

# Design and Performance of Personal Electrostatic Bioaerosol Sampler (PEBS)

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Keywords: Bioaerosols; Personal sampler; Electrostatic collection;  
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The goal of this project is to develop a self-contained battery-operated personal electrostatic bioaerosol sampler (PEBS) featuring high collection efficiency. In addition, to be suitable for bioaerosol collection, the sampler had to produce low ozone concentrations so as not to affect the properties of collected microorganisms needed for their identification and quantification. Such a sampler is easy to wear and can be applied for occupational and environmental studies and field deployments.

In this sampler, bioaerosols are drawn into an open channel collector, electrically charged and deposited onto a removable metal plate covered with a superhydrophobic substance. To achieve high collection efficiency with low ozone production, the sampler features a novel wire-to-wire charger, where a 1-inch long tungsten wire (0.003 inches in diameter) is positioned in the center of the charging chamber (i.e., 1-inch cylinder) and connected to high voltage; a ring of stainless steel wire (0.015 inches in diameter) is affixed to the cylinder wall perpendicular to the tungsten wire and grounded. The mixing of incoming particles and produced ions is enhanced by using a novel static air blender positioned at its inlet.

The PEBS itself has a shape of a cylinder of 1 inch (2.54 cm) in diameter, is 5 inches (13 cm) long, and is made of a static dissipative material (Delrin). The air mover and batteries are incorporated in one sampler body. At this stage of development, the sampler was tested in the laboratory at different charging and sampling voltages when challenged with polystyrene (PSL) particles ranging from 0.025  $\mu\text{m}$  to 3  $\mu\text{m}$  in diameter and at flow rates of 10 L/min and 30 L/min. Investigated sampling times ranged from 10 min to 4 hours. The sampler's collection efficiency was determined by measuring the amount of particles deposited on the collection plate relative to the particle concentration upstream of the sampler.

Due to the unique charger configuration, satisfactory sampler performance was achieved at relative low charging voltages of approximately +5.5 kV, while collection voltage was set to -7 kV. For the investigated particles, including the nano-sized ones, the collection efficiency was 70-90%. The observed collection efficiency did not vary significantly as a function of sampling time. Even at the longest

investigated sampling time of 4 hours, the collection efficiency of ~70% was achieved. More importantly, the unique wire-to-wire charger resulted in ozone production below 10 ppb. This concentration is much lower than observed in other electrostatic collectors featuring ionizers.

Some experiments have also been performed with airborne biological particles (bacteria) and the sampler showed collection efficiencies in the 70-80% range. Overall, the new sampler concept is showing good potential as a personal bioaerosol sampler. Due to its high concentration rate, it will allow a more accurate monitoring of personal exposures to even low microorganism concentrations and thus improve the ability to identify the exposure risks and protect affected populations.

## Acknowledgement

This work was supported by the Centers for Disease Control / National Institute for Occupational Safety and Health grant R21-10560.

At a glance

Sunday 04 September

Monday 05 September

Tuesday 06 September

Wednesday 07 September

Thursday 08 September

Friday 09 September

Aerosol &amp; Health

Search in my bookmarks Search

Wednesday 07 September

10:40

23-IND1

10:40 - 13:00

**INDOOR AND WORKING PLACE AEROSOL**

## Indoor aerosols

Chairmen: Ian COLBECK (Colchester, UK), Congrong HE (Brisbane, AUSTRALIA)

10:40 - 11:00

#5288 - [O23-AH-IND-01 I/O aerosol characterization in a kindergarten.](#)

Jakub ONDRÁČEK (Prague 6, CZECH REPUBLIC), Nicholas TALBOT, Michael CUSACK, Vladimír ŽDÍMAL, Jaroslav SCHWARZ

11:00 - 11:20

#5126 - [O23-AH-IND-02 Quantifying trace elements in the emitted particulate matter during cooking using an electric stove.](#)

Soudabeh GORJINEZHAD, Aiyngul KERIMRAY, Mehdi AMOUEI TORKMAHALLEH (Astana, KAZAKHSTAN), Melek KELES, Fatma OZTURK, Philip HOPKE

11:20 - 11:40

#5184 - [O23-AH-IND-03 Cooking with condiments an important source of terpenes in indoor environments.](#)

Felix KLEIN (Villigen PSI, SWITZERLAND), Naomi FARREN, Carlo BOZZETTI, Kaspar DÄLLENBACH, Dogushan KILIC, Nivedita K. KUMAR, Simone M. PIEBER, Jay G. SLOWIK, Rosemary TUTHILL, Jacquelin HAMILTON, Urs BALTENSPERGER, Andre S.h. PRÉVÔT, Imad EL HADDAD

11:40 - 12:00

#5626 - [O23-AH-IND-04 Excluding Non-Occupancy Data Improves Exposure Assessment in Indoor Environments.](#)

Aneta WIERZBICKA (Lund, SWEDEN), Mats BOHGARD, Joakim PAGELS, Andreas DAHL, Jakob LÖNDAHL, Tareq HUSSEIN, Erik SWIETLICKI

12:00 - 12:20

#5329 - [O23-AH-IND-05 Nearly Zero Energy Buildings and Indoor Exposures to Ambient PM.](#)

Otto HÄNNINEN (Helsinki, FINLAND), Riikka SORJAMAA, Arja ASIKAINEN

12:20 - 12:40

#5694 - [O23-AH-IND-06 Feasibility of combining airborne pollutant measurements with spatially resolved infrared thermography to develop a novel tool for indoor air quality investigations.](#)

Gediminas MAINELIS (New Brunswick, USA), Calderon LEONARDO, Nirmala THOMAS, Mengyang GUO, Prarthana RAJA, Maryann SØRENSEN-ALLACCI, Deborah PLOTNIK, Jennifer SENICK, Jie GONG, Clinton ANDREWS

12:40 - 13:00

#5643 - [O23-AH-IND-07 Forecasting particulate matter concentrations in an indoor environment.](#)

Rachid OUARET (CRETEIL), Anda IONESCU, Viorel PETREHUS, Yves CANDAU, Olivier RAMALHO

RESERVE PAPER / P3-AH-IND-002 The application of the ventilation and air conditioning system to stabilize the air quality parameters in hospital operating rooms.  
Tomasz JANKOWSKI, Magda MLYNARCZYKRoom 1  
(Level 2)

Thursday 08 September

10:00

28-IEH1

10:00 - 12:20

**INHALATION EXPOSURE AND HEALTH**

## Toxic mechanisms and biological responses to aerosol components

Chairmen: Otto HÄNNINEN (Helsinki, FINLAND), Ralf ZIMMEREMANN (Rostock, GERMANY)

