Catalyst: The Different Deactivation Impacts of SO₂, SO₃ and H₂SO₄</i>	

COFFEE BREAK**POSTER SESSION: Posters of the Topics 6 ÷ 7 (17)****10.10 - 11.00**

Session 6: Particle Filters	11.00 - 12.20
Chair: Mayer Andreas	
Heeb Norbert / EMPA, Switzerland <i>Nitration Chemistry in Non-catalyzed Diesel Particle Filters: A Consequence of the Co-release of Nitrogen Oxides, Soot and Soot Adsorbates</i>	
Hosseini Vahid / Sharif University, Iran <i>Performance Evaluation of FBC-DPF Using PEMS Instruments</i>	
Kittelson David / University Minnesota, USA <i>Particle Number Emissions from In-Use Transit Buses with Advanced SCR Systems</i>	
Yamamoto Kazuhiro / Nagoya-University, Japan <i>Pressure Response during Filtration and Oxidation in Diesel Particulate Filter</i>	

LUNCH**12.20 - 13.20**

Session 7: Biomass	13.20 - 14.20
Chair: Schegk C.D.	
Czech Hendryk / University Rostock, Germany <i>Primary and Secondary Aerosol Emissions from Modern Small-scale Wood Combustion Appliances with Advanced Secondary Air Supply</i>	
Klauser Franziska / Bioenergy2020+ GmbH, Austria <i>Effect of an Oxidizing Catalyst on PAH Emissions at Log Wood Combustion</i>	
Phairuang Worrador / Prince of Songkla University, Thailand <i>Development of Emission Factors of Nanoparticles (PM0.1) from Solid Biomass Combustion</i>	
Pieber Simone / PSI, Switzerland <i>Aromatic Hydrocarbon Conversion through Catalytic Converters Significantly Reduces Secondary Organic Aerosol Formation from Wood Burning Emissions</i>	

Session 8A: Health Session	14.20 - 15.50
Chair: Gehr Peter	
Kreyling Wolfgang / Scientific Advisor to Helmholtz-Center München, Germany <i>Engineered Nanoparticles versus Ambient Ultrafine Particles: How Comparable are their Interactions with the Organism and what do we Know and where are the Gaps?</i>	
Künzli Nino / Swiss Tropical and Public Health Institute Basel, Switzerland	
Kutlar Joss Meltem / Swiss Tropical and Public Health Institute Basel, Switzerland <i>Defending Public Health Priorities at Times of Scandals and Media Hypes around "Dirty Diesel"</i>	
Hoffmann Barbara / University Düsseldorf, Germany <i>Systematic Review on Ultrafine Particle Health Effects.</i>	

COFFEE BREAK

POSTER SESSION: Posters of the Topics 8 ÷ 10 (17)	15.50 - 17.00
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Session 9A: Particle Metrology and Chemical Characterization	17.00 – 18.20
Chair: Burtscher Heinz	
Andersson Jon / RICARDO, UK <i>First Results of Vehicle Technology Effects on sub-23nm Exhaust Particle Number Emissions using the DownToTen Sampling and Measurement System</i>	
Focsa Cristian, University of Lille, France <i>Measuring Ultrafine Particles Emitted by Gasoline Direct Injection Engines: the PEMS4Nano Project</i>	
Okamura Kazumasa / Toyota, Japan <i>Investigation of the Simplified Measurement Technique of the Secondary Aerosols Formed from Gaseous Emissions of Vehicle Exhaust</i>	
Rüggeberg Tobias / FHNW Switzerland <i>An Electrical Detector for Particle Counting below 23 nm</i>	

Aperitif	18.20
DINNER PARTY invited by Sponsors	19.00
Dinner Speaker: Schegk C.-D.	

