Development of Population Exposure Methodology Using Exposure Assessment Advancement (Eye-of-Horus Exposure Study)

Exposure assessment remains a major weakness in Environmental Health Science. Due to the financial and logistical cost of personal monitoring, most epidemiologic studies have relied on surrogate estimates of exposure, usually assigned to the home location of study participants. The errors in these exposure assignments can bias attempts to assess the adverse health effects of environmental stressors toward the null. This session will provide a commentary on the impact that ubiquitous and participatory sensing will have on exposure assessment in Environmental Health. We will build on a developed framework and review novel developments in sensing that will lead to more precision in exposure assessment than has been possible in the past. Ubiquitous and participatory sensing offer tremendous promise for improved exposure assessment and increased confidence in the results of health effects assessments in Environmental Health research. Protection of personal privacy, analysis of the voluminous data generated by the sensors, and integration with other emerging methods from molecular epidemiology represent critical areas for research and development. The following subjects will be presented;

1. Advancement of Exposure Assessment in Lifetime and Construction of Surveillance System in Environmental Health
2. Comparison of Low-cost sensor for particulate matter measurement
3. Enhancement development of indoor environmental exposure assessment for each life cycle
4. Assessing Exposure Variabilities of Hazardous PM Components Using an Air Sensor Network
5. Monitoring missing data imputation strategies for environmental hazardous factors
6. Development of Receptor-based Environment-induced Diseases Prevention and Management System Using Real-time Collected Environment and Health Information

Advancement of Exposure Assessment in Lifetime and Construction of Surveillance System in Environmental Health
Wonho Yang (Daegu Catholic University, Korea, Republic of)

Measurement and calibration of low-cost sensor for air quality monitoring in local area Eye of Horus – Exposure Study
Jeong il Lee (Korea Testing & Research Institute, Korea, Republic of)

Developing and Evaluating Wearable Stethoscope for Real-Time Lung Sound Monitoring: Implications for Air Exposure Assessment
SungChul Seo (Eulji University, Korea, Republic of)

Analysis of Concentrations of Indoor and Outdoor Fine Dust in Each Season According to Type of Housing in Metropolitan Areas
Chulmin Lee (Seokyong University, Korea, Republic of)

Monitoring missing data imputation strategies for environmental hazardous factors
Hunjoo Lee (CHEM.I.NET CO.,LTD, Korea, Republic of)

MODERATOR

Wonho Yang

Wonho Yang received his Ph.D. in Environmental Health from Seoul National University Graduate School of Public Health, and is working at Department of Occupational Health of Daegu Catholic University. Currently, he is president of Korean Society of Environmental Health, KSEH, and vice-president of Korean Society for Indoor Environment. He was invited to Australia-Korea Research Fellowship from 1998 to 1999 in School of Public Health, Queensland University of Technology, Brisbane, Australia. He has long been committed to research in the field of "environmental pollution, indoor air quality, human exposure and health risk assessment".

SPEAKERS

Jeong il Lee

Present Position Korea Testing & Research Institute(KTR) Center Leader of Climate change action center, KTR of KOREA Professional Experience Researcher at Air Pollution Engineering Division of National Institute of Environmental Research(NIER), 1997~1999 Center Leader of Climate Change Action Center, KTR of KOREA, 1997~Present Ph.D at Graduate School of Public Health, Hanyang University of KOREA, 2009~2013

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Since 1998, Hunjoo has been a CEO at CHEM.I.NET, Ltd. He received Ph.D. in the School of Computational Science and Engineering at Korea University in 2018. He has been developing various kinds of big data-based platforms in the field of environmental health.