

# INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

## MONDAY 11<sup>TH</sup> MAY

**14:00** Registration, Exhibition and Poster Set-up

**15:00** Welcome  
Conference Chairs (Dr Matthew Boyles, Edinburgh Napier University, Edinburgh and Dr Fiona Murphy, University of Strathclyde, Glasgow) & BOHS President, Adrian Paris

**15:30** Keynote  
Effects of traffic related air pollution on health  
Prof. Jill Belch, University of Dundee, Scotland

**16:20**

### 1A: Indoor Air Pollution

Combined Microplastic and Indoor or Urban Dust Exposure Potentiates Inflammatory Responses in a Human Alveolar Model In Vitro

**Joshua Bateman**

Indoor Dust-Induced Cytotoxicity in Dynamic Lung-on-Chip: Role of Exposure Duration and Mechanical Cues

**Vânia Vilas-Boas**

Unravelling the Impact of Airborne Fibers released from Natural, Biobased and Synthetic Textiles on Human Lung Health

**Stephanie Eitner**

In vitro exposure of human lung and macrophage cells to chemical and nanoplastic particle mixtures relevant to indoor environments

**Isobel Meadows**

### 1B: Exposure Measurement

Mineral Dusts from Racetrack Soils: Composition, Surface Reactivity, and Cytotoxicity within a One Health Framework

**Jasmine Rita Petriglieri**

Personal Inhalable Paper Dust Exposure and Potential Determinants among Paper Industry Workers in Ethiopia

**Ararso Tafese**

Characterisation of airborne particulate exposure at a gold mine tailings dam using real-time personal dust monitors and other methods

**Stefan Linde**

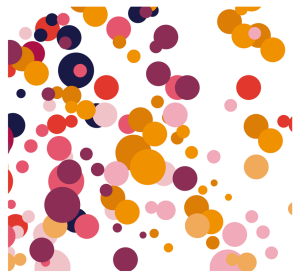
An evaluation of validation schemes for the direct-on-filter X-ray diffraction method for analysis of respirable crystalline silica

**Steven Verpaele**

**17:30** Honorary Lecture: A history of the Inhaled Particles symposia  
**John Cherrie**

**18:30 - 20:00** Welcome Drinks Reception

Please note the programme is subject to change



# INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

## TUESDAY 12<sup>TH</sup> MAY

**08:30 Registration**

**09:00 Keynote**  
**Detecting Nanoplastics – challenges for environmental analysis**  
**Dr. Florian Meirer, Utrecht University, The Netherlands**

**09:50**

### **2A: Toxicity and Micro and Nanoplastics**

Comparative evaluation of ROS–NLRP3 inflammasome-mediated pulmonary toxicity induced by primary and secondary microplastics

**Soyeon Jeon**

Heat-treated PTFE nanoplastics cause chronic colon inflammation in mice

**Aswin Kuttykattil**

In vitro Toxicity of Micro- and Nanoplastics in Alveolar Macrophages and a 3D-Alveolar Model: Influence of Size, Polymer, and Weathering

**Emanoela Tha**

Deposition of microplastics associated with bioaccumulation of heavy metals in human lungs: Adsorption and mobilization of metals via microplastics

**Irfan Rahman**

### **2B: Many Faces of Silica**

Silica Deposits in Renal Tissue from a Chronic Kidney Disease of Unknown Etiology (CKDu) Hotspot Region in Mexico

**Jared Brown**

Occupational Exposure to Respirable crystalline Silica and Its Impact on Lipid Mediators and Oxidative Stress markers in Blood and Urine

**Alexander Hedbrant**

Redefining Real-World Exposure: Advanced Mineralogical Characterisation of Respirable Particles from Mining and Engineered Stone

**Nikky LaBranche**

From silica to engineered stone particles: unveiling properties and mechanisms of surface-mediated toxicity

**Cristina Pavan**

**10:50 Coffee Break: Exhibitor and Poster Viewing**

Please note the programme is subject to change

11:20

**3A: Lung NAMs in Particle Toxicology**

Immune-enriched human lung organoids as a platform for nanotoxicity evaluations

**Sandra Vranic**

Integrative Transcriptomics to Map Carbon based Nanomaterial-Induced Toxicity Pathways in Human Lung Organoids