Thursday, June 21st, 2018

Session 8B: Health Session	08.30 – 10.00
Chair: Rothen-Rutishauser Barbara	
Vineis Paolo / Imperial College, UK <i>The New World of Omics in Environmental Epidemiology</i>	
Panessa-Warren Barbara / Brookhaven National Laboratory, Upton, USA <i>Wood Combustion Emission Nanoparticle Morphological/ Elemental Characterization, and TEM Visualization of In-vitro Attachment, Entry and Fate of Nanoparticles within Human Bronchiolar Epithelial Monolayers</i>	
Muñoz Maria / EMPA, Switzerland <i>Co-formation and Co-release of Genotoxic PAHs and Nanoparticles from GDI Vehicles Support the Trojan horse effect</i>	
Brugge Doug / Tufts University USA <i>Improving In-home Stand-alone Air Filtration for Ultrafine Particle Exposure and Health</i>	

Poster Award Ceremony	10.00 - 10.10
Bischof Oliver	

Trojan Horse Award Ceremony	10.10 - 10.20
Schiltknecht Jacques	

COFFEE BREAK **10.20 – 10.50**

Session 9B: Particle Metrology and Chemical Characterization	10.50 – 12.10
Chair: Bischof Oliver	
Booker David / Sensors Inc., USA <i>Operational and Performance Demands for a Low-Cost Periodic Technical Inspection Particle Number Analyzer</i>	
Spielvogel Jürgen / TSI, Germany <i>A New Portable Test Instrument for the Reliable Measurement of Particle Number Emissions from Combustion Engines During Periodic Technical Inspection</i>	
Fierz Martin / FHNW Windisch, Switzerland <i>In-use Particle Filter Inspection with Simple Electrical Particle Detectors</i>	
SUAREZ Ricardo / EU-JRC, Italy <i>Verification of NPTI-Instruments for Diesel and Petrol Vehicles – first Results</i>	

Lunch **12.10 – 13.00**

Thursday, June 21st, 2018

**FOCUS EVENT: Emission of In-Use Vehicles:
Quality and Control**

Introduction and Chair

13.00 - 13.20

Barro Christophe / ETH Zürich & Vir2sense, Switzerland

Section I:

13.20 - 14.35

Gloor Beat	AWEL, Switzerland	<i>Diesel Particle Filter Failure Statistics of a Swiss In-Use Fleet</i>
Friedrich Axel	DUH, Germany	<i>Diesel DeNox-System Failures and Manipulations</i>
Müller Gerhard	CITA	<i>Loaded Tests for Petrol and Diesel Engines</i>

COFFEE BREAK

14.35 - 15.00

Section II

15.00 - 16.15

Kadijk Gerrith	TNO, Netherlands	<i>New Periodic Technical Inspection: Concept for DPF Proven and Ready to Introduce</i>
Czerwinski Jan	AFHB, Switzerland	<i>New Periodic Technical Inspection Approaches for DeNOx-Systems</i>
Peeters Weem Hens	RDW, Zwolle Netherlands	<i>Legislation Must be Adapted on EU-Level and on Member-State Level</i>

