



International Laboratory for Air Quality and Health

WHO Collaborating Centre

ANNUAL REPORT 2019

**INTERNATIONAL LABORATORY FOR AIR QUALITY
and HEALTH (ILAQH)**

**WORLD HEALTH ORGANISATION
COLLABORATING CENTRE FOR AIR QUALITY AND
HEALTH**

1. Introduction

The International Laboratory for Air Quality and Health (ILAQH) is part of the Institute for Health and Biomedical Innovation (IHBI) and the Institute for Future Environments (IFE), at the Queensland University of Technology (QUT). ILAQH undertakes research, postgraduate training and consultancy in the complex, interdisciplinary field of air quality and its impact on human health, with a specific focus on ultrafine and nanoparticles. The three main aspects of ILAQH research activities are:

- Comprehensive characterisation of indoor and outdoor air, including emission sources.
- Integrated health and environmental risk assessments.
- Strategies for controlling and managing air pollutants.

To address the challenge related to the interdisciplinary nature of air pollution and its impact on human health, academics from a number of Faculties within QUT are involved with the programs undertaken by the ILAQH, including discipline areas such as: physics, chemistry, microbiology, mathematics, public health and engineering. The expertise of the ILAQH personnel is strengthened by close collaboration with a number of government and non-government organizations. Through joint research, lecturing and postgraduate student supervision, the ILAQH collaborates closely with a number of North American, European and Asian research and tertiary organizations.

The facility is equipped with state-of-the-art instrumentation for aerosol generation, mass and number size classification; monitoring of atmospheric gases; real time biological studies; vehicle emission testing, filter testing, lung deposition studies, and computer modelling. Access to electron microscopy and analytical chemistry facilities is available through the links existing within the Science and Engineering Faculty.

The ILAQH has built up a scientific program, which is recognised internationally through a high publication rate in reputable international journals, visits by scholars from around the world to the facility, and invitations to the ILAQH key researchers to address international conferences and participate in international initiatives. In Australia both the Queensland State and the Federal government and non-government organizations regularly seek the expertise of this facility.

The ILAQH is a Collaborating Centre of the World Health Organization on Research and Training in the field of Air Quality and Health, since 2004.

2. Collaboration with the World Health Organisation (WHO)

In July 2019, the ILAQH was re-designated for the third time as a World Health Organization (WHO) Collaborating Centre for Air Quality and Health.

Professor Lidia Morawska has made a sustained longstanding and ongoing contribution in her service as an advisor to the WHO, and has contributed to WHO policy on a range of initiatives including work on international WHO Guideline documents, serving as the main reference point for the international community, including WHO Guidelines for: Air Quality (in preparation – Prof Morawska is co-chairing this); Global Platform on Air Quality (in preparation); Healthy Housing 2018; Household Combustion, 2014; Indoor Air Quality: Selected Pollutants, 2010; Indoor Air Quality Guidelines on Dampness and Mould, 2009; Air Quality, 2005; Concentration and Exposure-Response Measurements of Fine/Ultrafine Particulate Matter, 2002; and Dust Prevention in Workplaces, 1996. Professor Morawska has also contributed work towards improvement of the quality of air in developed/developing countries through assisting governments in developing national air quality legislation in major epidemiological studies on air quality impacts, as well as participated in the WHO Emergency Outbreak Response Groups (e.g. 2003 SARS).

In 2019, Professor Morawska was invited by the WHO as a consultant on air pollution, to participate in the following activities:

- Facilitated the involvement of the **WHO Regional Beijing Office** with the multi-disciplinary Centre for research she is currently leading, the '**Australia-China Centre for Air Quality Science and Management (ACC-AQSM)**'. The WHO Regional Office was invited to the '**The 3rd Mini ACC-AQSM Symposium**' hosted by Professor Jianmin Chen and the Fudan University in Shanghai, on the 15 January 2019. This Mini Symposium continues to build on the work of the Mini Symposia held last year, in Beijing in April and in Guangzhou in July. The ILAQH facilitated the involvement **Dr. Xiaopeng Xiang, of the WHO Beijing Office in this activity.**
- Gave an invited Keynote Presentation at the '**WHO International Housing and Health Guidelines: Southern Hemisphere Launch**', held at the University of Otago, in Wellington, New Zealand, 25 February 2019. Presentation title: *Indoor Heat: WHO Housing and Health Guidelines*
- **Chaired** one day of the '**WHO Expert Consultation on Risk Communication and Intervention**' held in Geneva, Switzerland, from the 12-14 February 2019, as a discussant in the session entitled '*Technical aspects regarding indoor air filters*'.
- Wrote a portion of the **Regional Report** for the **WHO Western Pacific Regional Office (WPRO)** titled, '**Air Quality and Health in the Western Pacific Region**' produced by **Thematic Working Group for Air Quality** to identify the gaps for improvement, from 25 March – 24 July 2019. The purpose to prepare a Regional Report on air pollution and health regarding the situation and related government efforts of selected

Western Pacific Region countries as a follow-up action to the recommendations the Member States Consultation on Addressing the Health Impact of Air Pollution that was held from the 23-25 October 2017, in Manilla, Philippines.