**Ursula Fiorela Navarro Abarca**

Advancing a Human-Relevant 3D Lung Co-culture Model for Predicting Effects of Inhaled Particles

**Isidora Loncarevic**

Lung organoids model pulmonary epithelial cell circuits induced by carbon-based nanomaterials

**Carola Voss**

**3B: Occupational Risk Assessment**

Health-based nanomaterial guidance value (HNGV) for occupational exposure to spheroidal biodurable engineered nanomaterials of relatively low substance-specific toxicity

**Ilse Gosens**

Evaluation of indices of oxidative DNA damage, inflammation, and polycyclic aromatic hydrocarbon metabolites as biomarkers of toxicity in Foundry workers

**Augusta Nsonwu-Anyanwu**

Welding Fume Exposure and Biomonitoring of Blood Metals and Inflammatory Markers in Exhaled Breath Condensate Among Professional Welders

**Parisa Mahdavi**

Characterisation of Aerosol Emissions and Short-Term Exposure from Line Marking Sprays in Free State Underground Gold Mines

**Unathi Mabandla**

12:20

**Lunch**

13:20

Keynote

**The world of the particles we inhale and how to control it**

**Prof. Lidia Morawska, Queensland University of Technology**

14:10

**Poster Flash Presentations**

15:10

**Coffee Break: Exhibitor and Poster Viewing**

15:40 -  
16:40

**4A: Diesel Exhaust and Traffic Emissions**

Not just a particulate matter: Chemistry trumps particle metrics in driving toxicity from exhaust emissions – results from the ULTRHAS project

**Johan Øvrevik**

**4B: Bioaerosols**

Bacterial composition of settled dust samples across UK railway stations

**Rachel Bowsher**

**Please note the programme is subject to change**

Diesel Exhaust Particles Trigger Oxidative–Inflammatory Alveolar Responses That Produce Endothelium-Disrupting Mediators

**Gerrit Bredeck**

Influence of Hydrodynamic Parameters on Bioaerosol Emissions in Vortex-Driven Motion

**Maheen Shafiq**

Towards an understanding of the relative toxicity of nanoparticles from different transport sources

**Hanna Karlsson**

A Roadmap to an Automated Bioaerosol Monitoring Network in the UK – From Old-School to AI

**Alison Buckley**

Cerebral Oxidative Stress Response to acute Diesel Exhaust and World Trade Center Dust exposures

**Kristina Shkirkova**

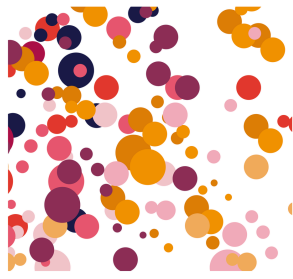
Utilising advanced in vitro lung models to determine the potential toxicological impacts of indoor pollutant component exposure scenarios

**Kirsty Meldrum**

**18:30** **Exhibitor and Poster Viewing / Wine Reception**

**19:30** **Conference Dinner**

**Please note the programme is subject to change**



# INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

WEDNESDAY 13<sup>TH</sup> MAY

08:00 Registration

09:00 **Keynote**  
**Designing Out the Next Asbestos: High-Throughput NAMs, AOPs, FAIR Data and the Future of Advanced Material Safety**  
**Dr. Penny Nymark, Karolinska Institutet**

09:50 Poster Flash Presentations

10:45 Coffee Break: Exhibitor and Poster Viewing

11:15

**5A: Advancing Approaches for Particle Tox**

Role of extracellular vesicles in nanoparticle-induced lung inflammation

**Haiyun Zhang**

Cell culture composition influences cellular responses to particulate matter-associated metals

**Liam J. Edgeway**

Functionalised thin MWCNTs are less toxic on lung cell lines than their native counterparts

**Carole Seidel**

Toxicity of an Al<sub>2</sub>O<sub>3</sub> nanoparticle and HCl mixture: inhalations in vivo versus in vitro at the air-liquid interface

**Maeva Cheriére**

**5B: Immunotoxicity and Inflammation**

Metabolic Disease and Sex Reconfigure Lipid-Mediated Susceptibility to Inhaled Particles

**Jonathan Shannahan**

Transcriptomic Profiling Reveals Immunomodulatory Effects of Welding Particles in Lung Epithelial and Macrophage-like Cells

