

Program Overview

24th ETH-Conference on Combustion Generated Nanoparticles

June 22 - 24, 2021, online conference

Focus Event: Combustion and Climate Change

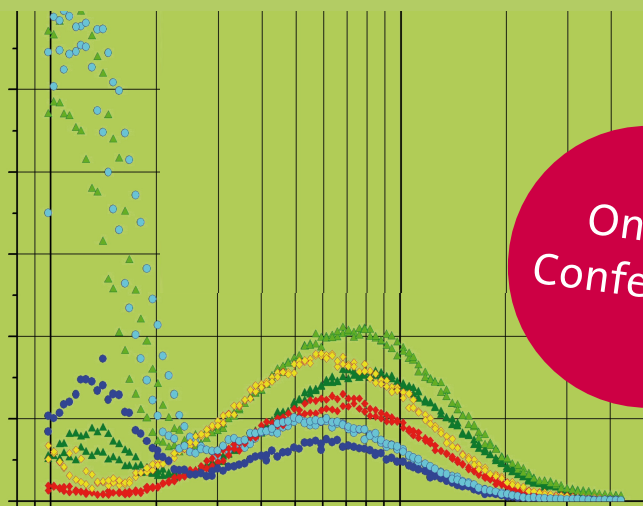
Scope
The conference serves as an interdisciplinary platform for expert discussions on all aspects of nanoparticles, freshly emitted from various sources, aged in ambient air, the impact of particles on health, environment and climate, technical mitigation and legislation. The conference brings together representatives from research, industry and legislation.

Conference Fee
No participation fee will be charged.

ETH zürich



Online
Conference



Tuesday, June 22, 2021

10.00	Welcome and Conference Opening by Gold Sponsors
	Ambient, Indoor and Climate A Chair: Christoph Hüglin, Empa
10.20	Jörg Sintermann , Canton Zürich, AWEL «Ultrafine particle concentrations in Kloten near the Zurich Airport (CH)»
10.40	Katarzyna Szramowiat-Sala , AGH University of Science and Technology «Macro tracer model as a technique for source apportionment of particulate matter in Krakow agglomeration – an optimization approach»
11.00	Morten Køcks , Danish Technological Institute «Clean air test-zone – reduction of emissions from wood stoves»
11.20	Benjamin T Brem , Paul Scherrer Institute «Occurrence and Radiative Properties of Long-range Transported Wildfire Aerosol Measured at the Jungfrauoch»
11.40	Exhibitor Introduction Chair: Heinz Burtscher; FHNW/ISE
12.20	Lunch Break
	Aircraft, Marine and Non-Road Chair: Martin Stöckli, Inspire AG
13.00	Ismael Kenneth Ortega , ONERA «The UNREAL (Unveiling nucleation mechanism in aircraft engine exhaust and its link with fuel composition) project: Results from simulation chamber and reactor experiments»
13.20	Rafael Barrellon-Vernay , ONERA «Impact of fuel composition on primary and secondary aeronautic emissions: gaseous and particulate chemical characterization at molecular level»
13.40	David Kittelson , University of Minnesota «Particle Emissions from Aircraft Gas Turbines: A Coarse Size Mode from Low Emission Engines»
14.00	Niina Kuittinen , Tampere University «Assessment of global particle number emissions from shipping and effect of scrubbers»
14.20	Uwe Etzien , University of Rostock «Analysis of the influence of marine fuels on particle emissions from ships»
14.40	Coffee Break
	Metrology and Legislation A Chair: Oliver Bischof, TSI
14.50	Matteo Kammerer , University of Stuttgart «Evaluating the performance of a particle counting sensor based on continuous-wave laser-induced incandescence»
15.10	Christos Dardiotis , AVL List GmbH «Dual particle counter for measuring simultaneously automotive exhaust solid particle number emissions larger than 10 nm and 23 nm»
15.30	Irena Ježek , Aerosol d.o.o. «Super Polluter Identifier (SPIDER) – a tool for on-road detection of vehicles that contribute disproportionately to the vehicle fleet emissions»
15.50	Coffee Break
	Poster Session 1 (6x3min Video) Chair: Loretta Müller, DBMR University of Bern, Inselspital Bern