- **Co-chaired the '3rd Meeting of the GDG for the update of the WHO Global Air Quality Guidelines'**, held in in Bonn, Germany, from the 4-6 June 2019.
- Participated in the '**Western Pacific Region Partners Forum**' held from the 1-3 July 2019, in [My Workplace](#) online.
- Participated in the **WebEx 'Preparatory Global Air Pollution and Health' Advisory Group Meeting'**, held from the 1-3 July 2019.
- Involvement in the secretariat for **Australian and New Zealand-based WHO Collaborating Centres (CC)** to leverage Australia and New Zealand's global health sector expertise through effective engagement with WHO CC in Melbourne, Victoria, Australia.
- Contributed to the **Capacity Building Material for the 'WHO Air pollution and health: Training Toolkit - module 1, 2 and 3: AP Intro, the sources and monitoring ambient air pollution'**, in August-December 2019.

3. ILAQH Researchers in 2019

Director

Professor Lidia Morawska, PhD (School of Chemistry, Physics & Mechanical Engineering)

Academic Staff

Professor Godwin Ayoko (School of Chemistry, Physics & Mechanical Engineering)

Professor Zoran Ristovski (School of Chemistry, Physics & Mechanical Engineering)

Dr Branka Miljevic (School of Chemistry, Physics & Mechanical Engineering)

Dr Graham Johnson (School of Chemistry, Physics & Mechanical Engineering)

Research Fellows / Associates

Dr Congrong He

Dr Joel Alroe

Dr Rohan Jayaratne

Research Fellowships

Dr. Tom Cole-Hunter (CAR Postdoctoral Fellowship)

Dr. Marc Mallet

Associated Academic Adjunct Staff

Adjunct Professor Giorgio Buonanno (University of Cassino, Italy)

Adjunct Professor Hai Guo (Hong Kong Polytechnic University, Hong Kong)

Adjunct Professor Tunga Salthammer (Fraunhofer WKI, Germany)

Postgraduate & Research Co-ordinator

Ms. Chantal Labbe

Doctoral Students

Alireza Taghipour (Supervisor: Richard Brown with Zoran Ristovski)

Alma de Jesus (Supervisor: Lidia Morawska)

Basant Pradhan (Supervisor: Lidia Morawska with Rohan Jayaratne)

Changda Wu (Joint QUT-JNU student, Supervisor: Zoran Ristovski with Branka Miljevic)

Chiemiwo Godday Osuagwu (Supervisor: Branka Miljevic with Zoran Ristovski)

Eva Johanna Horchler (Joint QUT-JNU student, Supervisor: Zoran Ristovski with Branka Miljevic)

Joel Alroe (Supervisor: Zoran Ristovski with Branka Miljevic and Graham Johnson)

Khanh Long Tran (Supervisor: Lidia Morawska with Rohan Jayaratne)

Lingli Guo (Supervisor: Lidia Morawska)

Luke Cravigan (Supervisor: Zoran Ristovski with Branka Miljevic)

Mawutorli Nyarku (Supervisor: Lidia Morawska)

Meng Xiu (Supervisor: Lidia Morawska with Rohan Jayaratne)

Mohammad Jafari (Supervisor: Zoran Ristovski)

Nairui Liu (Supervisor: Lidia Morawska)

Priyanka Arora (Supervisor: Zoran Ristovski)

Puneet Verma (Supervisor: Zoran Ristovski with Richard Brown)

Reece Brown (Supervisor: Zoran Ristovski with Graham Johnson)

Robert Groth (Supervisor: Graham Johnson with Zoran Ristovski with Graham Johnson)

Sadegh Niazi (Supervisor: Graham Johnson)

Thuy Chu Van (Supervisor: Richard Brown with Zoran Ristovski)

Xiaoting Liu (Supervisor: Lidia Morawska with Rohan Jayaratne)

Yi Guo (Supervisor: Zoran Ristovski with Branka Miljevic)

Doctoral Students (enrolled in other QUT Schools and other Universities)

G M Hasan Shahariar (Supervisor: Richard Brown with Zoran Ristovski)
Marc van Beest (Supervisor: Nunzio Motta with Lidia Morawska)
Rebecca Stockwell (QIMR, Supervisor Scott Bell with Lidia Morawska)
Shayan Mokhtarpour Vanaki (Supervisor: Yuan Tong Gu with Zoran Ristovski)
Zhenya Fan (Supervisor: Yuan Tong Gu with Zoran Ristovski)

Masters Students

Bryce Christensen (Supervisor: Lidia Morawska with Rohan Jayaratne)
Raziya Sultana Chowdhury (Supervisor: Godwin Ayoko with Zoran Ristovski and Branka Miljevic)
Tara Kuhn (Supervisor: Lidia Morawska with Rohan Jayaratne)

Graduate Certificate in Research

None.