10:00 - 10:20

#4699 - [O28-AH-IEH-01 PM pollution : taking into account of bioaccessibility into acellular assays for health impact assessment.](#)

Aude CALAS, Aude CALAS (Saint Martin d'Hères), Gaëlle UZU, Stephan HOUDIER, Jean MARTINS, Jean-Luc JAFFREZO

10:20 - 10:40

#4701 - [O28-AH-IEH-02 PM pollution : Oxidative Potential of PM10 in the Arve Valley \(France\) - comparison of two different assays measurement.](#)

Gaëlle UZU, Gaëlle UZU (Saint Martin d'Hères), Aude CALAS, Ana OLIETE, Christina DUNSTER, Frank KELLY, Jean MARTINS, Jean-Luc JAFFREZO

10:40 - 11:00

#4920 - [O28-AH-IEH-03 Evaluating the toxicity of airborne particulate by measuring oxidative potential with spectrophotometric a-cellular assays.](#)

Marco VISENTIN (Ferrara, ITALY), Antonella PAGNONI, Maria Chiara PIETROGRANDE

11:00 - 11:20

#5083 - [O28-AH-IEH-04 Reactive oxygen species: links between particle chemical composition, emission sources and oxidation reactivity.](#)

Jun ZHOU (Villigen, SWITZERLAND), Emily Anne BRUNS, Peter ZOTTER, Roman FRÖHLICH, Stefanelli GIULIA, Manuel KRAPP, Wang QIYUAN, Miriam ELSEER, Deepika BHATTU, Rujin HUANG, Slowik JAY GATES, Cao JUNJI, Nussbaumer THOMAS, Geiser MARIANNE, Urs BALTENSPERGER, Andre PREVOT, Imad HADDAD, Josef DOMMEN

11:20 - 11:40

#5464 - [O28-AH-IEH-05 Comparative analysis of the toxic responses of organic extracts from diesel/biodiesel engine emissions in human lung BEAS-2B cells.](#)

Helena LIBALOVA, Kristyna VRBOVA, Tana BRZICOVA, Jitka STOLCPARTOVA, Michal VOJTISEK-LOM, Vit BERANEK, Miroslav CIGANEK, Jiri NECA, Miroslav MACHALA, Jan TOPINKA (Prague 4, CZECH REPUBLIC)

11:40 - 12:00

#5380 - [O28-AH-IEH-06 Studying the biological effects of combustion aerosols on air/liquid-interface exposed human and murine lung cells within the HICE-project: Composition and molecular biological effects of emissions from wood combustion, ship emissions and car engines.](#)

Ralf ZIMMERMANN (Rostock, GERMANY), T. G. DITTMAR, T. KANASHOVA, J. BUTERS, S. ÖDER, H. PAUR, C. SCHLAGER, S. MÜLHOPT, M. DILGER, C. WEIß, S. DIABATE, H. HARNDORF, B. STENGEL, R. RABE, K. HILLER, S. C. SAPCCARIU, K. A. BERUBE, A. J. WLODARCZYK, B. MICHALKE, T. KREBS, M. KELBG, J. TIGGESBÄUMKER, T. STREIBEL, E. KARG, S. SCHOLTES, J. SCHNELLE-KREIS, J. LINTELMANN, M. SKLORZ, M. ARTEAGA SALAS, S. KLINGBEIL, J. ORASCHE, P. RICHTHAMMER, L. MÜLLER, A. RHEDA, J. PASSIG, T. GRÖGER, G. ABBASZADE, C. RADISCHAT, S. SMITA, T. TORVELA, P. TIITTA, M. KORTELAINEN, H. LAMBERG, J. TISSARI, A. LESKINEN, P. JALAVA, M. R. HIRVONEN, S. KASURINEN, O. SIPPULA, J. JOKINIEMI

12:00 - 12:20

#5446 - [O28-AH-IEH-07 Correlations between the toxicity and optical properties of atmospheric aerosol measured by self-developed photoacoustic and supplementary instrumentation.](#)

Noémi UTRY (Szeged, HUNGARY), Máté PINTER, Tibor AJTÁI, Gergely KISS-ALBERT, Andrea PALÁGYI, László MANCZINGER, Csaba VÁGVÖLGYI, Kornélia IMRE, Beatrix JANCSEK-TURÓCZI, András GELENCSEER, Gábor SZABÓ, Zoltán BOZÓKI

RESERVE PAPER / P3-AH-IEH-013 Effect of airborne particulate matter on oxidative stress, pro-inflammatory response and intracellular calcium signaling in pulmonary artery endothelial cells.  
Juliette DEWEIRD, C. GUIBERT, M.B. CROBEDDU, J. SCIARE, A. BAEZA-SQUIBAN, J.Pp. SAVINEAU, B. MULLER, J.F. QUIGNARD, Isabelle BAUDRIMONTRoom 1  
(Level 2)

13:50

33-Sp\_Se 8

13:50 - 16:10

**SPECIAL SESSION 8: INHALATION EXPOSURE AND HEALTH**

## Aerosol exposures for toxicological and therapeutic studies

Chairmen: Arkadiusz KUCZAJ (Neuchâtel, SWITZERLAND), Otmar SCHMID (Neuherberg/Munich, GERMANY)

13:50 - 14:10

#5569 - [O33-AH-SS8-01 Dosimetry tools, approaches and applications for tobacco and next generation product testing.](#)

David THORNE, Marianna GACA, John MCAUGHEY, Jason ADAMSON (Southampton, UK)

14:10 - 14:30

#5279 - [O33-AH-SS8-02 In-vitro characterization of failure related emissions of small batteries.](#)

Detlef RITTER (Hannover, GERMANY), Wolfgang KOCH, Annette BITSCH

14:30 - 14:50

#5098 - [O33-AH-SS8-03 An effective inhalation system for preclinical pulmonary drug delivery in mice.](#)

Winfried MÖLLER, Andreas STELZL, Isabel HERRMANN, Gunter EDER, Oliver EICKELBERG, Otmar SCHMID (Neuherberg/Munich, GERMANY)

14:50 - 15:10

#5234 - [O33-AH-SS8-04 Experimental model to investigate aerosol drug delivery and pharmacokinetics in pulmonary medicine.](#)

Antoine GUILLOIN (Tours), P. LHOUMMET, J. PARDESSUS, C. BOIXEL, J. MONTHARU, V. SCHUBNEL, R. H. BLANCHARD, C. BATTUT, F. PERROT, D. MARCHAND, B. PLANTE, C. AUBERT, G. ROSEAU, F. PATIN, R. RESPAUD, C. PARENT, L. BERNARD, A. DUDZICKI, E. GUILLOT, M. DE MONTE, P. JANIAK, Nathalie HEUZÉ-VOURCH