**Anda Gliga**

Luring out Alveolar Macrophage to Enhance Pulmonary Particle Clearance: A Functional Study Using SiglecF-Cell Tracking

**Zheng Yin**

Role of neutrophil subpopulations during the innate immune response in sterile pulmonary inflammation

**Guo Yang**

Please note the programme is subject to change

Application of simple and robust in vitro pulmonary models to evaluate the safety of carbon-based lubricants

**Alberto Katsumiti**

Impaired replenishment of alveolar macrophages as determinant for the fate of particle exposure triggered pulmonary inflammation and chronic lung diseases

**Tobias Stoeger**

**12:30**

**Lunch**

**13:30**

**6A: Grouping AOPs and Test Guidelines**

Evaluating accuracy of Infinite digital twin for prediction of particle-triggered lung inflammation

**Iztok Urbančič**

Framework Development for Grouping Polymers Based on Their Toxicology

**Bibin Sajan**

Application of small molecule inhibition for grouping of nanomaterials by activated inflammatory signalling pathways in-vitro

**Morgan Lofty**

How could one adapt the assessment of human health impact for micro-and-nanoplastics? Fit-for purpose test materials, in-vitro and in-vivo Test Guidelines.

**Wendel Wohlleben**

**6B: Particle Effects on the Central Nervous System**

Mixed Metal Oxide Exposure Drives Astrocytic Activation In Vitro and In Vivo

**Souvarish Sarkar**

Air pollution, Metal Oxides, and Sex-specific Neurodegeneration

**Marissa Sobolewski Terry**

Air Pollution Derived Fe-Oxide Inhalation Produces Persistent Sex-Specific Behavioural and Morphological Deficits in Mice

**Jithin George**

Brain Neurotransmitter Changes Following Gestational Exposures of Mice to Ambient Air Pollution: Modulation by Sex, Behavioral Experience and Life Stage

**Deborah Cory-Slechta**

**14:30**

**Coffee Break: Exhibitor and Poster Viewing**

**15:00**

**From Evidence to Action: Implementing Effective Air Quality Policy**

**Panel Discussion**

**16:00 -  
16:50**

**Keynote**

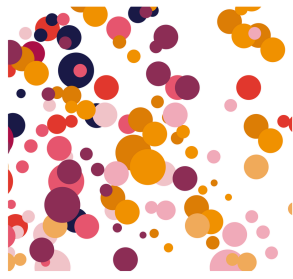
**Innovating Safely: A Policy Framework for Nanomaterials & Advanced Materials**

**Mar Gonzalez, OECD**

**19:00**

**ECR Social Event**

**Please note the programme is subject to change**



# INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE

## THURSDAY 14<sup>TH</sup> MAY

09:00

### 7A: Neurotoxicology

Ultrastructural neurovascular alterations in hippocampus induced by environmentally relevant particle exposure revealed by multi-modal imaging

**Chang Guo**

Inhaled nanoparticle's access, biodistribution, elimination and effects in the brain: A story of exogenous countered by endogenous nanoparticles

**Uschi Graham**

Neurotoxic impact of atmospheric PM<sub>10</sub> from Catalonia: an in vitro study

**Esmeralda Ayala**

Assessment and characterization of SiO<sub>2</sub> nanoparticles and their potential neuro-nanotoxicity

**Ernesto Alfaro-Moreno**

### 7B: In silico Approaches to Hazard and Exposure

In silico Prediction of In Vivo Lung Inflammation Caused by Nanomaterials Using Advanced Nanomaterial Characterisation

**Vladimir Lobaskin**

LungVis1.0 enables AI-enhanced, high-resolution dosimetry and biokinetics studies in the lung

**Otmar Schmid**

Comparative analysis of early transcriptomic changes in the lung of F344 rats exposed to different carbon nanotubes and chemical carcinogens

**Omnia Ahmed**

LungCHEM-Py: A computational model to predict asthma exacerbation risk from indoor air pollutants

**Helen L. Davies**

10:00

**Coffee Break: Exhibitor and Poster Viewing**

10:30

### 8A: Outdoor Environment

Wildfire surrogate wood smoke particles elicit events linked to premalignant effects in human lung epithelial cells

**Alison K. Bauer**

### 8B: Beyond the Lung

Chronic PET Nanoplastics ingestion triggers genotoxic and immune responses disrupting gut and systemic homeostasis