Honours Students

Haydn Trounce (Supervisor: Branka Miljevic)
Zachary Brown (Supervisor: Branka Miljevic)

Postgraduate Completions, PhD

Akwasi Bonsu Asumadu-Sakyi (Supervisor: Lidia Morawska)
Luke Cravigan (Supervisor: Zoran Ristovski with Branka Miljevic)
Thuy Chu Van (Engineering, Supervisor: Richard Brown with Zoran Ristovski)

Postgraduate Completions, Masters

None.

Administrative Assistant

Ms. Chantal Labbe

Destination of our Graduates (Current Positions)

Academic Positions in Top International Universities / Organisations

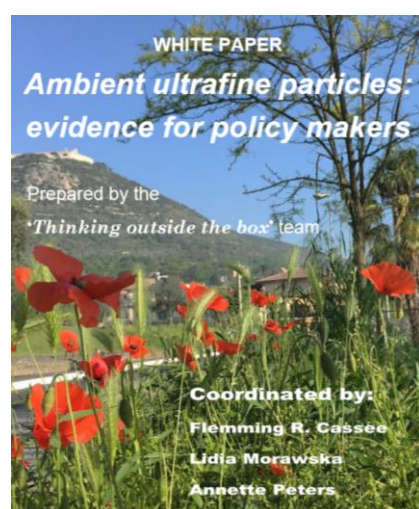
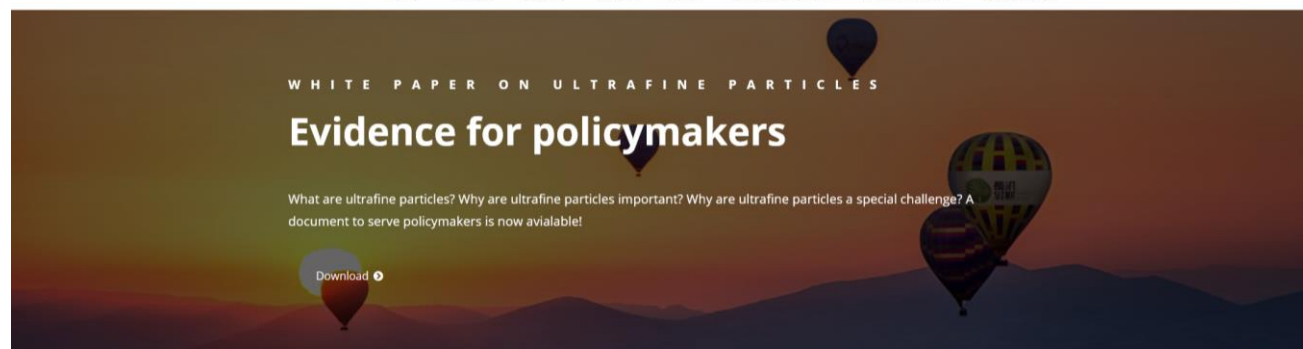


4. Major Developments



EUROPEAN FEDERATION OF CLEAN AIR AND ENVIRONMENTAL PROTECTION ASSOCIATIONS

Home About Contact Events News Policy information Policy initiatives Publications



An international team of experts published a White Paper on “**Ambient ultrafine particle evidence for policy makers**”, which was led by **Professor Lidia Morawska** (International Laboratory for Air Quality and Health, Queensland University of Technology), **Professor Annette Peters** (Institute of Epidemiology, Helmholtz Center Munich – German Research Center for Environmental Health), and **Professor Flemming R. Cassee** (National Institute for Public Health and the Environment, and the Institute of Risk Assessment Sciences, Utrecht University), and **prepared by the ‘Thinking outside the box’ team**. The White Paper has been published on the European Federation of Clean Air and Environmental Protection Associations ([EFCA website](#)) and can [now be downloaded here](#).

