



Oral presentations at Nanosafe 2010

- Conference opening
- Session 1: Exposure assessment, 1a. Occupational exposures
- Session 1: Exposure assessment, 1b. Environmental exposures
- Session 2: Characterization, Detection and Monitoring, 2a. Detection in air
- Session 2: Characterization, Detection and Monitoring, 2b. Detection in biomedica
- Session 2: Characterization, Detection and Monitoring, 2c. Characterization
- Session 3: Nanomaterials life cycle
- Session 4: Toxicology, 4a. In vivo studies
- Session 4: Toxicology, 4b. In vitro studies
- Session 4: Toxicology, 4c. New thinking approach
- Session 5: Environmental impact
- Session 6: Nanoparticles release from consumer products
- Session 7: Commercial equipments related to safe production and use of nanomaterials
- Session 8: Personal protective equipment
- Session 9: Standardization, Regulations and Education
- Session 10: Secure industrial production
- Session 11: Safety parameters evaluation
- Session 12a: Labelling, imaging and biodistribution of nanoparticles in vivo
- Session 12b: NANODEVICE, Impact on safety of nanotechnologies
- Session 12c: SAPHIR, Safe and Integrated Manufacturing
- Session 12d: TITNT, The International Team in NanosafeTy
- Session 12e: NANEX, Development of Exposure Scenarios for Manufactured Nanomaterials
- Conclusions

■— Conference opening


- 📖 Welcome by the Organizing Committee
- 📖 "Nanotech's evolving environmental, health and safety landscape: the regulations are coming"
Jurron Bradley (Lux Research, U.S.A.)
- 📖 "Coordination and collaboration in European research for safe nanomaterials"
Michael Riediker (Institute for work and Health, Switzerland)
- 📖 "French Public Debate on Nanotechnologies – Conclusion(s) and Perspectives"
Eric Gaffet (CNRS, France)

■— Session 1: Exposure assessment, 1a. Occupational exposures











- 📖 "Exposure assessment for engineered nanoparticles: A review of the current state-of-the-art"
Michael Ellenbecker (University of Massachusetts Lowell, U.S.A.)
- 📖 "Workplace air measurements and likelihood of exposure to manufactured nano objects; condensed results of the NANOSH project"
Derk Brouwer (TNO Quality of Life, The Netherlands)
- 📖 "Regulating uncertainty - Performance based benchmark limits for nanoparticles in view of current measurement results at the workplace"
Markus Berges (DGUV – IFA, Germany)
- 📖 "Visualisation of exposure to nanoparticles using PIMEX"
Koen Verbist (Arbo Unie, The Netherlands)
- 📖 "Measure and characterization of manufactured nanoparticles in workplace air"
Catherine Durand (CEA, France)
- 📖 "Exposure measurements from the paint factory powder mixing stations"
Ismo K. Koponen (NRCWE, Denmark)

■— Session 1: Exposure assessment, 1b. Environmental exposures





- 📖 "Human exposure to lifestyle-related ultrafine particles in domestic environment"
Xiaolin Ji (INERIS, France)
- 📖 "The use of "conventional" exposure models for nanomaterials"
Derk Brouwer (TNO Quality of Life, The Netherlands)
- 📖 "Mobility vs. deposition of TiO₂ nanoparticles in a natural sandy porous media. Effect of aggregation and natural organic matter"
Jérôme Labille (CEREGE, France)

-  "Workplace exposure to traffic-derived nanoscaled particulates"
Mar Viana (IDAEA-CSIC, Spain)