15:10 - 15:30

#5565 - [O33-AH-SS8-05 Aerosols and their considerations in different regulations.](#)

Annette BITSCH (Hannover, GERMANY), Detlef RITTER, Wolfgang KOCH

15:30 - 15:50

#5828 - [O33-AH-SS8-06 Eulerian modeling of polydisperse aerosol deposition in a realistic cast of the human upper respiratory tract.](#)

Edo FREDERIX (Enschede, THE NETHERLANDS), Arkadiusz KUCZAJ, Markus NORDLUND, Bernard GEURTS

15:50 - 16:10

#4632 - [O33-AH-SS8-07 A model for assessment of alveolar dimensions from recovery of inhaled nanoparticles.](#)

Jakob LÖNDAHL (Lund, SWEDEN), Jonas JAKOBSSON, David M. BRODAY, H. Laura AALTONEN, Per WOLLMER

RESERVE PAPER / P3-AH-SS8-013 Is there any synergy in the observed health effects due to exposure to particles and noise? Results from DINO study - controlled chamber exposure.  
Aneta WIERZBICKA, Maria ALBIN, Mats BOHGARD, Axel ERIKSSON, Inger HAGERMAN, Christina ISAXON, Patrik NILSSON, Joakim PAGELS, Jenny RISSLER, Yiyi XU, Anders GUDMUNDSSON

Room 1  
(Level 2)

16:10

P3-AH-SS6

16:10 - 18:10

POSTER SESSION

Bioaerosol

#4660 - [P3-AH-SS6-001 Continuous bioaerosol sampling using inertial microfluidics.](#)

Jungan CHOI, Jung JAEHEE (Seoul, KOREA)

#5358 - [P3-AH-SS6-002 New insight about bioaerosol exposure in Waste Sorting Plants: Exposure levels, size distribution, and biodiversity of airborne microorganisms.](#)

Dr Philippe DUQUENNE (Vandoeuvre-lès-Nancy), Xavier SIMON, Jodelle DEGOIS, Catherine COULAIS, Véronique KOEHLER, Guylaine GREFF

#4567 - [P3-AH-SS6-003 Sorting of household plastic packaging : new instructions are associated with changes in exposure to bioaerosols in materials recovery facilities.](#)

Olivier SCHLOSSER (LE PECQ), Isabelle DEPOTES, Brigitte FACON, Eric FROMONT

#4575 - [P3-AH-SS6-004 Characterization of biosurfactants from cloud microorganisms.](#)

Pascal RENARD, Martine SAMCELME, Isabelle CANET, Mounir TRAIKIA, Virginie VINATIER (Clermont-Ferrand), Laurent DEGUILLAUME, Anne Marie DELORT

#4625 - [P3-AH-SS6-005 Investigations on Legionella containing aerosols: set-up of a model shower aerosol chamber.](#)

Bettina KIWULL (München, GERMANY), Anika WUNDERLICH, Sandra WALSER, Bernadett BARTHA, Bernhard BRENNER, Stefanie HUBER, Christian LÜCK, Christiane HÖLLER, Caroline HERR, Michael SEIDEL, Reinhard NIESSNER

#4733 - [P3-AH-SS6-006 Respiratory viruses' behaviours on filters of air handling units.](#)

Victor BANDALY (NANTES), Pierre LE CANN, Yves ANDRES

#4747 - [P3-AH-SS6-007 Indoor dust as a template to assess indoor aerosol bacteria contamination.](#)

Yanis GUENOUNE (Rennes), Pierre LE CANN

#4760 - [P3-AH-SS6-008 Application of aqueous ozone spray on suppression of indoor bioaerosols.](#)

Chin-Hsiang LUO (Taichung, TAIWAN), S. YANG, T. Y. LIU, Y. Y. CHEN, Z. H. YAN

#4812 - [P3-AH-SS6-009 Efficiency of a free-standing air cleaner in reducing children's exposure to fungal spores.](#)

Tiina REPONEN (Cincinnati, USA), Jennie COX, Reshmi INDUGULA, Chris WOLFE, Kelechi ISIUGO, Patrick RYAN, Sergey A. GRINSHPUN, Michael YERMAKOV, Anna LAWNICZEK-WALCZYK, Steve VESPER

#4834 - [P3-AH-SS6-010 Ozone-induced chemical modifications of pollen coating.](#)

Nicolas VISEZ (Villeneuve d'Ascq), Sylvie GOSSELIN, Jinane FARAH, Denis PETITPREZ, Moomen BAROUDI

#5097 - [P3-AH-SS6-011 ChAMBRé - the development of an atmospheric simulation chamber for bioaerosol studies and aerosol optical properties investigation.](#)

Paolo BROTTTO (Genoa, ITALY), Elena GATTA, Franco PARODI, Maria Chiara BOVE, Dario MASSABO, Valerio VIGO, Paolo PRATI

#5338 - [P3-AH-SS6-012 Rapid monitoring of bioaerosols in industrial, agricultural and urban environments.](#)

Ferguson ROBERT (Colchester, UK), A. DUMBRELL, C. WHITBY, I. COLBECK

#5447 - [P3-AH-SS6-013 Real time detection and characterization of bioaerosols from environmental sources.](#)

Zaheer Ahmad NASIR (Bedford, UK), Sean TYRREL

#5471 - [P3-AH-SS6-014 MolDeMould - Molecular detection of airborne mould by microfluidic qPCR.](#)

Verena UNTERWURZACHER (Tulln, AUSTRIA), Clara POGNER, Walter PULVERER, Joseph STRAUSS, Markus GORFER

#5520 - [P3-AH-SS6-015 Airborne bacteria in hospital operating theatres during surgery.](#)

Malin ALSVED (Lund, SWEDEN), Anette CIVILIS, Peter EKOLIND, Ann TAMMELIN, Anette ERICHSEN ANDERSSON, Jonas JAKOBSSON, Tobias SVENSSON, Matts RAMSTORP, Tina SANTL TEMKIV, Mats BOHGARD

#5711 - [P3-AH-SS6-016 Seasonal variation of airborne bacterial and fungal communities in different size fractions in an urban and a semi-urban residential environment using molecular techniques.](#)

Nikoletta GRYDAKI (Colchester, Essex, UK), Corinne WHITBY, Ian COLBECK

#5710 - [P3-AH-SS6-017 The effect of filter-based sampling parameters on abundance and diversity of indoor bioaerosols.](#)

Nikoletta GRYDAKI (Colchester, Essex, UK), Corinne WHITBY, Ian COLBECK

#4606 - [P3-AH-SS6-018 Applications of Electrospray - Differential Mobility Analysis \(ES-DMA\) to nano\(bio\)particles measurements in the health field.](#)