A new research project commenced in 2019 titled, **Overcoming cultural and developmental barriers to transition towards cleaner energy practices in Oceania: A pilot study in Solomon Islands**, funded by the Centre for Air pollution, energy and health Research (CAR) Seed Funding Project. A small batch of low-cost air-quality monitors have been deployed by Dr Tom Cole-Hunter and Professor Lidia Morawska with colleagues in the Solomon Islands. These monitors, as a network piloted for the first time in the Pacific Island Countries, are recording household air



pollution (HAP) levels in individual homes and their link with the specific cooking practices, in the context of the ventilation methods use, to present this information to the communities, raise awareness of the risks from HAP, and embrace change to clean energy cooking practices. The aim of our project is to enable the Solomon Islands Ministry of Health and Medical Services (HMS) to empower household members (especially women/mothers as agents of change, within households

of young children) to sustainably adopt cleaner energy practices. Such practices will reduce household air pollution (HAP) and associated burden of disease from early-life and life-long exposure to it.

On Tuesday, 26th February 2019, **Dr. Takeshi Kasai**, who has just taken over the position of Regional Director of the World Health Organisation (WHO)'s Western Pacific Regional Office in early February, visited the International Laboratory for Air Quality and Health (ILAQH) at QUT, a WHO Collaborating Centre for Air Quality and Health since 2004, led by Professor Lidia Morawska. Dr. Kasai was particularly interested and impressed by the low-cost sensor program led by the ILAQH, and its application towards air quality monitoring and energy transition in the Pacific Island countries.



(L to R: Prof Neil King, Theme Leader, Environmental Health, IHBI; Dr. Takeshi Kasai, Regional Director of the WHO WPRO; Prof Kerrie Wilson, Executive Director, IFE; and Prof Lidia Morawska, Director, ILAQH).

This program was presented to Dr. Kasai by Professor Lidia Morawska (CAR Chief Investigator), Dr Tom Cole-Hunter (CAR Postdoctoral Research Fellow), and others of the ILAQH Sensors team. The program is supported by the CAR through several seed funding grants and Dr Cole-Hunter's fellowship, and will next expand into the Solomon Islands to remove cultural barriers against transition to clean cooking methods. Pilot work in Fiji started in September of 2018, to assess children's exposure to air pollution in the region, its drivers, the burden of disease attributable to it and how transition to clean energy would mitigate it.

Following the visit of a QUT delegation to Guangzhou in November last year, where the renewal of a **MOU** was signed with the **Guangdong Science and Technology Department** for **joint collaborative research projects**, to continue these discussions on joint activities, a visit took place at the **Queensland University of Technology (QUT)**, in Brisbane, Australia, in **May 2019**, by a delegation from the **Jinan University (JNU)**. The delegation included: **Professors Song Xianzhong**, President; **Pu Ruoqian**, Director, Office of International Exchange and Cooperation; **Ding Ke**, Dean, College of Pharmacy; **Chen Zhenqiang**, Dean, College of Science and Technology; **Feng Shuaizhang**, Dean, Institute for Economic and Social Research; and **Wang Boguang**, Deputy Dean, Institute for Environmental and Climate Research.

The New South Wales Office of Environment and Heritage (OEH) is **displaying KOALAs** at the **Science Connects 2019 Conference** where all units in NSW Science Division are displaying their activities.



5. Awards and Achievements



Professor Zoran Ristovski was awarded the position of **Acting Head of School**, for our new school opening in 2020 – the **School of Earth and Atmospheric Sciences!**

PhD Student, Akwasi Asumadu-Sakyi, was nominated SEF HDR Student of the Month Award for July. Akwasi began his Ph.D. in July 2015 after being awarded a QUT Postgraduate Research Award (QUTPRA) and a QUT Higher degree Research Tuition Fee Sponsorship. His research was on quantitative assessment of temperature in urban residential settings and its implications for



extreme temperature exposure to humans, energy consumption and indoor air pollution, which is of significance to understanding the influence of temperature on energy consumption in households and human health at the time when climate change mitigation approaches are being discussed. This cross-disciplinary research involved: a 15 months of field measurement campaigns in 92 residential houses in Brisbane to develop a model to quantify the association between indoor and temperature in households and the immediate surrounding outdoor temperature and identify factors driving the association; developing an indirect approach to evaluate the impact of high

indoor temperature on mortality in different climate zones to find out whether humans adapt/acclimatize to different ranges of indoor temperatures; conducting a review of the application of low-cost sensing technologies for air quality monitoring as well as a comprehensive laboratory assessment to evaluate the suitability and accuracy of six low-cost PM2.5 sensors.

Impressively, he has published 6 papers in high impact journals (Energy Build.: IF=4.457; Sci. Total. Environ. : IF=4.610; Environ. Pollut. : IF=4.358; Environ Int.: IF= 7.297) out of his Ph.D. work. He is the first author on 3 of the publications, a co-author on 3 publications. He also has 3 conference papers to his credit. Moreover, Akwasi received the best poster prize for the Health Determinants and Health Systems program, at IHBI Inspires student conference, 2016. Akwasi also presented his work at the 7th International Conference on Energy and Environment of Residential Buildings, QUT, 2016 and participated in the 12th Annual Workshop of the Australia New Zealand Aerosol Assembly, QUT, and Annual Conference of the Australia-China Centre for Air Quality Science and Management at QUT in 2015. He is a student member of the Statistical Society of Australia.