Goodbye: Boulouchos Konstantinos

End of the 22nd ETH-NPC

16.25

POSTERS

Poster Session 1: Ambient Air

1.	Booker Douglas	Lancaster University; UK	Vehicle Interior Air Quality
2.	Booker Douglas	Lancaster University; UK	Indoor-Outdoor Air Pollution & Environmental Justice
3.	Esmailirad Sepideh	Sharif University; Iran	Modeling the Formation of Traditional and Non-Traditional Secondary Organic Aerosols from In-Use, On-Road Gasoline and Diesel Vehicles Exhaust
4.	Friebel Franz	ETH Zürich, Switzerland	Temperature vs Ozone Concentration: New Insights to the CCN-activity and LDSA of Soot Particles after Long Term Exposure to Ambient Ozone Concentrations.
5.	Goel Vikas	CSIR ;India	Effect of Vehicular Emission Control Measures on PM Characteristics over Delhi
6.	Lawrence Alfred	Isabella Thobum College India	Indoor Air Quality Exploration - In Relation to Ambient Pollution and House Characteristics in Urban Lucknow houses
7.	Lonati Giovanni	Politecnico di Milano; Italy	Ultrafine Particles and Black Carbon Measurements at an Urban Background Site in Milan (Italy)
8.	Moschos Vaios	PSI; Switzerland	Biomass Burning Dominates Brown Carbon Absorption in Switzerland
9.	Mousavi Amirhosein Sioutas Constantinos	USC; USA	Relative Importance of Emissions from Ships, Locomotives, and Free-ways in the Communities near Ports of Los Angeles and Long Beach and their Impact on the Air Quality of Los Angeles Basin
10.	Phairuang Worradorn	Prince of Songkla University, Thailand	Ambient Nano-aerosol in East Asian Cities based on East Asia Nanoparticle Monitoring Network (EA-Nanonet)
11.	Taneja Kanika	Jamia Millia Islamia; India	Impact of Dust Storm on Ambient Air Quality over North India
R3	Hansel Armin	University of Innsbruck	Spatial distribution of LDSA in Innsbruck confirm combustion related nanoparticles as source

Poster Session 2: Fundamentals

12.	Al-Thuwaynee Ayad	Brighton University, UK	Synthesis of Iron Oxide Nanoparticle in a Premixed Propane-air Premixed Flame.
13.	Bazzaz Amir Soroudi	Turbotec Tehran, Iran	Pareto-Efficient Modeling of Nanoparticle Generating Turbulent Jet and Spray Flames
14.	Kelesidis Georgios A.	ETH Zürich; Switzerland	Soot morphology, Light Scattering and Direct Radiative Forcing
15.	Liu Peng	KAUST, Saudi Arabia	The Formation Pathway of Soot Precursors (PAHs) and its Transformation to Soot in Flame
16.	Miklová Barbora	University of Chemistry + Technology Prague	Dangerous Fly Ash as a Solution for Global Warming
17.	Ngo Linh Dan	University of Lille, France	Investigation of Polycyclic Aromatic Hydrocarbons and Soot Formation in Swirled Flames of n-Butanol and Conventional Diesel Fuel
R1	Violi Angela	University of Michigan USA	Formation of oxygenated polycyclic aromatic compounds in flame

Poster Session 3: Aircraft and Airport

18.	Brem Benjamin	EMPA; Switzerland	The Optics-chemistry Link of Dark Matter; Investigating Mass Absorption Cross Sections of Soot Particles from two Combustion Sources
19.	Elser Miriam	EMPA; Switzerland	Carbonaceous Aerosols from Aircraft Engine Exhaust: Chemical Characterization, Optical Properties and Related Climate Effects
20.	Muñoz Maria	EMPA; Switzerland	Thrust-dependent Emissions of PAHs of an In-service Turbofan Jet Engine
21.	Sharma Pooja	Indian Institute of Science, India	Analysis of Jet A-1 Deposits Containing Carbon Spheres and Nanostructures: Effect of Trace Metals and Heteroatomic Components
22.	Teoh Roger	Imperial College London, UK	A Methodology to Relate Black Carbon Particle Number and Mass Emissions from various Combustion Sources

Poster Session 4: Non-Road Sources

23.	Bird Matthew	Minnesota University; USA	Emissions Testing of Microturbine Cogenerator Run on Diesel and Jet A Blended with Aromatic Compounds
24.	Jensen Thomas N.	Danish Technological Institute; Denmark	Development and Characterization of Candles with Reduced Particle Emissions