François GAIE-LEVREL (PARIS CEDEX 15), Noémie CLOUET-FORAISSON, Dimitri BRINET, Myriam TAVERNA, Julia KAFFY, Sandrine ONGERI, Vincent DELATOUR

Poster  
area

P3-AH-SS8

16:10 - 18:10

POSTER SESSION

Aerosol exposures for toxicological and therapeutic studies

#5054 - [P3-AH-SS8-001 Lung deposition of nanoparticles in COPD patients and healthy subjects compared to clinical lung function tests and computed tomography.](#)

Jonas Karl Fredrik JAKOBSSON (Lund, SWEDEN), Hanni Laura AALTONEN, Hanna NICKLASSON, Per WOLLMER, Jakob LÖNDAHL

#5398 - [P3-AH-SS8-002 Responses of normal and diseased airway epithelia to different particle types at ambient concentration levels.](#)

Marianne GEISER (Bern, SWITZERLAND), Manuet KRAPP, Lisa KÜNZI, Sandrine ALLENBACH, Jun ZHOU, Imad EL HADDAD, Emily A. BRUNS, Urs BALTENSPERGER, Josef DOMMEN

#5225 - P3-AH-SS8-003 Particle deposition model for the Balb/c mouse respiratory tract.  
Werner HOFMANN (Salzburg, AUSTRIA), Renate WINKLER-HEIL

#5296 - P3-AH-SS8-004 Toll like receptor mediated proinflammatory response to environmental respirable aerosol (Carbon Nano Particles) in Primary bronchial epithelial cells.  
Swapna UPADHYAY (Stockholm, SWEDEN), Jie Ji, Koustav GANGULY, Per GERDE, Lena PALMBERG

#5165 - P3-AH-SS8-005 Effects of cerium oxide nanoparticle aerosol on human lung cells exposed at the Air-Liquid-Interface.  
Sonja MUELHOPT (Eggenstein-Leopoldshafen, GERMANY), Silvia DIABATE, Christoph SCHLAGER, Marco DILGER, Sivakumar MURUGADOSS, Carsten WEISS, Tobias KREBS, Selina TANG, Pete GOODEN, Leigh-Anne KOEKEMOER, Susan DEKKERS, Flemming CASSEE, Hanns-Rudolf PAUR

#4610 - P3-AH-SS8-006 Development and validation of an inhalation system suitable for rodent exposure to carbon nanotubes.  
Frédéric COSNIER (Vandoeuvre-lès-Nancy), Sébastien BAU, Stéphane GROSSMANN, Stéphane VITON, Hervé NUNGE, Raphaël PAYET, Alexis BOIVIN, Olivier WITSCHGER, Laurent GATE

#5101 - P3-AH-SS8-007 Generation and Monitoring of Laser Printer Aerosols for an in-vivo Exposure Study with Human Proband.  
Stefan SEEGER (Berlin, GERMANY), Miriam EHRET, Britta HERBIG, Rudolf JÖRRES, Stefan KARRASCH, Jeanette LANGNER, Dennis NOWAK, Rudolf SCHIERL

#5214 - P3-AH-SS8-008 Reproducible aerosol generation for mass balance studies and dosimetry investigation with low particle masses.  
Sonja MUELHOPT (Eggenstein-Leopoldshafen, GERMANY), Christoph SCHLAGER, Wilson KAN, Hanns-Rudolf PAUR

#5382 - P3-AH-SS8-010 A portable, automated online instrument to quantify reactive oxygen species (ROS) in ambient aerosol.  
Francis WRAGG, Raymond FRESHWATER, Green DAVID, Christina DUNSTER, Frank KELLY, Markus KALBERER (Cambridge, UK)

#5543 - P3-AH-SS8-011 Nanoparticle Delivery to Living Cells Supported by Thermophoresis.  
Dirk BROßELL (Berlin, GERMANY), Silke STEINBORN, Gunter LINSSEL, Andreas SCHMIDT-OTT

#5578 - P3-AH-SS8-012 Characterization of Aeronex vibrating mesh nebulizers and implications for ALICE-Cloud technology.  
Katharina WIELAND, Winfried MÖLLER, Andreas STELZL, Gunter EDER, Otmar SCHMID (Neuherberg/Munich, GERMANY)

#5680 - P3-AH-SS8-013 Is there any synergy in the observed health effects due to exposure to particles and noise? Results from DINO study - controlled chamber exposure.  
Aneta WIERZBICKA (Lund, SWEDEN), Maria ALBIN, Mats BOHGARD, Axel ERIKSSON, Inger HAGERMAN, Christina ISAXON, Patrik NILSSON, Joakim PAGELS, Jenny RISSLER, Yiyi XU, Anders GUDMUNDSSON

Poster  
area

P3-AH-IEH

16:10 - 18:10

## POSTER SESSION

### Aerosol and Health - Inhalation Exposure and Health

#4745 - P3-AH-IEH-002 Gas-phase fabrication of biomedical nanomaterials for theranostics.  
Georgios A. SOTIRIOU (Solna, SWEDEN)

#5071 - P3-AH-IEH-003 Nebulized aerosol deposition in a realistic nasal cast during inhalation and exhalation.  
Laurent VECELLIO (Tours), M. FRANCIS, D. LE PENNEC, Gerallt WILLIAMS, E. DUCLOS, P. DIOT

#5528 - P3-AH-IEH-004 Characterization of the aerosol applied for Pressurized IntraPeritoneal Aerosol Chemotherapy (PIPAC).  
Daniel GÖHLER (Dresden, GERMANY), Veria KHOSRAWIPOUR, Tanja KHOSRAWIPOUR, David DIAZ-CARBALLO, Thomas FALKENSTEIN, Jürgen ZIEREN, Michael STINTZ, Urs GIGER-PABST

#4784 - P3-AH-IEH-005 Fungal fragments: additional exposure burden in Norwegian sawmill industry.  
K. Anani AFANOU (oslo, NORWAY), Wijnand EDUARD, Anne STRAUMFORS

#4847 - P3-AH-IEH-006 The Effect of North Wind on Airborne Microbial Community During Winter in Beijing.  
Weizhuo YAN (Beijing, CHINA), Buyang WANG, Changyi XIE, Runlong CAI, Yunfeng YANG, Jingkun JIANG

#5264 - P3-AH-IEH-007 Connections between PM10, pollen and atmospheric pollutants at León (Spain).  
A.i. CALVO, A. CASTRO, C.a. ALVES, Fernández-González D., C. BLANCO-ALEGRE, R.m. VALENCIA-BARRERA, A.m. VEGA-MARAY, Estela VICENTE (Aveiro, PORTUGAL), R. FRAILE

#5577 - P3-AH-IEH-008 The dependence of UV induced degradation rates of bacterial on aerosol particle size.  
Jerry CABALO (Towson, MD, USA)