PhD Student, Puneet Verma, was nominated SEF HDR Student of the Month Award for July. Puneet studied how the chemical composition of the fuel, we use in diesel engines (i.e. biodiesels), influences the morphology and nanostructure of diesel soot particles. These are properties that are important for the performance of diesel particle filters and diesel oxidation catalyst, which are after treatment devices installed in all modern diesel cars. Puneet was very active in a number of research campaigns conducted in the Biofuel Engine Research Facility (BERF) and International Laboratory of Air Quality and Health (ILAQH) and has produced an impressive number of publications. He is the leading author on 4 Q1 research papers, has another 3 under review and is a co-author on 1 more published article with 3 under

review. Puneet was instrumental member of the BERF and ILAQH laboratories and was also very active in few commercial research projects with important industry partners such as Puma Energy and IOR Petroleum. Queensland for two years. He was also an active member of QUT SCAP sports grant committee, Mechanical engineering student society. More recently, he was chosen as Postgraduate Student Officer through university-wide student elections in 2018.

PhD Student, **Alma de Jesus**, was **nominated SEF HDR Student of the Month Award for August**. Alma Lorelei de Jesus research is focused on long-term spatio-temporal trends of urban ambient particles. Gaining deeper insight into how the different particulate matter metrics have evolved



over time is vital in order to effectively and efficiently control their concentrations in urban ambient air. Further, identifying the factors that affect concentration and toxicity of particulate matter is important to abate its health and environment impacts. Alma skilfully led an international research team to conduct analysis and then present the results in a paper that has just been published in one of the top impact factor journals in the field (*Environment International*: IF = 7.943). The members of the team and co-authors of the paper include a number of most renowned international experts in the field of aerosol science.

Alma has also had the opportunity to work with the State Key Joint Laboratory of Environmental Simulation and Pollution Control at the Peking University, in Beijing, China, and has co-authored two papers (*Environ. Sci. Technol.*: IF=7.149 and *Atmos. Env.*: IF = 4.012) on the toxicity of particulate matter. Alma is currently working on a project on *particle mass concentrations across Australian capital cities and again leading a team of air quality experts, this time from around Australia*. Alma has presented her findings at the International Clean Air and Environment Conference, organised by the Clean Air Society of Australia and New Zealand (CASANZ), and at the International Aerosol Conference by the American Association for Aerosol Research (AAAR).