**Lewis Hodgetts**

Please note the programme is subject to change

Investigation of the cellular and molecular effects of airborne emerging pollutants in a unique human cell model

**Katja Kanninen**

Cytokine Upregulation in Female Placentas of Nano-Titanium Dioxide Exposed Rat Dams

**Elizabeth Bowdridge**

Repeated Agricultural Dust Exposure Drives Coordinated Pulmonary and Renal Inflammation with Implications for CKDu

**Matthew Gibb**

Skin Responses to Air Pollution: Keratinocyte Toxicity and Lipidomic Remodeling in Reconstructed Skin

**Carmen Bedia**

The crystalline silica hazard of volcanic ash: time to get to the bottom of this enigma!

**Claire Horwell**

A comparative biodistribution and toxicity study of single and multi-component nanomaterials: TiO<sub>2</sub>, SiC, and SiC@TiO<sub>2</sub>

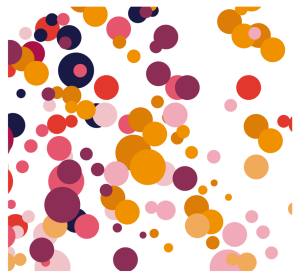
**Flemming Cassee**

**11:30**      **Keynote**  
**From Air to Brain: Investigating the Pulmonary-Neural Axis**  
**Dr. Ian Mudway, Imperial College London**

**12:35**      **Poster Prize Giving**

**12:45**      **Conference Close**

Please note the programme is subject to change



# INHALED PARTICLES AND INTERNATIONAL PARTICLE TOXICOLOGY CONFERENCE POSTER SUBMISSIONS

- |    |   |                    |
|----|---|--------------------|
| 3  | In vitro toxicity assessment of ceramic resins used in additive manufacturing: Implications for occupational health   | Suranie Horn       |
| 5  | From Water-Borne solids to Airborne Pollutants: The Re-Aerosolization of Respirable Dust  | Unathi Mabandla    |
| 9  | Evaluation of Oxidative Stress Inducibility of Total Suspended Particles (TSP) in Urban Air of Delhi  | Yuji Fujitani      |
| 10 | Oxidative potential as measure for airborne particulate matter induced health effects   | Wanda van der Stel |
| 12 | Multi-omics profiling of protective mechanisms against macrophage senescence induced by brake-derived PM2.5   | Jae-Jun Kim        |
| 17 | Dustiness of carbon nanotubes as a prerequisite for inhalation toxicology studies: influence of morphology and surface functionalization                          | Carole Seidel      |
| 18 | In vitro dosimetry of Multi-Walled Carbon Nanotubes on human bronchial epithelial cells (BEAS-2B)   | Carole Seidel      |
| 23 | Interaction Between Sugarcane Ash-Derived Silica Nanoparticles and Pesticides Leads to Mitochondrial Impairment in Human Proximal Tubular Kidney Cells            | Carly Chesterman   |
| 25 | Accuracy and interferences associated with direct-on-filter quartz analysis of samples obtained from a brickworks, copper mine and gold mine                      | Stefan Linde       |
| 28 | Plasma Membrane Impacts of Particulate Matter on the Blood-Brain Barrier  | Chang Guo          |
| 29 | Understanding the Impacts of Inhaled Particulate Matter on the Blood-Brain Barrier  | Chang Guo          |
| 30 | Exposure to nickel in UK workplaces   | Jack Smith         |
| 31 | The Neurotoxic Threat of Air Pollution: A Critical Synthesis of Behavioral and Mechanistic Evidence from Rodent Models  | Chang Guo          |
| 34 | Assessment of Lung Function, Oxidative Stress, Inflammation, Heavy Metals, and Polycyclic aromatic hydrocarbon Metabolites in Occupational Exposure to Sand Dust. | Chinyere Usoro     |
| 37 | Attenuation of Toxic Responses Triggered by Ultrafine Particle Overload   | So-Young An        |