#5695 - P3-AH-IEH-009 Design and performance of Personal Electrostatic Bioaerosol Sampler (PEBS).  
Gediminas MAINELIS (New Brunswick, USA), Taewon HAN

#5430 - P3-AH-IEH-010 Adjuvant Function of Diesel and Toner particles in the Development of Allergies.  
Fangxia SHEN (mainz, GERMANY), I. BELLINGHAUSEN, J. SALOGA, K. BECKER, F. LIU, C. J. KAMPF, S. LAI, D. SCHUPPAN, Lucas KURT, Pöschl ULRICH

#4603 - P3-AH-IEH-011 Personal ultrafine particle dose-response relationship for school children.  
Madana MAZAHARI (Brisbane, AUSTRALIA), Samuel CLIFFORD, Wafaa Nabil EZZ, Lidia MORAWSKA, Guy MARKS

#4607 - P3-AH-IEH-012 Impact on the nervous system of aerosols released from nanocomposite materials under stress use : The "Release\_NanoTox" project.  
Stéphane DELABY (Grenoble), François GAIE-LEVREL, Marlène WIART, Anna BENCSEK

#4908 - P3-AH-IEH-013 Effect of airborne particulate matter on oxidative stress, pro-inflammatory response and intracellular calcium signaling in pulmonary artery endothelial cells.  
Juliette DEWEIRD, C. GUIBERT, M.b. CROBEDDU, J. SCIARE, A. BAEZA-SQUIBAN, J.p. SAVINEAU, B. MÜLLER, J.f. QUIGNARD, Isabelle BAUDRIMONT (Bordeaux)

#4938 - P3-AH-IEH-014 Long-term monitoring of PM2.5-bound nickel (Ni) in an urban environment in Xi'an, Northwestern China.  
Hongmei XU (Toulouse), J. J. CAO, B. GUINOT

#5411 - P3-AH-IEH-015 Usefulness of normal or diseased human bronchial epithelial cell models differentiated at air-liquid interface to study the effects of air pollution-derived PM4.  
Béatrice LECLERCQ, Mélanie HAPILLON, Sébastien ANTHÉRIEU, Laurent ALLEMAN (Douai), Esperanza PERDRIX, Jean-Marc LO GUIDICE, Patrice CODDEVILLE, Guillaume GARÇON

#5581 - P3-AH-IEH-016 Physicochemical characteristics, mutagenicity, genotoxicity and clastogenicity of atmospheric aerosols under industrial and rural influence.  
Pamela N. MELKI, Frédéric LEDOUX (Dunkerque), Samer AOUAD, Sylvain BILLET, Bilal EL-KHOURY, Yann LANDKOCZ, Dominique COURCOT, Roula M. ABDEL-MASSIH

#5599 - P3-AH-IEH-017 Chemical composition and in vitro short-term exposure to air pollution fine and ultrafine particles induced cytotoxicity and metabolic activation of organic compounds in a human lung cell line.  
Mireille BORGIE, Frédéric LEDOUX (Dunkerque), Anthony VERDIN, Zeina DAGHER, Fabrice CAZIER, Pirouz SHIRALI, Maurizio GUALTIERI, Hélène GREIGE, Dominique COURCOT

#4527 - P3-AH-IEH-018 In-vitro measurements of regional nasal deposition efficiency of particles ranging from 20 to 500 nm.  
Der-Jen HSU (Kaohsiung, TAIWAN), Hsin-Yi LIN

#5176 - P3-AH-IEH-019 Hygroscopic growth modelling for hygroscopic nanometric aerosols in the human respiratory tract.  
Laurent BOUDIN, C. RIGAULT, Laurent VECELLIO (Tours)

#5564 - P3-AH-IEH-020 Physical characteristics of cigarette smoke and e-cigarette aerosol, inhalation conditions and their implications for dose.  
John MCAUGHEY (Southampton, UK), Caner U YURTERI, Ross CABOT, Lukas PICHELSTORFER, Renate WINKLER-HEIL, Werner HOFMANN

#4853 - P3-AH-IEH-022 Floor dust PAHs inside university lecture rooms, offices and workshop.  
Androniki MARAGKIDOU (HELSINKI, FINLAND), Y. MA, O. JAGHBEIR, D. FAOURI, S. HARRAD, A. AL-HUNAITI, S. ARAR, K. HÄMERI, T. HUSSEIN

#5703 - P3-AH-IEH-023 The development and characterization of a novel cell-based biosensor for the functional screening of bioaerosols.

Poster  
area

Shagun KHERA (Plymouth, UK), Sean TYRREL, Allan BENNETT, Vikram SHARMA, Simon JACKSON, Gyuri FEJER

#4795 - [P3-AH-IEH-025 The impact of polybrominated diphenyl ethers in the classroom dust on the health of the elementary school's children.](#)  
Shun-I SHIH (Tainan, TAIWAN), H. R. CHAO, Y. Y. GUO, C. H. LIN, S. M. HUANG, C. G. SHY

#4831 - [P3-AH-IEH-026 An integrated approach for conducting long-term PM2.5 exposure and health risk assessment for residents.](#)  
Chi Hsuan CHOU, Y. C. CHEN, M. Y. LIN, L. H. LANG, H. T. HSU, Perng Jy TSAI (Tainan, TAIWAN)

#5290 - [P3-AH-IEH-028 Study of mycotoxins aerosolized during the shaking of hays contaminated with Stachybotrys chartarum.](#)  
Marjorie DRAGHI (Champs sur Marne), Brankica ALEKSIC, Sylviane BAILLY, Marlène LACROIX, Sébastien RITOUX, Jean-Denis BAILLY, Enric ROBINE

#5405 - [P3-AH-IEH-029 Trace elements bioaccessibility in fine particles from the urban area of Lille \(France\).](#)  
Béatrice LECLERCQ, Laurent ALLEMAN (Douai), Guillaume GARÇON, Patrice CODDEVILLE

#5040 - [P3-AH-IEH-030 Safe production and use of nanomaterials in the ceramic industry.](#)  
Mar VIANA (Barcelona, SPAIN), Ana Sofia FONSECA, Xavier QUEROL, Andrés ALASTUEY, Germán F. DE LA FUENTE, Carlos ESTEPA, Eliseo MONFORT, Ana LÓPEZ LILAO, María José IBÁÑEZ, Joao GOMES, Paula ALBUQUERQUE, Helder ESTEVES, Rosa M MIRANDA, Joao P. TEIXEIRA, Sonia FRAGA, Simion SIMON, Eugene BYCHKOV, George BISKOS