6. Peer Reviewed Publications

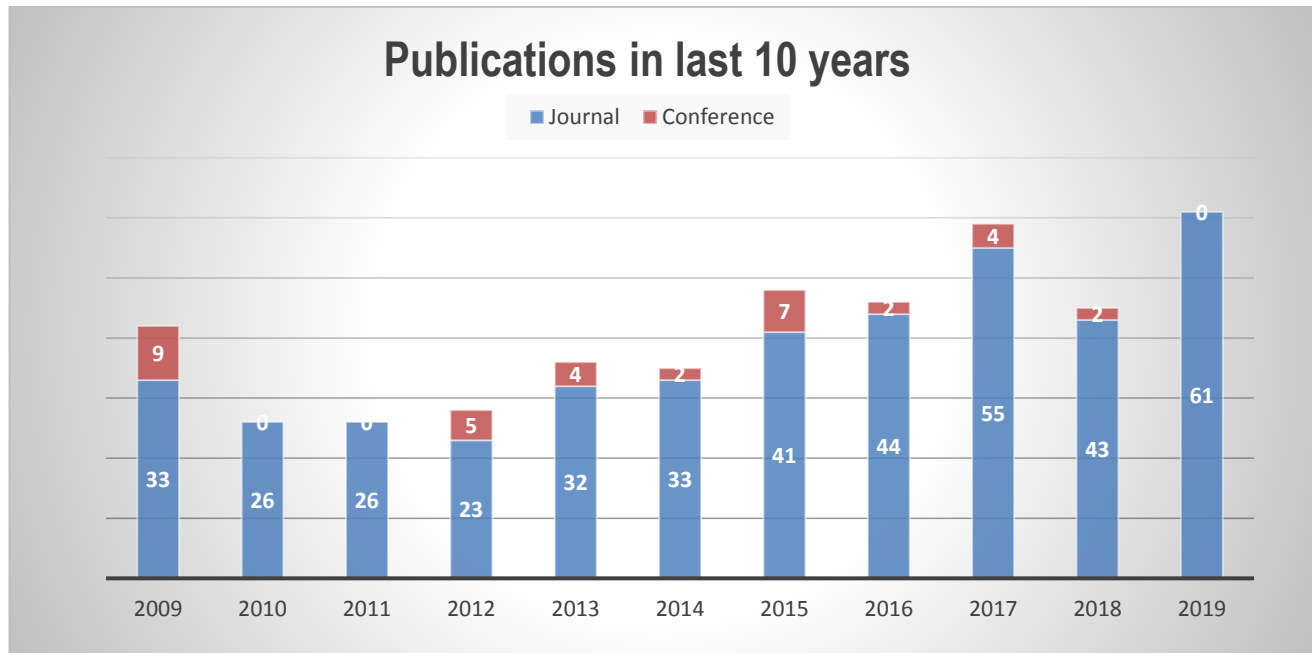


Figure 1. ILAQH Refereed Publications per Year (2009-2019)

7. Competitive Grants (Granted)

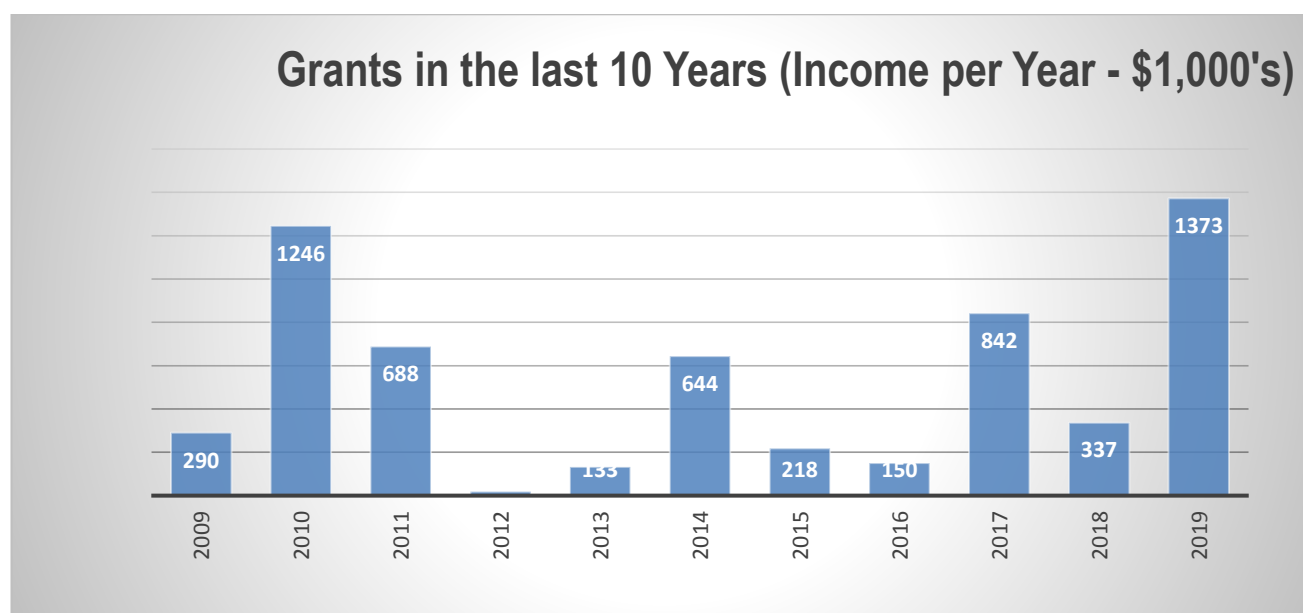


Figure 2. ILAQH Grant Income Distribution per Year (2009-2019)

Australian Competitive Grants (Awarded)

Administered by QUT (QUT Lead-CI)

Project Scheme: ARC Linkage Projects 2018 (2019-2021)

Chief Investigators: Professor Lidia Morawska; Professor Zoran Ristovski; Professor Godwin Ayoko; Dr Branka Miljevic; Dr Graham Johnson; Dr Helen Thompson; Professor Matthew Dunbabin; Associate Professor Luis Gonzalez; Professor Guy Marks; Associate Professor Benjamin Mullins; Dr Melita Keyword; Mr Gavin Fisher; Mr Matthew Riley; Dr Lisa Chang; Dr Pushan Shah; Dr Peter Taylor; Mr Russell Stevens; Dr Woodrow Pattinson; Dr Mandana Mazaheri; Professor Xavier Querol; Dr Josef Cyrus; Professor Dr Kang-Ho Ahn; Associate Professor Giorgio Buonanno

Awarded: \$889,797.00

Project Title: Airborne ultrafine particles in Australian cities: sources, effects and mitigation (LP180100516).

