

# Exposure assessment in the Exposome context- need for precise – broad-scope- external exposure assessment

Through this symposium, we will present the EXIMIOUS/EPHOR experience of developing and applying exposome tools (dermal patches, sensors and imaging techniques) for exposure assessment in the exposome context. By sharing our experience with the International Occupational Hygiene Association (IOHA) community and we aim to increase awareness of ongoing activities in exposome research in the occupational health community. We also hope to stimulate discussions on how these methods/techniques can contribute to occupational health practice

## 1. The application of a low-cost sensor box for the assessment of working life exposures – experience from the EU EPHOR project

Miranda Loh (IOM, United Kingdom)

## 2. Beyond particle detection: development of a sensor that analyses composition of particles

Maaïke Le Feber (TNO, Netherlands)

## 3. Exposure assessment using spectral imaging techniques – possibilities in EU EXIMIOUS project and beyond

Murali jayapala (imec, Belgium)

## 4. Dermal exposure vs inhalation exposure: what is the relative contribution to the internal dose?

Jeroen Vanoirbeek (KU Leuven, Belgium)

## MODERATORS



Anjoeka Pronk

Anjoeka Pronk, PhD. Registered epidemiologist. Interdisciplinary researcher on environmental and occupational exposure and risk assessment, health impact assessment and epidemiology. Anjoeka heads the TNO exposome program. Within this program, sensors and exposure modelling are combined in order to provide actionable individualized (e.g. citizens or patients) or group based (e.g. governments) feedback on exposures. In addition, the application of internal markers for more individualized risk assessment is investigated. >50 publications on exposure assessment, epidemiology and exposome. She coordinates the EU EPHOR project focussed on the working life exposome and participates in several other EU projects on exposome (HEALS, HBM4EU and Exposogas).



Peter Hoet

Peter Hoet obtained Master (Ir) degree in bioscience engineering in 1990 and a PhD in medical sciences in 1995 at the KU Leuven, Belgium. In 2011, he acquired the degree of Master of Science in Applied Toxicology at the University of Surrey, U.K. Since October 2004, he is staff member of the Faculty of Medicine, Department of Public Health and Primary Care at the KU Leuven. Currently he is head of the Centre of Environment & Health and leads the research unit of BREATHE. He teaches courses on Toxicology and Health & Environment in the Master classes of Medical Sciences, Biology and Bioengineering and is responsible at KU Leuven for the interuniversity Master after master Global Health.

## SPEAKERS



Miranda Loh

Miranda Loh is Environment and Public Health at the Institute of Occupational Medicine (IOM), with expertise in methods for exposure assessment in epidemiology and risk studies. She is developing an exposure protocol for new technologies in the Exposome Project for Health and Occupational Research (EPHOR, EC H2020). She has also previously evaluated the use of various smart technologies in the exposome study HEALS (EC FP7). Her areas of expertise include air pollution exposures, including personal level exposures, and indoor and outdoor air pollution; effectiveness of facemasks in protecting against particles; and risks of Covid-19 environmental transmission in the workplace.



Maaïke Le Feber

MSc. Maaïke le Feber (female) is senior scientist/integrator/project manager in the field of exposure science and related risk assessment and management. She has over 20 years of experience in occupational exposure and risk management. One of her main achievements in this field is the development of Chesar together with ECHA (<https://chesar.echa.europa.eu>). Currently her scope is being broadened towards exposome research, in which personal exposure during a life time is assessed varying from occupational exposures to exposures as consequence of outdoor air quality as well as public and private indoor environments.



Murali jayapala

Murali Jayapala, is a Principal Member of the Technical Staff at imec, Belgium. In 2005, he received his Ph.D. in Applied Sciences (Computer Engineering) from Katholieke Universiteit Leuven (KULeuven), Belgium. In 1999, he also obtained his M.E. in Systems Science and Automation from Indian Institute of Science (IISc), India. His past work was in low power embedded system design. His research is focused on system design issues for various complex microsystems exploiting semiconductor process technology, specifically for vision applications. He has co-authored several articles in international conferences and journals and he has served in program committees of several international conferences and workshops.



Jeroen Vanoirbeek

Jeroen Vanoirbeek graduated in 1999 as master in Biology. In 2004 he obtained his PhD at the KU Leuven. His research focused on chemical-induced asthma and specifically the mechanisms of the skin-lung interactions in relation to chemical sensitization. Currently, he leads the laboratory for Occupational and Environmental Hygiene in the Centre for Environment and Health at the KU Leuven. His main research topics are respiratory and skin exposure assessment, in combination with biological monitoring; clinical-epidemiological research on occupational health; and mechanisms of skin-lung inaction of chemicals in experimental models. In his current appointment, he is responsible for teaching occupational hygiene and prevention management.