www.nanoparticles21.scg.ch

Wednesday, June 23, 2021

	Emission control and aftertreatment Chair: Martin Stöckli, Inspire AG
10.00	Pablo Mendoza Villafuerte , AECC - Association for Emissions Control by Catalysts «Ultra-Low PN10 Emissions of a Close-Coupled Emission Control System on a Heavy-duty Truck Application»
10.20	Andy Thawko , Technion - Israel Institute of Technology «Particle emission from direct injection internal combustion engine fed with various gaseous fuels»
10.40	Hitesh Bharat Chaudhari , Automotive Research Association of India «High Dimensional Fast-Response Particle Number (PN) Surrogate Model Building Methodology for Heavy Duty (HD) Diesel Engine Applications»
11.00	Michal Vojtisek-Lom , Czech Technical University in Prague «Applying lessons learned from diesel exhaust to brake wear nanoparticle measurements and regulation»
11.20	Athanasios Mamakos , AVL List GmbH «Solid and volatile brake-wear nanoparticles under real-world operating conditions»
11.40	Coffee Break
11.50	Exhibitor Session Chair: Heinz Burtcher
12.40	Lunch Break
	Health and Toxicity Chair: Loretta Müller, DBMR University of Bern, Inselspital Bern
13.20	Lilian Calderón-Garcidueñas , The University of Montana, USA «The development and convergence of co-pathologies associated with Tau, A β , α -synuclein and TDP-43 proteinopathies in Metropolitan Mexico City children and young adults: a health crisis is in progress»
13.40	Uschi M. Graham , University of Kentucky, Lexington, KY «Differentiating Translocated Exogenous vs Bio-generated Endogenous Nanoparticle Types in Olfactory Bulb of Humans with Neurodegeneration»
14.00	Alessandra S. Torres Yabar , Worcester Polytechnic Institute «The Impact of Ultrafine Particles on Mental Health»
14.10	Maria Helena Guerra Andersen , National Research Centre for the Working Environment «Health effects from combustion ultrafine particles: consistent observations from controlled human exposure studies»
14.20	Svenja Offer , Helmholtz Zentrum München «Differential impact of biogenic and anthropogenic secondary organic aerosol compounds adsorbed on soot particles in lung cell models at the air-liquid interface»
14.30	Misha Elasziv , Tufts University «Exposure-response functions relating intensity and duration of ambient traffic-related air pollution to systolic blood pressure»
14.40	Coffee Break
	Metrology and Legislation B Chair: Oliver Bischof, TSI
14.50	Ernest Weingartner , University of Applied Sciences Northwestern Switzerland, 5210 Windisch, Switzerland «Development of a new photothermal interferometer for the in-situ measurement of carbonaceous aerosols»
15.10	Gregory J. Smallwood , National Research Council Canada «Calibration of Black Carbon Instruments with the CPMA-Electrometer Reference Mass Standard (CERMS)»
15.30	Alejandro Keller , University of Applied Sciences Northwestern Switzerland, 5210 Windisch, Switzerland «Performance of the new continuous carbonaceous aerosol measurement system FATCAT during long term unattended measurement campaigns»
15.50	Coffee Break
	Poster Session 2 (6x3min Video) Chair: Loretta Müller, DBMR University of Bern, Inselspital Bern

Thursday, June 24, 2021

	Ambient, Indoor and Climate B Chair: Christoph Hügin, Empa
10.00	Heejung Jung , University of California, Riverside «Behavior of particles and gases in vehicle cabin»
10.20	Paul A. Sermon , Brunel University, Uxbridge (UK) «Combustion-generated carbonaceous urban atmospheric UFPs: Efficiencies of face mask control of urban atmospheric particulate pollution: A pointer to control of future pandemics»
10.40	Jun Zhang , Paul Scherrer Institute «Primary organic aerosol emissions and chemical composition from biomass and cow dung burning characterized using extractive electrospray ionization mass spectrometry»
11.00	Kun Li , Paul Scherrer Institute «Secondary nanoparticles formation and composition from open and residential wood burning»
11.20	Exhibitor Introduction Chair: Heinz Burtcher
12.10	Lunch Break
12.50	Awards Ceremony 2021
	Fundamentals Chair: Norbert Heeb, Empa
13.10	Angela Violi , University of Michigan «Network analysis for the formation of aromatics in a co-flow flame»
13.30	Leonardo Pachana , IFP Energies nouvelles «Study of soot production in ethylene pyrolysis using a sectional model»
13.50	Georgios A. Kelesidis , ETH Zurich «Impact of organic carbon on soot light absorption»
14.10	Reza Kholghy , Carleton University, Canada «Surface growth, coagulation and oxidation of soot by a monodisperse population balance model»
14.30	Jon Andersson , Ricardo Automotive and Industrial, Shoreham-by-Sea, UK «Particle number emissions from a Euro 6d-temp GDI under extreme European temperature and driving conditions»
14.50	Coffee Break
	Focus Event Chair: Stephan Renz, Renz Consulting / Andreas Mayer, TTM
15.00	Reto Knutti , ETH Zurich «Climate change: causes, impacts, scenarios and the need for net zero CO ₂ emissions»
15.25	Ulrike Lohmann , ETH Zurich «Future warming exacerbated by aged-soot effect on cloud formation»
15.50	Konstantinos Boulouchos , ETH Zurich «Renewable fuels for combustion engines: candidates, energy supply options and policy considerations»
16.15	Martin Babst , Swiss Federal Office for Energy «Swiss Energy Perspectives 2050+ - Focus on the transport sector»
16.50	Goodbye