Project Scheme: NHMRC Centres for Research Excellence, Centre for Air pollution, energy and health Research (CAR) Seed Funding Grant (2019-2020)

Chief Investigators: Lidia Morawska, Bin Jalaludin, Luke Knibbs, Tom Cole-Hunter, Jimmy Hilly

Awarded: \$20,000

Project Title: Overcoming cultural and developmental barriers to transition towards cleaner energy practices in Oceania: A pilot study in Solomon Islands (APP1116412)

Administered by external organisations (QUT Co-CI)

Project Scheme: NHMRC Centres for Research Excellence, CAR Seed Funding Grant (2019-2020)

Administering Organisation: Led by Dr Sotiris Vardoulakis, National Centre for Epidemiology and Population Health, Australian National University

Chief Investigators: S, Vardoulakis Lidia Morawska, Haidong Kan, Robyn Lucas

Awarded: \$20,000

Project Title: Effectiveness of Antioxidant Supplementation to protect respiratory health from BREATHing pollutEd air in ASIA (EASY-BREATHE-ASIA) (APP1116412)

9. Other Public Sector / New Consultancy Research Projects Commenced

None to mention.

9. Conference Presentations (Keynote/Plenary)

Lidia Morawska

- Plenary Presentation at the '**3rd Mini ACC-AQSM Symposium**' held at the Fudan University, Shanghai, China, 15 January 2019. Presentation: *Topic 1: Review of the progress in addressing the seven Big Questions; Topic 2: Future activities of the ACC-AQSM*
- Invited Keynote Presentation at the '**WHO International Housing and Health Guidelines: Southern Hemisphere Launch**', University of Otago, Wellington, New Zealand, Monday 25 February 2019. Presentation: *Indoor Heat: WHO Housing and Health Guidelines*
- Invited Plenary Presentation at the '**SETAC A/P Focus Meeting on Environment Pollution and Health in Coastal Zones along the 21st Century Maritime Silk Road**', Nansha Grand Hotel, Nansha District, Guangzhou, 23-26 April 2019. Presentation: *WHO air quality and health: a new focus*
- Invited Presentation at the **Guangzhou Institute of Geochemistry**, Guangzhou, 26 April 2019. Presentation: *Global Epidemics of Air Pollution and how to stop it*
- Invited Keynote Presentation at the European Federation of Clean Air and Environmental Protection Associations (EFCA) '**International Symposium ~ Ultrafine Particles – Air Quality and Climate**', Brussels, Belgium, 15-16 May 2019. Presentation: *Thinking outside the box: how to use the existing science on ultrafine particles to protect against them? Also Chaired Session I – UFP toxicity and epidemiology*
- Invited Presentation at a Secondary School in Poland in May 2019.
- Invited Presentation at the Environment Justice Australia's '**Have your say on air pollution standards, Brisbane**', organised by the Environmental Defenders Office, Queensland, at QUT on the 3 July 2019. Presentation: *Vehicle Emissions, Impacts and Mitigations*
- Invited Plenary Presentation at the '**3rd Symposium on UFP in ambient and indoor air**', Berlin, Germany, 19-20 September 2019. Presentation: *White paper: Ambient ultrafine particles: evidence for policy makers*
- Invited Plenary Presentation at the **18th World Clean Air Congress Conference**, held in Istanbul, Turkey from the 23-27 September 2019. Presentation 1: *Towards Clean Cooking and Heating: Prospects for the Energy Transition in the Domestic Sector*; and Presentation 2: *Thinking outside the box: how to use the existing science on ultrafine particles to protect against them?*. Also gave an Invited Plenary Presentation at the **WB Side Event 'Challenges and Opportunities in Air Quality Management in Western Balkans'** held at the Hilton Maslak Hotel, Sapphire Hall in Istanbul, Turkey, 23rd September 2019. Presentation: *A perspective on the energy transition: "This discussion is closed"*.
- Invited Presentation at the **EFCA** held at the Hilton Maslak Hotel, Sapphire Hall in Istanbul, Turkey, September 2019. Presentation: *White paper: Ambient ultrafine particles: evidence for policy makers*
- Invited Plenary Presentation at the '**15th International Conference on Atmospheric Sciences and Applications to Air Quality (ASAAQ15)**', Kuala Lumpur, Malaysia, 28-30 October. Presentation: *The relationship between clean air and clean energy: what do we need to know and do?*

10. Presentations - Other

Tom Cole-Hunter

- Centre for Air pollution, energy and health Research (CAR) Seminar Series: Webinar on research exploring the health co-benefits of clean-energy transitions in South-Pacific countries, on 15 March 2019.