Poster Session 5: Emission Control of Diesel and Gasoline Engines

25.	Barrios Carmen C.	CIEMAT, Madrid, Spain	Gaseous Pollutants and Particle Emissions of a 2.5 DCI Engine Fueled with Biodiesel from Waste Cooking Oil and Diacetyl Glycol
26.	Czerwinski Jan	AFHB; Switzerland	Nanoparticles Emissions of Gasoline Cars with Port Injection (MPI) and Potentials of Particle Filters (GPF)
27.	Lee Dong-In	Korea national university of transportation	Characteristics of PN-Emission during Cold- and Hot-starts in Real World Driving Tests
28.	Focsa Cristian	University of Lille, France	Impact of Operating Regime and Fuel Type on the Chemical Composition of Soot Particles Emitted by In-use Gasoline and Diesel Engines
29.	Franc Petr	University Liberec, Czech Republic	Particle Number Emissions from Technological Lubricants Used in the Manufacturing of the Automotive Exhaust System
30.	Ghaziaskar Hassan S.	University Isfahan, Iran	In Field Application of HHI96 as a Fuel Additive for Reduction of Air Pollution in Iranian Cities
31.	Hagino Hiroyuki	Japan Automobile Research; Institute	Real-time Measurement of Lubricant Oil additive Elements in Automotive Exhaust Particles by Inductivity Coupled Plasma Time-of-flight Mass Spectrometry
32.	Lee Seokhwan	Korea Institute	Particulate Emissions from Diesel Engine Operated with Coffee Ground Pyrolysis Oil
33.	Lehtoranta Kati	VTT; Finland	Particle emissions from gas engine utilizing natural gas and propane as fuel
34.	Young Li-Hao	China Medical University, Taiwan	Emissions of Volatile and Nonvolatile Nanoparticles from HDDE Running on Different Gas-Diesel Mixture Fuels

Poster Session 6: Particle Filters

35.	Baek Sungha	Korea University	Nano-particle Emissions Characteristics with Metal Foam Gasoline Particle Filter (GPF) for Turbo-charged Gasoline Direct Ignition Vehicle on FTP-75
36.	Chung Wonyong	Korea University	Comparison of PN Filtering Efficiency with GPF from a GDI Vehicle over Laboratory and Real World Driving Condition.
37.	Fabrykowski Lukas	Unaffiliated	Recovery of Hidden Information from DPF-Retrofit Data-Logging
38.	Yu Young Soo	Korea national university of transportation	A Study on the Characteristics of Particle Emissions from Diesel and Gasoline Vehicles on Real Driving Emission for Ambient Temperature
39.	Hosseini Vahid	Sharif University Tehran, Iran	Evaluation of CRT-DPF Filters with Low and Medium Sulfur Diesel Fuels in Iranian Market
40.	Ko Ahyun	Korea Institute	Development of DPF, SCR System with Low Balance Point Temperature for Retrofit Market of Diesel Engine
41.	Le Cornec Clémence	Imperial College London, UK	Prediction of Soot Loading onto DPFs Using Artificial Neural Networks
42.	Mayer Andreas	VERT, Switzerland	100 Million of Highly Efficient Particle Filters, now Operational in Diesel Vehicles - a Unique Success for Preventive Medicine
43.	Schwanzer Peter	OTH Regensburg, Germany	Problems with Synthetic Soot Loadings for the Development of Gasoline Particulate Filter (GPF) Load Sensors
44.	Sjöblom Jonas	Chalmers University, Sweden	Systematic Evaluation of PM Loading and Oxidation in Diesel Particulate Filters
45.	Sterlepper Stefan	RWTH Aachen University, Germany	Design of a Novel Gasoline Particulate Filter Aging Method
46.	Thier Dominic	NGK Europe, Germany	Optimizing Gasoline Particulate Filter Technologies in order to Improve Filtration Performance under Current RDE Conditions
46 A	Heutz Niels	NGK Europe, Germany	Investigation of Particle Emissions with a Light Duty Diesel Vehicle – Challenges by 3rd RDE Regulatory Package
47.	Yamamoto Kazuhiro	Nagoya University, Japan	Fuel Supply System by Porous Ceramic Tube to Diesel Oxidation Catalyst