Poster Presenters of the Conference

Aircraft, Marine and Non-Road
<p>Katsumi Saitoh, Environmental Science Analysis & Research Laboratory, Japan «Elemental and ionic analysis of aircraft engine smoke number filter samples with micro-PIXE and IC »</p> <p>Lukas Durdina, Zurich University of Applied Sciences, Switzerland «Intercomparison of two reference sampling and measurement systems for aircraft engine non-volatile PM using a small-scale RQL combustor rig burning conventional and sustainable aviation fuels»</p> <p>Jason Scott, Carleton University «Morphology, Composition and Optical Properties of Jet Engine-like Soot Made by Flame Spray Pyrolysis»</p> <p>Akihiro Fushimi, National Institute for Environmental Studies, Japan «Organic analysis of aircraft engine smoke number filter samples with thermal-optical carbon analysis and thermal desorption–gas chromatography/mass spectrometry»</p> <p>Holger Gerwig, UBA «Ultrafine particle dispersion modelling at Frankfurt airport and Rhine-Main-Area, Germany»</p>
Ambient, Indoor and Climate
<p>Moh Naseem, Jawaharlal Nehru University, New Delhi «Abundance and distribution of nitrogen dioxide (NO₂) and particulate nitrate (pNO₃⁻) at an urban site of Delhi-NCR»</p> <p>Alfred Lawrence, Isabella Thoburn College «Air Quality Variation in Six Most Polluted Cities of Northern India during Diwali 2020»</p> <p>Amarjeet Rathee, Jawaharlal Nehru University, New Delhi «Carbonaceous Aerosol at Breathing Height during Wintertime in Ambient Atmosphere of National Capital Region (NCR) of Delhi, India»</p> <p>Y Cheng, Brunel University, Uxbridge (UK) «Combustion-generated carbonaceous urban atmospheric UFPs: Fuel optimisation in transport and decentralized electricity economies to minimise their production and impact»</p> <p>Imran Aslam, KU Leuven «Detection and quantification of combustion-derived particles in aqueous media: towards the development of a diagnostic biomedical assay»</p> <p>Agne Minderyte, SRI Center for Physical Sciences and Technology «Determination of Absorption Ångström Exponent Values for Black Carbon source apportionment Aethalometer Model in Urban Background Environment»</p> <p>Julija Pauraitė, SRI Center for Physical Sciences and Technology «Effects of Outdoor Smoke Events on Indoor air Quality»</p> <p>Amit Yadav, Jawaharlal Nehru University, New Delhi «Fine Particulate Matter Bound Polycyclic Aromatic Hydrocarbon Species in Ambient Atmosphere of Delhi: Concentration, Sources, and Associated Health Risk Assessment»</p> <p>Peter Wahman, Minnesota State University Mankato «Non-Linear Correction Methods Applied to Long Term Deployment of Low-Cost Air Quality Sensors»</p> <p>Nagendra Raparathi, Indian Institute of Technology Bombay«Optical properties of light-absorbing carbonaceous aerosols from on-road vehicles»</p> <p>Daria Pashneva, Department of Environmental research «Outdoor-indoor concentration of black carbon during high pollution events in urban environment»</p> <p>Kunfeng Gao, Beihang University «Soot particle ice nucleation ability dependence on their volatile content»</p> <p>Linda Bondorf, German Aerospace Center (DLR) «Towards the reduction of brake and tire emissions: The Zero Emission Drive Unit (ZEDU-1)»</p>
Fundamentals
<p>Martin Irwin, Catalytic Instruments «A Silver Particle Generator for PN-PEMS Calibration and Validation»</p> <p>Min Zhang, Technical University of Denmark «Effects of ambient CO₂ and H₂O on soot formation in n-dodecane spray combustion»</p> <p>José Morán, INSA Rouen «Effects of overlapping in the evaluation of volume and surface area of complex soot aggregates in flames»</p> <p>Parminder Kaur, Tripura University «Surface Electron Microscope Based Morphological and Chemical Characterization of Combustion Generated Aerosols»</p>