■ Session 2: Characterization, Detection and Monitoring, 2a. Detection in air

-  "Nanoparticle characterization, exposure assessment and filtration to support sustainable nanotechnology"
David Y. H. Pui (University of Minnesota, U.S.A)
-  "Direct quantification of airborne nanoparticles composition by TXRF after collection on filters"
Sylvie Motellier (CEA, France)
-  "Using the Aerasense nanotracer for simultaneously obtaining several ultrafine particle exposure metrics"
Johan Marra (Philips Research Laboratories, The Netherlands)
-  "Study of nanoparticle collection efficiency of an aspiration-based TEM (Transmission Electron Microscopy) sampler"
Badr R'mili (INERIS, France)
-  "Specific detection of engineered nanoparticles using catalysis"
Nicole Neubauer (KIT, Germany)
-  "Airborne nanoparticle detection by sampling on filters and laser-induced breakdown spectroscopy analysis - Application to workplace safety"
Jean-Baptiste Sirven (CEA, France)
-  "Measuring levels of ultrafine particle concentrations in residential environment - Nanop projet"
Xiaolin Ji (INERIS, France)
-  "An electrical sensor for long term monitoring of ultrafine particles in workplaces"
Juha Tikkanen (Navaro Oy, Finland)
-  "Powder suspending system by vortex effect"
Olivier Le Bihan (INERIS, France)
-  "Detection of airborne micrometric-sized CNT (Carbon NanoTubes) bundles using TEM (Transmission Electron Microscopy) samplers and LIBS (Laser-Induced Breakdown Spectroscopy)"
Christophe Dutouquet (INERIS, France)



■ Session 2: Characterization, Detection and Monitoring, 2b. Detection in biomedica

-  "Single particle ICPMS as a screening tool for nanoparticles"
Ruud Peters (RIKILT, The Netherlands)
-  "Development of a novel method to detect a potential inhalation of nanoaerosols"
Caroline Marie-Desvergne (CEA, France)
-  "Nanoparticle uptake, colocalization and toxicity assessment at single cell level by means of confocal Raman microscopy"
Irina Estrela-Lopis (Leipzig University, Germany)
-  "Nanoparticles in food - Analytical methods for detection and characterization"
Stefan Weigel (RIKILT, The Netherlands)

■ Session 2: Characterization, Detection and Monitoring, 2c. Characterization

-  "Gaseous effluents from the combustion of nanocomposites in controlled-ventilation conditions"
Dominique Fleury (INERIS, France)
-  "Synthesis, characterization and speciation of nanosilver: implications in ecotoxicological assays"
Glauciene P. S. Marcone (UNICAMP, Brazil)
-  "Characterization of aerosol emitted by the combustion of nanocomposites"
Charles Motzkus (LNE, France)

■ Session 3: Nanomaterials life cycle

-  "Modeling environmental exposure to engineered nanomaterials based on nano-product life-cycles"
Bernd Nowack (Empa, Switzerland)
-  "Aging of CeO2 nanocomposites used as out-door wood paint adjuvant. Fate of the byproducts formed in aqueous suspension"
Mélanie Auffan (CEREGE, France)

■ Session 4: Toxicology, 4a. In vivo studies

-  "Nanotoxicology: need for a science based analysis"
Günter Oberdörster (University of Rochester, U.S.A.)

- B "Nanoparticle transport across the human placenta"
 Jean-Pierre Kaiser (Empa, Switzerland)
- B "Prenatal exposure to rutile type and its surface-coated titanium dioxide impairs spermatogenesis in mice"
 Yusuke Shinkai (Tokyo University of Science, Japan)
- B "Modulation of asthmatic responses by nanoparticles in a mouse model of chemical-induced asthma"
 Peter HM Hoet (K.U. Leuven, Belgium)
- B "Gene expression analysis in rat lungs after intratracheal exposure to nanoparticles doped with cadmium"
 Marco Fabbri (European Commission, Joint Research Centre, Italy)
- B "Biological response of individually dispersed multi-wall carbon nanotubes in the lung after intratracheal instillation in rats"
 Norihiro Kobayashi (AIST, Japan)
- B "Maternal exposure to nanoparticulate titanium dioxide alters gene expression related to brain development of offspring in the mouse"
 Ken Takeda (Tokyo University of Science, Japan)