11. Activities – Other

Lidia Morawska

- Guest Editor for the *Environmental Research Letters* special issue on “**Energy transitions and health**”.
- Guest Editor for the *Science of the Total Environment* Virtual special issue “**Urban Environmental Health Interventions towards the Sustainable Development Goals**”.

12. Media Appearances

Lidia Morawska

Many media appearances / interviews, for example:

- ABC News on 9 December, titled [Sydney smoke is infiltrating homes and it may be just as hazardous to stay indoors](#).
- Chanel 7 News Brisbane on 9 December, titled [Brisbane's air quality worse than Tokyo](#).
- Nine News on 10 December, titled [Air quality inside homes could be almost as bad as outside, expert says](#).
- SBS World news on 10 December, titled [Parents worried that schools aren't equipped for hazardous bushfire air quality](#)
- Pedestrian TV on 10 December, titled [As Sydney Chokes, A Pollution Expert Calls For "Essential" Air Quality Shelters](#).
- The Conversation on 12 December, titled [From face masks to air purifiers: what actually works to protect us from bushfire smoke?](#)
- Academy of Science, on 12 December 2019, review of the bushfire smoke video, [How are you coping with the smokey air?](#)
- ABC Radio Current Affairs Canberra with Claudia Long on 16 December, on the usefulness of masks/respirators.
- ABC TV The Drum Program on 16 December, on the [air quality from bushfire smoke](#), ABC iView: <https://iview.abc.net.au/show/drum>
- 2SER Radio in Sydney on 18 December, 107.3FM Live Radio Interview: <https://2ser.com/>
- ABC Health and Wellbeing on 18 December, on [How to maintain your fitness and keep active as our air quality plummets](#).

Zoran Ristovski

Many media appearances / interviews, for example:

- Fairfax's national science reporter for *The Age* and *Sydney Morning Herald*: on new research on air quality and mosquito coils, January 2019.
- QUT Media Release on 14 November, titled [Bushfire smoke more dangerous than dust storm particles](#).
- ABC Radio Interview with Kat Feeny on 21 November, on the local air pollution in Brisbane from bushfire smoke and health implications on humans and animals. [ABC Brisbane Afternoons \(1:24:25\)](#)
- Brisbane Times on 21 November, titled [Health concerns from two weeks of smoke in southern Queensland](#). This was picked up by Fairfax, The Age, Brisbane Times, Sydney Morning Herald, WA Today.
- ABC Interview on 22 November, titled [Sydney faces worst air pollution levels ever recorded](#)

Graham Johnson

Many media appearances / interviews including:

- ABC News 24 interview with Dr. Graham Johnson on 11 November 2019, on Brisbane's air quality.

ILAQH Team

Many media appearances / interviews following the weeks of bushfire smoke in Southern Queensland, for example:

- *Brisbane Times* on the 21 November 2019, titled [Health concerns from two weeks of smoke in southern Queensland](#).
- Dr. Tom Cole-Hunter and Ms. Xiaoting Liu on *Chanel 7 News* on 13 November 2019, [a short story on Brisbane's air quality as a result of the bushfire smoke](#).

13. Visitors

- Mr. Jordan Khattir, *Visiting Research Student*, Polytech Clermont-Ferrand, France, 5 June 2019 – 8 August 2019.
- Dr. Marcelo Pereira, *Visiting Research Fellow*, Instituto Federal de Santa Catarina, Brazil, 10 June 2019 to 30 August 2019.
- Professor Giorgio Buonnano, *Visiting Adjunct Professor*, University of Cassino, Italy, 21-29 June 2019.
- Professor Hao Wang, *Visiting Academic*, Jinan University, China ([ACC-AQSM also](#)), 23 June – 7 July 2019.
- Dr. N Eliani Ezani, *Visiting Research Fellow*, University Putra Malaysia (UPM), 15-16 July 2019.
- Professor Urs Baltensperger, *Visiting Academic*, Paul Scherrer Institute (PSI), Switzerland, 16 July 2019 – 22 August 2019.
- Dr. Julian Tang, *Visiting Research Fellow*, University Hospitals of Leicester NHS Trust, United Kingdom, 23 July 2019.
- Professor Sasho Gligorovski, *Visiting Academic*, Guangzhou Institute of Geochemistry, Chinese Academy of Science, 23 July 2019 ([ACC-AQSM also](#)).
- Dr. Erik Uhde, *Visiting Research Academic*, Fraunhofer WKI, Germany, 7-19 October 2019.
- Dr. Heidi Salonen, *Visiting Research Academic*, Aalto Finland, 25 October 2019 – 3 February 2020.
- Professor Tunga Salthammer, *Visiting Adjunct Professor*, Fraunhofer WKI, Germany, 23 November – 12 December 2019.