Emission control and aftertreatment
<p>Mengzhao Chang, Chonnam National University «Effect of High Temperature Fuel Injection on Atomization Characteristics of Gasoline Direct Injection Injector»</p> <p>Tayebeh Hamzehlouyan, Sharif University of Technology «Investigation of the aging effect on the activity of a wiremesh oxidation catalyst as an emission control device for 4-stroke gasoline carburetor motorcycles»</p> <p>Wiktor Pacura, AGH University of Science and Technology «Non-regulated emissions from the gasoline vehicles – an ion chromatography analysis of the anions»</p> <p>Shimon Plesnoy, Technion – Israel Institute of Technology «Numerical Investigation of Soot Formation and Oxidation in Wankel Rotary Engine Using Particulate Mimic Soot Model»</p> <p>Sahar Bagheri, University of Technology, Sydney «Real Driving Characterization of DPF Regeneration Events in Euro-5 Light Duty Diesel Vehicles in the Australian fleets»</p> <p>Dal Shin, Chonnam National University «Study for Reducing Fuel Consumption of Internal Combustion Engine Vehicles using OBD Driving Data and Machine Learning»</p> <p>Agnese Magno, STEMS-CNR «Sub-23 nm particle contribution from DI spark ignition engines fueled with gasoline and ethanol blends: PMP compliant measurement and digital filtering»</p> <p>Marek Wozniak, Lodz University of Technology, Poland «The investigations of emission of a variable compress ratio internal combustion engine driving the power generator»</p>
Health and Toxicity
<p>Woranan Netkueakul, ETH Zurich «In vitro toxicity of airborne emissions from combustion of graphene nanoplatelet-enabled epoxy nanocomposites»</p> <p>Tahmeena Khan, Integral University «A Critical Analysis of COVID-19 with Special Emphasis to Air Quality and its Consequences»</p> <p>Violaine de Lagarde, University of Rouen Normandy «Characterization of oxidative potential and toxicology in vitro study of fine and ultrafine PM generated by smoke grenades shots»</p> <p>Michal Vojtisek-Lom, Czech Technical University in Prague «Portable exhaust toxicity system: A concept of a portable air-liquid interface cell exposure system for laboratory and on-road assessment of exhaust toxicity»</p> <p>Angela Violi, University of Michigan «Predicting the permeation of PAHs and nanoparticles through biological cells»</p> <p>Markus Rehberg, Helmholtz-Zentrum München «Real time in vivo investigation early alveolar neutrophil dynamics during ventilator-assisted nanoparticle inhalation»</p>
Metrology and Legislation
<p>Tobias Rüggeberg, FHNW «Handheld Emission Particle Counter for testing diesel particle filters of off-road engines»</p> <p>Jorge Saturno, Physikalisch-Technische Bundesanstalt (PTB) «MetroPEMS: Metrology for portable emission measurement systems. Project goals and preliminary findings»</p> <p>Alejandro Keller, University of Applied Sciences Northwestern Switzerland «Novel, all-in-one apparatus for stable and reproducible generation of atmospherically relevant aerosols using simulated atmospheric aging»</p> <p>Michal Vojtisek-Lom, Czech Technical University in Prague «Potential of portable on-board FTIR analyzers for real driving emissions and chase vehicle monitoring»</p>
PEMS, PTI
<p>Anssi Arffman, Dekati Ltd. «Characterization of the ePNC number counter for annual PTI and testing applications»</p> <p>Erkka Saukko, Pegasor Oy, Tampere, Finland «Fast PN-PTI sensor based on electrical detection and real-time particle size estimation»</p> <p>Chas Frederickson, University of California, Riverside «In-Use Emission Measurements from Two High-Speed Passenger Ferries Operating in California»</p> <p>Dairsy Thomas, 3DATX Corporation «Measuring and reporting PN and PM values from vehicles with different engines, aftertreatment technologies and fuel types»</p> <p>Seongin Jo, Chonnam National University «Study on the Emission Level of Heavy-duty Vehicles in South Korea according to Real Driving Emission Regulation»</p>

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June 22nd - 24th, 2021
ETH Zürich, Switzerland

The 24th ETH Conference on Combustion
Generated Nanoparticles is kindly supported by:

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