■ Session 4: Toxicology, 4b. In vitro studies

- B "Antibacterial activity and toxicity of silver – nanosilver versus ionic silver"
 Libor Kvitek (Palacky University, Czech Republic)
- B "In vitro cytotoxicity assays of solid lipid nanoparticles in epithelial cells"
 Nelson Durán (UNICAMP, Brazil)
- B "Effects of nanoparticles on murine macrophages"
 Mireille Chevallet (CEA, France)
- B "Interference between nanoparticles and metal homeostasis"
 Anne-Noëlle Petit (CEA, France)
- B "Influence of TiO₂ nanoparticles on cellular antioxidant defence and its involvement in genotoxicity in HepG2 cells"
 Jana Petkovic (National Institute of Biology, Slovenia)
- B "Cytotoxic and genotoxic effects of imogolite nanotubes towards human dermal fibroblasts and Chinese hamster ovary (CHO) cells"
 Wei Liu (CEREGE, France)
- B "Novel food contact materials and the in vitro toxicity of low dose nano ZnO exposures to human intestinal cells"
 Niall Ó Claonadh (Dublin Institute of Technology, Ireland)
- B "Study of the toxicity of inhaled alumina engineered nanoparticles"
 Mélanie Pailleux (École Nationale Supérieure des Mines, France)
- B "Oxidative stress of amorphous monodisperse silica nanoparticles in human endothelial cells"
 Peter H.M. Hoet (K.U. Leuven, Belgium)
- B "Evaluation of small size magnetite iron oxide nanoparticles toxicity on endothelial cells"
 Amel Hanini (University Paris Diderot, France)
- B "Toxicity test: Fluorescent silicon nanoparticles"
 Fumihide Kanaya (National Centre for Global Health and Medicine, Japan)

■ Session 4: Toxicology, 4c. New thinking approach

- B "Development of prognostic occupational air standards for nanoparticles"
 Anzhela V. Glushkova (Federal Medical Biological Agency, Russia)
- B "Dispersion of nanoparticles in media of biological interest"
 Marie Carriere (CEA, France)
- B "Nanoparticle toxicity and cancer"
 Thomas Prevenslik (QED Radiations, China)

■ Session 5: Environmental impact

- B "Environmental impacts of nanomaterials: physico-chemical properties and mechanisms disturbing the biological activity in aqueous environment"
 Jean-Yves Bottero (CEREGE, France)
- B "Investigation of titanium dioxide nanoparticles toxicity and uptake by plants"
 Camille Larue (CEA, France)
- B "Effects of ceria oxide nanoparticles in aquatic algae and invertebrates"
 Nicolas Manier (INERIS, France)
- B "Nanoparticles-pollutants cocontamination: is there a trojan horse effect?"
 Mélanie Auffan (CEREGE, France)

- ▣ "Comparative ecotoxicity of silver and cerium dioxide nanoparticles in adult and embryos fish"
Tatiana Demidova (Severtsov Institute of Ecology and Evolution, Russia)
- ▣ "Aquatic mobility of natural and engineered nanoparticles"
Armand Masion (CEREGE, France)

■— Session 6: Nanoparticles release from consumer products

- ▣ "Fate of nanoparticles during life cycles of polymer nanocomposites"
Tinh Nguyen (NIST, U.S.A.)
- ▣ "Reproducing the use of a nanostructured product within an emission chamber: study of nanoparticle release"
Olivier Le Bihan (INERIS, France)
- ▣ "Comparing released fragments and in vivo hazard from 3 release mechanisms and 4 nanocomposites" Wendel Wohlleben (BASF, Germany)
- ▣ "Characterization of abrasion-induced nanoparticle release from paints into liquids and air"
Amélie Gaborieau (CEA, France)
- ▣ "Environmental fate and impact of nano-residues from the degradation of commercialized sunscreens"
Jérôme Labille (CEREGE, France)
- ▣ "Fate of graphene in polymer Nanocomposite Exposed to UV Radiation"
Coralie Bernard (NIST, U.S.A.)