#5511 - [P3-AH-IEH-031 Physico-chemical and toxicological properties of the Zn containing nanoparticles.](#)  
Oskari USKI, Tiina TORVELA, Olli SIPPULA, Tommi KARHUNEN, Hanna KOPONEN, Sirpa PERÄNIEMI, Pasi JALAVA, Mikko HAPPO, Jorma JOKINIEMI, Maija-Riitta HIRVONEN, Anna LÄHDE (Kuopio, FINLAND)

#4668 - [P3-AH-IEH-032 Bioaerosol biodiversity in waste sorting plant: feasibility and uncertainty measurement.](#)  
Jodelle DEGOIS (Vandoeuvre-les-Nancy), F. CLERC, X. SIMON, C. BONTEMPS, P. LEBLOND, P. DUQUENNE

#5610 - [P3-AH-IEH-033 Particle emissions from cutting of concrete.](#)  
Lars HILLEMANN (Dresden, GERMANY), Stephan GROBE, Markus BERGER, Ralf ZIMMERMANN, Michael STINTZ

#8752 - [P3-AH-IEH-034 Inhalation toxicology facilities at RIVM for human, animal, and cell exposures to nanomaterials and particulate air pollution.](#)  
John BOERE (Bilthoven, THE NETHERLANDS), Paul FOKKENS, Wolfgang KREYLING, Miriam GERLOFS-NIJLAND, Flemming CASSEE

#8832 - [P3-AH-IEH-035 Particulate Matter measurements in Macedonia for health impact assessment.](#)  
Rumrich ISABELL KATHARINA, Mirjana DIMOVSKA, Dragan GJORGJEV, Sari LAPPI, Raimo O SALONEN, Aneta STEFANOVSKA, Nikola GOLUBOV, Otto HÄNNINEN (Helsinki, FINLAND)

#8874 - [P3-AH-IEH-036 Endothelial responses of the alveolar barrier in vitro in a realistic dose-controlled exposure to diesel exhaust particulate matter.](#)  
Sebastian KLEIN, Elisa MOSCHINI (Belvaux, LUXEMBOURG), Sebastien CAMBIER, Sylvain LEGAY, Jennifer HENNEN, Tommaso SERCHI, Inge NELISSEN, Andreas KREIN, Brunhilde BLÖMEKE, Arno GUTLEB

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#### P3-AH-IND

16:10 - 18:10

#### POSTER SESSION

##### Aerosol and Health - Indoor and Working Place Aerosol

#5489 - [P3-AH-IND-001 PM2.5 mass concentrations and lung functioning of factory workers.](#)  
Zulfiqar ALI (Lahore, PAKISTAN), Muhammad Ahsan ASHRAF, Tanveer Ali KHAN, Irfan ZAINAB, Zaidi ZONA, Zaheer Ahmad NASIR, Ian COLBECK

#4549 - [P3-AH-IND-002 The application of the ventilation and air conditioning system to stabilize the air quality parameters in hospital operating rooms.](#)  
Tomasz JANKOWSKI (Warsaw, POLAND), Magda MLYNARCZYK

#5600 - [P3-AH-IND-003 UV-C decontamination of aerosolized and surface bound single spores and bioclusters.](#)  
Jana KESAVAN (Aberdeen Proving Ground, USA)

#4686 - [P3-AH-IND-004 Characteristics of particles concentration in a paediatric intensive care unit \(PICU\).](#)  
Congrong HE (Brisbane, AUSTRALIA), Ian MACKAY, K. RAMSAY, Z. LIANG, T. KIDD, L. KNIBBS, G. JOHNSON, M. COULTHARD, D. LONG, T. WILLIAMS, C. WAINWRIGHT, L. MORAWSKA

#4916 - [P3-AH-IND-005 Short asbestos fiber levels in indoor environments.](#)  
Laurent MARTINON (Paris), C. MANDIN, F. CHAVENTRÉ, F. VALLENTIN, T. BROWN, G. BOULANGER

#4946 - [P3-AH-IND-006 Multi-zone measurement of particle number/mass and black carbon concentrations in a HVAC building equipped with a printer room.](#)  
Sofia Eirini CHATOUTSIDOU (Kjeller, NORWAY), Norbert SERFOZO, Thodoros GLYTSOS, Mihalis LAZARIDIS

#5178 - [P3-AH-IND-007 Aerosol and gaseous emissions from a desktop 3D printer.](#)  
Luis MENDES (Athens, GREECE), Anneli KANGAS, Kirsi KUKKO, Bjarke MØLGAARD, Arto SÄÄMÄNEN, Tomi KANERVA, Iñigo ITUARTE, Marika HUHTINIEMI, Helene STOCKMANN-JUVALA, Jouni PARTANEN, Kaarle HÄMERI, Konstantinos ELEFTHERIADIS, Anna-Kaisa VIITANEN

#5253 - [P3-AH-IND-008 Indoor epidemiological study: effects of pollutant on respiratory diseases.](#)  
Ivano SALIMBENE, Ornella SALIMBENE (buccino, ITALY), Crescenzo SCETTINI

#5342 - [P3-AH-IND-009 Particulate matter concentrations and chemical composition in the European underground transport system.](#)  
Silvia BRINI (Rome, ITALY), Silvia CANEPARI, Giorgio CATTANI, Francesca DE MAIO, Alessandro DI MENNO DI BUCCHIANICO, Arianna LEPORE

#5426 - [P3-AH-IND-010 Source strengths of fine particulate matter during various domestic activities.](#)  
Sidra SAFDAR (Lahore, PAKISTAN), Zulfiqar ALI, Nimra AFZAL, Ian COLBECK, Zaheer Ahmad NASIR

#4551 - [P3-AH-IND-011 Regional deposition of particles in a model of human lungs: A comparison of numerical simulation and experimental results.](#)  
Frantisek LIZAL (Brno, CZECH REPUBLIC), Jakub ELCNER, Miloslav BELKA, Jan JEDELSKY, Miroslav JICHA

#4602 - [P3-AH-IND-012 Filter bypass affecting the performance of HVAC systems.](#)  
Sergey GRINSHPUN (Cincinnati, USA), Michael YERMAKOV, It MUKHAMETZANOV, Shamil ZARIPOV, Vf SHARAFUTDINOV

#5186 - [P3-AH-IND-013 Numerical Investigation on Airborne Transmission of Expiratory Droplets between Two Standing Manikins.](#)  
Li LIU, Peter V NIELSEN, Li YUGUO, Wang YI, Fu LINZHI, Yang YANG (Creteil)

#4862 - [P3-AH-IND-014 A study on exposure levels to aerosol particles during the journey of a subway passenger.](#)  
Minhae KIM (Uiwang-si, KOREA), Sechan PARK, Seung-Won RYU, Soon-Bark KWON