Poster Session 7: Biomass Combustion and Biofuels

48.	Czech Hendryk	University Rostock, Germany	Primary and Secondary Aerosol Emissions from Residential Combustion of Lignite Briquettes
49.	Hoa Le Phuoc	TROPOS, Germany	Aging of the Biomass Burning Emissions in LEAK Chamber
50.	Phairuang Worradorn	Prince of Songkla University, Thailand	Development of Emission Factors of Nanoparticles (PM0.1) from Solid Biomass
51.	Press-Kristensen Kaare	Danish Ecological Council, Denmark	Flue Gas Cleaning for Small Stoves and Boilers
51A	Poláček Ján	Brno University of Technology, Faculty of Mechanical Engineering, Brno, Czech Republic	Experimental observation of fine particle production decrease at ignition temperature level of wood samples

Poster Session 8: Health Impact

52.	Fuchsig Heinz	Austrian Med. Association, Austria	The Diesel Scandals - an Attempt to Highlight the Priorities
53.	Mayer Andreas	VERT, Switzerland	PN as Toxic Air Contaminant is by far Underestimated while NO2 is Overestimated
53A	Sermon Paul A.	Brunel University	Efficiency of scavenging of atmospheric carbonaceous nanoparticles by human lungs: Real-time non-invasive analysis of retention of airborne UFPs by an individual
R2	Brugge Doug	Tufts University	An Evidence map based on a Systematic Review of Ultrafine Epidemiology

Poster Session 9: Particle Metrology and Chemical Characterization

54.	Corbin Joel C.	National Research Council Canada	Laser-induced Incandescence of Aircraft Engine Black Carbon: Sensitivity to Laser Fluence
55.	Ess Michaela	METAS; Switzerland	Characterization of a New MiniCAST Generator (Model 5201 Type BC) Including Diffusion and Premixed Flame Options

56.	Fuglsang Karsten	FORCE; Denmark	Measurement of PM Emissions from Ship Engines: Effect of Particle Deposition in Sampling Equipment Designed According to the ISO8178 Method.
57.	Gerkens Stefan	TESTO; Germany	Convenient Method for the Systematic Evaluation of Instrument Calibration Regarding its Particle Size Dependence
58.	Irwin Martin	PSI; Switzerland	Tandem Configurations of Different Aerosol Classifiers with the AAC
59.	Keller Alejandro	FHNW; Switzerland	Development of a Semi-continuous Measurement System for the Carbonaceous Fraction in Ambient Aerosol
60.	Martikainen Sampsa	Tampere University, Finland	Dependence of Dilution Performance of a Prototype Setup for Sampling Non-volatile Engine Exhaust Particles down to ten Nanometer in Diameter on Pressure Variations in Sample Line
61.	Miettinen Elina	Airmodus; Finland	Using a Battery of Airmodus A20 Butanol Condensation Particle Counters for Fast Aerosol Particle Number Size Distribution Measurement
62.	Klauser Franziska	Bioenergy2020+	Effect of an Oxidizing Catalyst on PAH Emissions at Firewood Combustion
63.	Sakurai Hiromu	AIST; Japan	Uncertainties in the Determination of the Penetration Efficiency of the Volatile Particle Remover Used in Number Emission Measurement of Non-volatile Nanoparticles from Aircraft Turbine Engines
64.	Vasilatou Konstantina	METAS; Switzerland	Metrology for Light Absorption by Atmospheric Aerosols: the EMPIR Black Carbon Project
65.	Weingartner Ernest	FHNW; Switzerland	Measurement Artefacts from Evaporation and Recondensation of Volatiles in In-situ Aerosol Light Absorption Techniques
R4	Rigler Martin	Aerosol	Optical and thermal measurements and source apportionment of TC, BC, OC, EC and CM with high time-resolution and comparison to aerosol mass spectrometry
R5	Huwe Florian	Horiba Europe GmbH	Automated Validation and Calibration of Solid Particle Counters: Tackling the Accuracy Challenge