■— Session 7: Commercial equipments related to safe production and use of nanomaterials

- ▣ "Particle Measuring Systems: Portable Differential Mobility Analyzing System (DMAS) for in-situ aerosol characterisation"
Robert Muir (Naneum, UK; Particle Measuring Systems, U.S.A.)
- ▣ "NANOSIGHT: The Characterization of nanoparticles by nanoparticle tracking and analysis"
Patrick Hole (NanoSight Ltd., UK)
- ▣ "PHILIPS AERASENSE: Nanoparticle measurements with portable devices"
Henk Goossens (Philips Aerasense, The Netherlands)
- ▣ "Benchtop low voltage electron microscope combining 3 imaging modes TEM, SEM, STEM"
Mathieu Legrand (Cordouan Technologies, France)
- ▣ "Full characterization of nanoparticles and nanotubes using DLS"
Michel Terray (Malvern Instruments, France)
- ▣ "Accurate measurement of nanoparticle charge, number and size with the ELPI + instrument"
Erkki Lamminen (Dekati Ltd., Finland)
- ▣ "Comprehensive measurement of atmospheric aerosols with a wide range aerosol spectrometer"
Lothar Keck (GRIMM Aerosol Technik GmbH & Co. KG, Germany)
- ▣ "A High Transmission Efficiency Centrifugal Particle Mass Analyser for Determination of Nanoparticle Mass and Morphology"
Jonathan Symonds (Intertek, France)

■— Session 8: Personal protective equipment

- ▣ "Is it possible to protect workers against nano-aerosols and hydrosols?"
François Tardif (CEA, France)
- ▣ "Development of a test method for the evaluation of the efficiency of protective gloves against nanoparticles in conditions simulating occupation use"
Patricia Dolez (École de technologie supérieure, Canada)
- ▣ "A new measurement method for polymeric membrane barriers and textile properties against nano hydrosols, application to gloves and protective clothings"
François Tardif (CEA, France)
- ▣ "Nanofiber-based filters as novel barrier systems for nanomaterial exposure scenarios"
Mirko Faccini (LEITAT Technological Center, Spain)
- ▣ "Penetration results of two fibrous media towards nanoparticles in the range 5 nm to 400 nm"
Clothilde Brochot (IRSN, France)

■— Session 9: Standardization, Regulations and Education

- ▣ "Nanomaterials uncertainties : regulation needs and standardisation answer"
Daniel Bernard (Arkema, France)
- ▣ "Socio-economic analysis: a tool for regulating nanotechnologies"
Jean-Marc Brignon (INERIS, France)

- "Improving workplace prevention associated to nanoparticles: the needs of considering uncertainties"
Eric Draix (INRS, France)
- "Challenges in assessing the environmental fate and exposure of nanosilver"
Cherrie Whiteley (Lancaster University, UK)

■— Session 10: Secure industrial production

- "Are classical process safety concepts relevant to nanotechnology applications?"
Paul R. Amyotte (Dalhousie University, Canada)
- "Long and aligned multi-walled carbon nanotubes grown on carbon substrates by injection-CVD process: synthesis process, characterisation and functionalization"
Youssef Magga (CEA, France)
- "Polyfire project: an example of an industrial research project promoting safe industrial production of fire-resistant nanocomposites"
Celina Vaquero (LEIA Technology Centre, Spain)
- "Green nanoparticle production using micro reactor technology"
Andrea Kück (Universität Bremen, Germany)

■— Session 11: Safety parameters evaluation

- "Are enhanced dust explosion hazards to be foreseen in production, processing and handling of powders consisting of nano-size particles?"
Rolf K. Eckhoff (University of Bergen, Norway)
- "Ignition and explosion of nanopowders: something new under the dust"
Alexis Vignes (INERIS, France)
- "Nano-immunosafety: issues in assay validation"
Diana Boraschi (Institute of Biomedical Technologies, Italy)
- "Approaches for establishing safe exposure levels for engineered nanomaterials"
Karin Aschberger (European Commission-JRC, Italy)