#6075 - [P3-AH-IND-015 In-Car Filter Efficiency of HVAC Systems with real Ambient Aerosols in Beijing.](#)  
Markus DR. PESCHI (Ainring, GERMANY), Volker ZIEGLER, Martin LANGE, Konradin PROF. DR. WEBER, Christian FISCHER, Alexander FRÜHSORGER, Christian ROßKOPF

#4692 - [P3-AH-IND-016 Nanoparticle fraction of the inhalable dust in gas tungsten arc welding of stainless steel and manual grinding of steel.](#)  
Maija LEPPÄNEN, Jani LESKINEN, Anneli KANGAS, Tomi KANERVA, Anna-Kaisa VIITANEN, Arto SÄÄMÄNEN, Jorma JOKINIEMI (Kuopio, FINLAND), Mirella MIETTINEN

#4739 - [P3-AH-IND-017 Impact of train braking systems on PM10 mass concentrations in the Paris subway.](#)  
Romain MOLLE (Paris), S. MAZOUÉ

#5659 - [P3-AH-IND-018 Uptake of Semi-volatile Organic Compounds onto Ammonium Sulfate Particles.](#)  
Axel ERIKSSON, Annette KRAIS, Clausen PER AXEL, Jonas JAKOBSSON, Aneta WIERZBICKA, Jakob LÖNDAHL, Anders GUDMUNDSSON, Joakim PAGELS, Christina ANDERSEN (Lund, SWEDEN)

#5559 - [P3-AH-IND-019 Cigarette smoke dose equivalence : human airways versus the in vitro air-liquid interface.](#)  
John MCAUGHEY (Southampton, UK), Jason ADAMSON, Caner U YURTERI

Poster  
area

#5582 - P3-AH-IND-020 Attrition and dustiness of silicon carbide particles in solar energy capture and storage.  
Somik CHAKRAVARTY (COMPIEGNE CEDEX), Pablo GARCÍA-TRIÑANES, Olivier LE BIHAN, Martin MORGENEYER

#8797 - P3-AH-IND-021 Numerical study on the interpersonal exhaled droplet transport in a classroom.  
Yang YANG (CHAMPS SUR MARNE), Guillaume DA, Li LIU, Evelyne GEHIN, Stephane DELABY, Sebastien RITOUX, Thi Lan HA, Enric ROBINE, Mahamadou ABDU TANKARI, Gilles LEFEBVRE

#8899 - P3-AH-IND-022 Computational fluid dynamics of indoor aerosols - Modelling the ventilation effect on indoor air quality.  
M. TOMÉ, C. ALVES (Aveiro, PORTUGAL)

#8268 - P3-AH-IND-023 Emission Characteristics of Terpenols in PM2.5 Aerosol Emitted from Incense Burning.  
Su-Ching KUO (Tainan City, TAIWAN), Ying I. TSAI

#8299 - P3-AH-IND-024 Effectiveness of local exhaust ventilation in removing nanoparticles in workplaces.  
Evelien FRIJNS, Jan PETERS (Mol, BELGIUM), Maida DOMAT, Carlos FITO, Patrick BERGHMANS

#8889 - P3-AH-IND-025 Occupational exposure parameters for characterization of nanoparticulate matter.  
Žanna MARTINSONE, Ilona PAVLOVSKA, Inese MARTINSONE (Riga, LATVIA), Anita SEILE, Ivars VANADZINS

#8788 - P3-AH-IND-026 An experimental study for thermal efficiency and indoor air quality in a subway.  
K. M. KOO, H. S. PARK, Youngjin SEO (gumi, KOREA)

## Friday 09 September

08:30

PL 5

08:30 - 09:30

### PLENARY LECTURE 5

Aerosoltherapy of Monoclonal Antibodies for Respiratory Diseases.

Chairmen: Patrice DIOT (TOURS, FRANCE), Werner HOFMANN (Salzburg, AUSTRIA)  
Plenary Speaker: Nathalie HEUZÉ-VOURC'H (Tours, FRANCE)

Auditorium  
Pierre de  
Ronsard

10:10

36-IEH-2

10:10 - 12:30

### INHALATION EXPOSURE AND HEALTH

Health, infectious diseases and hospital environment

Chairmen: Otto HÄNNINEN (Helsinki, FINLAND), Christina ISAXON (SWEDEN)

10:10 - 10:30

#4601 - O36-AH-IEH-08 Surgical smoke aerosol: exposure assessment and respiratory protection.  
Sergey GRINSHPUN (Cincinnati, USA), Shuang GAO, Michael YERMAKOV, Yousef ELMASHAE, Tiina REPONEN, Richard KOEHLER

10:30 - 10:50

#4678 - O36-AH-IEH-09 Indoor air quality in French hospitals: Physical-chemical results.  
Estelle BAURES (Rennes), Fabien MERCIER, Pierre LE CANN, Olivier BLANCHARD, Emilie SURGET, Jean-Pierre GANGNEUX, Arnaud FLORENTIN

10:50 - 11:10

#5515 - O36-AH-IEH-11 Airborne biological particles and allergy.  
Michel THIBAUDON (TASSIN LA DEMI LUNE), Gilles OLIVER

11:10 - 11:30

#4925 - O36-AH-IEH-13 Next generation instrumentation to study infectious species on an aerosol.  
Allen HADDRELL (Bristol, UK), Mara OTERO-FERNANDEZ, Jonathan REID

11:30 - 11:50

#6183 - O36-AH-IEH-14 Performing Inhalation Exposures Using Infectious Microorganisms and Toxins: Conducting Them Safely, Accurately, and Reproducibly.  
Roy BARNEWALL (Columbus, USA)

11:50 - 12:10

RESERVE PAPER / P3-AH-IEH-010 Adjuvant Function of Diesel and Toner particles in the Development of Allergies.  
Fangxia SHEN, I. BELLINGHAUSEN, J. SALOGA, K. BECKER, F. LIU, C. J. KAMPF, S. LAI, D. SCHUPPAN, Lucas KURT, Pöschl ULRICH

12:10 - 12:30

RESERVE PAPER / P3-AH-SS6-015 Airborne bacteria in hospital operating theatres during surgery.  
Malin ALSVED, Anette CIVILIS, Peter EKOLIND, Ann TAMMELIN, Anette ERICHSEN ANDERSSON, Jonas JAKOBSSON, Tobias SVENSSON, Matts RAMSTORP, Tina SANTL TEMKIV, Mats BOHGARD

Auditorium  
Pierre de  
Ronsard

38-Sp.Se.6

10:10 - 12:30

### SPECIAL SESSION 6

Bioaerosols

Chairmen: Dr Philippe DUQUENNE (Vandoeuvre-lès-Nancy, FRANCE), Enric ROBINE (FRANCE)