38	Biotransformation-Driven Pulmonary Fate of Iron Oxide Nanoparticles after Repeated Inhalation Exposure	Songyeon Kim
39	In Vivo Assessment of Pulmonary Toxicity and Oxidative Stress–Driven Inflammation Induced by Brake Wear Particles	Gyuri Kim
43	Development of an Animal-Product Free In Vitro Lung Model for Nanomaterial Hazard Assessment	Katie McAllister
49	An experimental approach for the quantitative definition of asbestos-like morphology in naturally occurring mineral fibres	Jasmine Rita Petriglieri
54	Erionite-Induced Carcinogenicity: Mechanistic Insights and Comparative Potency with Asbestos	Kylie Jones
55	Inhalation Hazard of Graphene-Enabled Composite Materials during Manufacture and Degradation of Market-Relevant Products	Peter Wick
57	Silicon Carbide Nanowires Compromise Mucociliary Clearance Function in Human Bronchial Cells	Peter Wick
59	Development of a Simple and Cost-Effective In Vitro Model for Hazard Assessment of Nanomaterials in the Pulmonary System	Alberto Katsumiti
60	In vitro models for respiratory allergic responses: a rapid review of current approaches and challenges.	Emma-Jane Goode
61	Developing a new approach for the investigation of fibrous dust exposure for occupational safety and health in practice	Dawn Webster
63	Liposomal encapsulation of tobramycin: an innovative strategy to enhance treatment of pulmonary infections by <i>Pseudomonas aeruginosa</i>	Alberto Katsumiti
64	Early Method Development for Exhaled Breath Condensate Particle Characterisation Using Single Particle Inductively Coupled Plasma Mass Spectrometry (spICP-MS)	Jasmine Hall
65	Inflammatory effects of Saharan dust in co-cultures: the role of microbial constituents	Lara Boßmann
67	The LowC-project: Safe and sustainable Low-Carbon fuels for heavy-duty, aviation, and maritime sectors.	Johan Øvrevik
71	In vitro human alveolar macrophage (ImmuPHAGE™) responses to particulate matter exposure	Vinit Pereira
72	biological relevance of In finite™ Lung digital twin for animal/hypothesis-free prediction of material-induced chronic lung inflammation	Tilen Koklič
75	Metal Emissions in E-Cigarettes: Impacts on Respiratory Health	Rachel Bowsher
78	Fibre-like behaviour of thin nanotubes: in vitro toxicological and proteomic evidence	Carla Ribalta

<b>80</b>	Testing respiratory effects and immunotoxic impacts employing the NAVETTA in vitro aerosol exposure system	<b>Martin Himly</b>
<b>83</b>	Shipping-associated particulate matter enhances viral susceptibility and heightens inflammatory responses in bronchial and alveolar epithelial cells	<b>Liam J. Edgeway</b>
<b>84</b>	The future of Particulate Matter Low-Cost Sensor Devices for emission and exposure measurements in occupational settings	<b>Delphine Bard</b>
<b>88</b>	Modelling the alveolar niche using mono-, co-, and triple-culture systems to mimic the inflammatory response to inhaled nano materials	<b>Osama Huzain</b>
<b>90</b>	Effects of Acute Copper Ultrafine Particle Inhalation in APP/PS1 Mice	<b>Jessica Enos</b>
<b>93</b>	Integrated Analysis of Cellular Pathways of Respiratory Nanotoxicity	<b>Jiating Deng</b>
<b>94</b>	Unveiling the mechanisms of lung injury caused by nanoparticle-triggered virus reactivation	<b>Nethaji Kuruppu</b>
<b>97</b>	Toxicity of welding fumes produced by Gas Metal Arc Welding and Handheld Laser Beam Welding	<b>Bernadette Quemerais</b>
<b>102</b>	Inhalation of Nano and Micro Polyethylene Particles Induces Higher Lung Inflammation in Women Compared to Men	<b>Seokjoo Yoon</b>
<b>104</b>	The role and work of the International Sampler Comparison Group (ISCG)	<b>Steven Verpaele</b>
<b>109</b>	Combined exposure effects of multi-walled carbon nanotubes and silver nanoparticles in in vitro models	<b>Angela Kämpfer</b>
<b>117</b>	Winter Emissions Triggered Stress and Antiviral Cellular Responses in the Human Airway Model	<b>Tereza Cervena</b>
<b>119</b>	Deposition of Inhaled Flavoring Compounds in ENDS Aerosols in the Mouse and Human Respiratory Tracts	<b>Todor Antonijevic</b>
<b>124</b>	Two-dimensional MXenes are increasingly incorporated into biomedical, sensing, and environmental technologies, raising important questions regarding their safety.	<b>Tia Wardlow</b>