■— Session 12a: Labelling, imaging and biodistribution of nanoparticles in vivo

- "Nano-silicon dioxide toxicological characterization on two human kidney cell lines"
Vincent Paget (CEA, France)
- "Synthesis of ¹⁴C-Labelled Carbon Nanotubes for in vivo biodistribution studies"
Mathieu Pinault (CEA, France)

■— Session 12b: NANODEVICE, Impact on safety of nanotechnologies

- "Assuring impact of the NANODEVICE project on the evaluation and measurement of occupational exposure to and prevention of health risks from exposure to nanoparticle aerosol"
Sari Sirviö (FIOH, Finland)
- "Impact through workplace exposure assessment"
Ismo K. Koponen (NRCWE, Denmark)
- "Capacity building in safe nanotechnologies"
Markus Keller (Fraunhofer, Germany)
- "Assessing occupational health risks from exposure to aerosol nanoparticles by using a Bayesian network model"
Qinglan Wu (DNV, Norway)
- "Presentation of the WP17 pilot project: Draft SOP for Portable Samplers"
Robert Muir (UK)

■— Session 12c: SAPHIR, Safe and Integrated Manufacturing

- "SAPHIR European project: Safe, integrated and controlled production of high-tech multifunctional materials and their recycling"
Frédéric Schuster (CEA, France)
- "Overview of the technologies tested in the SAPHIR project for the On-Line monitoring of nanoparticles synthesis"
Jean-Paul Dufour (CILAS, France)
- "Consolidating nanoparticles in micron sized granules using spray drying"
Jesper Sæderup Lindeløv (GEA Niro, Denmark)

- "Spark plasma sintering of metal matrix nanocomposites"
 Zhijian Shen (Stockholm University, Sweden)
- "Polymer nanocomposites for automotive lighting systems, industrial issues: safety and cost-efficiency"
 Sabino Sinesi (CRP, Italy)
- "Nanoparticle risk management and cost evaluation: a general framework"
 Dominique Fleury (INERIS, France)
- "Advanced injection moulded bipolar plates on the basis of CNT-containing carbon-polymer compounds"
 Falko Mahlendorf (ZBT, Germany)
- "Mechanical spectroscopy of nanostructured composite materials"
 Daniele Mari (EPFL, Switzerland)

■ Session 12d: TITNT, The International Team in NanosafeTy

- "The International Team in NanosafeTy (TITNT): a multidisciplinary group for an improvement of nanorisk assessment and management"
 Claude Emond (University of Montréal, Canada)
- "Status of characterization techniques for carbon nano tubes and suggestions towards standards suitable for toxicological assessment"
 Florian F. Schweinberger (Technische Universität München, Germany)
- "Aligned multi-walled carbon nanotubes: synthesis by aerosol-assisted CCVD process and characterisation"
 Martine Mayne-L'Hermite (CEA, France)
- "Differential proteomic study of exposed cells to SiC and SWCNT nanoparticles"
 Christian Rolando (Université de Lille 1, France)
- "Kinetic behaviour of nanoparticles across the biological physiology"
 Claude Emond (University of Montréal, Canada)
- "Agrinano's and nanofoods: some conditions for sustainability"
 Louise Vandelac (University of Quebec, Canada)
- "The NE3LS Network, Quebec's initiative to evaluate the impact and promote a responsible and sustainable development of nanotechnology"
 Claude Emond (NE3LS Network, Centre de Recherche de l'Hôpital Ste-Justine, Canada)

■ Session 12e: NANEX, Development of Exposure Scenarios for Manufactured Nanomaterials

- "Development of Exposure Scenarios for Manufactured Nanomaterials"
 Martie van Tongeren (IOM, UK)
- "Exposure Scenarios for Workers & Consumers"
 Derk Brouwer (TNO Quality of Life, The Netherlands)
- "Environmental Release"
 Bernd Nowack (EMPA, Switzerland)
- "WP6: Case Illustrations"
 Steffi Friedrichs (NIA, Belgium)
- "Integration and Gap Analysis"
 Katherine Clark, Michael Riediker (Institute for work and Health, Switzerland)

■ Conclusions

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