10:10 - 10:30

#4813 - O38-AH-SS6-01 Fungi in indoor air - sources, exposure and health effects.  
Tiina REPONEN (Cincinnati, USA)

10:30 - 10:50

#4576 - O38-AH-SS6-02 Microorganisms from clouds: Interactions with H2O2.  
Anne Marie DELORT, Nolwenn WIRGOT, Audrey LALLEMENT, Mickael VAITILINGOM, Laurent DEGUILLAUME, Martine SAMCELME, Pierre AMATO, Virginie VINATIER (Clermont-Ferrand)

10:50 - 11:10

#5345 - O38-AH-SS6-03 A new bioaerosol chamber for validation of bioaerosol samplers.  
Clara POGNER (Tulln, AUSTRIA), Verena UNTERWURZACHER, Anja KONLECHNER, Markus GORFER, Manfred HINKER, Annette KOLK, Leander MÖLTER, Joseph STRAUSS, Sabine GOLLER

11:10 - 11:30

#5159 - O38-AH-SS6-05 Gradient of bioaerosol impaction/deposition defined by biomimetic passive sensors.  
Jean Jacques GODOU (narbonne), Amandine GALÈS, Eric LATRILLE, Jean-Philippe STEYER, Nathalie WÉRY

11:30 - 11:50

#5367 - O38-AH-SS6-06 Improved endotoxin detection and characterisation from biowaste and intensive agriculture.  
Sean TYRREL (Bedford, UK), Simon JACKSON, Enda HAYES, Toni GLADDING, Allan BENNETT

11:50 - 12:10

#5160 - O38-AH-SS6-07 Characterisation of bioaerosols and evaluation of biological risks at the workplace: recent advances and perspectives.  
Dr Philippe DUQUENNE (Vandoeuvre-lès-Nancy)

12:10 - 12:30

RESERVE PAPER / P3-AH-SS6-014 MolDeMould - Molecular detection of airborne mould by microfluidic qPCR.  
Verena Unterwurzacher, Clara Pogner, Walter Pulverer, Joseph Strauss, Markus Gorfer

Room 1  
(Level 2)

14:00

41-IEH-3

14:00 - 15:40

### INHALATION EXPOSURE AND HEALTH

Processes and behavior of aerosol particles in the respiratory tract

Chairmen: Werner HOFMANN (Salzburg, AUSTRIA), Otto HÄNNINEN (Helsinki, FINLAND)

14:00 - 14:20

#5228 - [O41-AH-IEH-15 Aerosol dynamics model for the hygroscopic growth of NaCl particles and resulting deposition in the human lung.](#)

Renate WINKLER-HEIL, Werner HOFMANN (Salzburg, AUSTRIA), Lukas PICHELSTORFER

14:20 - 14:40

#4874 - [O41-AH-IEH-16 The penetration of polystyrene particles through the airways investigated by accelerator mass spectrometry.](#)

Victoria SEMEYKINA (Marseille), Ekaterina PARKHOMCHUK, Alexandra SELIVANOVA, Dayana GULEVICH, Anatoly BAKLANOV, Andrei TARATAYKO, Sergei RASTIGEEV, Vasilii PARKHOMCHUK

14:40 - 15:00

#4592 - [O41-AH-IEH-17 Chemical characterization of size-resolved fine particles in human exhaled breath by using single particle aerosol mass spectrometry.](#)

Xue LI (Guangzhou, CHINA), Lei HUANG, Zhengxu HUANG, Zhen ZHOU

15:00 - 15:20

#4682 - [O41-AH-IEH-18 Deposition of industrial aerosols in the human respiratory tract.](#)

Mona MOUSTAFA (El-minia, EGYPT), Werner HOFMANN, Imre BALASHAZY, Agnes JOKAY, Peter FURI, Blanka CZITROVSZKY, Arpad FARKAS

15:20 - 15:40

#5173 - [O41-AH-IEH-19 Development of a drug and device for an efficient alveolar delivery of a neutralizing monoclonal antibody to treat pulmonary intoxication to ricin.](#)

Renaud RESPAUD (Tours), Denis MARCHAND, Thibaut PELAT, Kam-Meng TCHOU-WONG, Chad J. ROY, Christelle PARENT, Philippe THULLIER, Emmanuelle GUILLOT-COMBE, Laurent VECELLIO, Nathalie HEUZÉ-VOURC'H

RESERVE PAPER / P3-AH-IEH-020 Physical characteristics of cigarette smoke and e-cigarette aerosol, inhalation conditions and their implications for dose.

John MCAUGHEY, Caner U YURTERI, Ross CABOT, Lukas PICHELSTORFER, Renate WINKLER-HEIL, Werner HOFMANN

Auditorium  
Pierre de  
Ronsard

43-IND2

14:00 - 15:40

## INDOOR AND WORKING PLACE AEROSOL

### Exposure and health

Chairmen: Aneta WIERZBICKA (Lund, SWEDEN), Olivier WITSCHGER (Vandoeuvre-lès-Nancy, FRANCE)

14:00 - 14:20

#4968 - [O43-AH-IND-09 Dynamic properties of exhaled e-cigarette aerosol vs. conventional cigarette smoke.](#)

Ari SETYAN (Dübendorf, SWITZERLAND), Tadas PRASAUSKAS, Dainius MARTUZEVICIUS, Grant O'CONNELL, Xavier CAHOURS, Stéphane COLARD

14:20 - 14:40

#4641 - [O43-AH-IND-11 Exposure Assessment of Nanomaterials at production sites based on Short Time Sampling: Methodology & Strategy of the STS-EA approach.](#)

Christophe BRESSOT (Verneuil-en-Halatte), Tanga JAYABALAN, G. FAYET, O. AGUERRE-CHARIOL, Neeraj SHANDILYA

14:40 - 15:00

#4979 - [O43-AH-IND-12 Conceptual considerations to establish a framework on release for nanomaterials.](#)

Thomas A.j. KUHLBUSCH (Duisburg, GERMANY), Heinz KAMINSKI, Araceli SÁNCHEZ JIMÉNEZ, Yaobo DING, Martie VAN TONGEREN, Michael RIEDIKER, Simon CLAVAGUERA, Henk GOEDE, Burkhard STAHLMECKE

15:00 - 15:20

RESERVE PAPER / P3-AH-IND-003 UV-C decontamination of aerosolized and surface bound single spores and bioclusters.

Jana KESAVAN

15:20 - 15:40

RESERVE PAPER / P3-AH-IEH-022 Floor dust PAHs inside university lecture rooms, offices and workshop.

Androniki MARAGKIDOU, Y. MA, O. JAGHBEIR, D. FAOURI, S. HARRAD, A. AL-HUNAITI, S. ARAR, K. HÁMERI, T. HUSSEIN

Room 1  
(Level 2)