Poster Session 10: Legislation and Enforcement

66.	Kazemimanesh Mohsen	University of Alberta	The Effect of Sodium Chloride on the Nanoparticles Observed in a Laminar Methane Diffusion Flame
67.	Mayer Andreas	VERT, Switzerland	Uniform Metrics for Toxic Air Contaminants are Required to Link Vehicle Emissions, Air Quality Criteria and the Working Place
68.	Skacel Jan	University Prague, Czech Republic	Black Sheep - Detecting Vehicles on the Road that are too Black to be there Using Roadside Particle Measurement

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Instrument and Filter Exhibition 2018

Company	Floor	Booth
AEROSOL Co., Ljubljana, SL	E	20
CAMBUSTION Ltd. Cambridge, UK	E	14
CATALYTIC INSTRUMENTS GmbH & Co. KG, Rosenheim, DE	E	15
DEKATI Ltd., Kangasala FI	E	18
JING AG, Zollikofen CH	E	12
METTLER-TOLEDO, Greifensee CH	E	21
NANEOS PARTICLE SOLUTIONS GmbH, Windisch CH	E	16
PALAS GmbH, Karlsruhe DE	D	6
PNE & TTM	D	5
PREMIER DIAGNOSTICS Ltd., Banbury UK	E	17
SENSORS EUROPE GmbH, Erkrath DE	D	9
TESTO SE & Co. KGaA, Titisee-Neustadt DE	E	13
TSI GmbH, Aachen DE	E	19
VERT	D	11
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VERT + EMINOX & PURITech	D	10
VERT + HJS	D	4
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- AVL AVL LIST GMBH, Graz, Österreich
- BAFU Bundesamt für Umwelt, Bern, Schweiz
- BAG Bundesamt für Gesundheit, Bern, Schweiz
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- BAUMOT BAUMOT AG Königswinter, Germany
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- CORNING Corning GmbH, Wiesbaden, Deutschland
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- ESYTEC esytec AG, Schweiz
- ETHZ Direktion Eidgenössische Technische Hochschule Zürich, Schweiz
- ETHZ Boulouchos Eidgenössische Technische Hochschule Zürich, Prof. Boulouchos, Schweiz
- HJS Emission Technology GmbH & Co. KG, Menden, Deutschland
- HORIBA Horiba Ltd., Kyoto, Japan
- HUG Hug Engineering AG, Elsau, Schweiz
- KREBSLIGA Krebsliga, Bern, Schweiz
- KISTLER Kistler Work & Trade GmbH, Wangen, Schweiz
- LIEBHERR Liebherr Machines Bulle S.A., Schweiz
- LUNGE ZÜRICH Lunge Zürich, Schweiz
- MAHA MAHA Maschinenbau Haldenwang GmbH & Co.KG, Deutschland
- METAS Bundesamt für Metrologie und Akkreditierung, Bern-Wabern, Schweiz
- NANEOS Naneos Particle Solutions, Windisch, Schweiz
- NL UMWELTMINIST. Ministry of Infrastructure and the Environment of the Netherlands
- NGK NGK Europe GmbH, Kronberg i.T., Deutschland
- SATW Schweizerische Akademie der Technischen Wissenschaften
- SCHILTKNECHT Dr. med. Jacques Schiltknecht, Luzern
- SENSORS Sensors-Europe, Erkrath, Deutschland
- SUVA Schweizerische Unfallversicherungsanstalt, Luzern, Schweiz
- TEHAG TEHAG AG, Schlatt, Schweiz
- TESTO Testo AG, Lenzkirch, Deutschland
- TSI TSI GmbH, Particle Instruments, Aachen, Deutschland
- VERT VERT Association for Verification of Emission Reduction Technologies
- WSU Departement für Wirtschaft, Soziales und Umwelt des Kantons Basel-Stadt