



# **International Laboratory for Air Quality and Health**

**WHO Collaborating Centre**

## **ANNUAL REPORT 2018**

**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; and
- 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.

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.

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. ILAQH Researchers in 2018

### 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)

### Academic Staff Positions at other Universities

Adjunct Professor Lidia Morawska (Jinan University, Guangzhou)

Adjunct Professor Zoran Ristovski (Jinan University, Guangzhou and Fudan University, Shanghai)

VC Fellowship for Professor Lidia Morawska (University of Surrey, UK)

### Research Fellows / Associates

Dr Congrong He

Mr Joel Alroe

Dr Phong Thai

Dr Rohan Jayaratne

Dr. Tom Cole-Hunter (CAR Postdoctoral Fellowship)

Dr Svetlana Stevanovic (now Lecturer at Deakin University)

### Associated Academic Adjunct Staff

Adjunct Prof Giorgio Buonanno (University of Cassino, Italy)

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

Adjunct Prof Tunga Salthammer (Fraunhofer WKI, Germany)

### Postgraduate & Research Co-ordinator

Ms Chantal Labbe

### Doctoral Students

Akwasi Bonsu Asumadu-Sakyi (Supervisor: Lidia Morawska)

Alma de Jesus (Supervisor: Lidia Morawska)

Chiemeriwo Godday Osuagwu (Supervisor: Branka Miljevic)

Eva Johanna Horchler (Supervisor: Zoran Ristovski)

Joel Alroe (Supervisor: Zoran Ristovski)

Khanh Long Tran (Supervisor: Lidia Morawska)

Luke Cravigan (Supervisor: Zoran Ristovski)

Mawutorli Nyarku (Supervisor: Lidia Morawska)

Meng Xiu (Supervisor: Lidia Morawska)

Mohammad Jafari (Supervisor: Zoran Ristovski)

Nairiu Liu (Supervisor: Lidia Morawska)

Nassib Jabbour (Supervisor: Graham Johnson)

Puneet Verma (Supervisor: Zoran Ristovski)

Reece Brown (Supervisor: Zoran Ristovski)

Sadegh Niazi (Supervisor: Graham Johnson)

Sarah Lawson (Supervisor: Zoran Ristovski)

Xiaoting Liu (Supervisor: Lidia Morawska)

Yi Guo (Supervisor: Zoran Ristovski)

**Doctoral Students Associated with ILAQH**

GM Hasan Shahariar (Supervisor: Richard Brown)

Marc van Beest (Supervisor: Nunzio Motta; Co- Supervisor: Lidia Morawska)

Rebecca Stockwell (QIMR, Supervisor Scott Bell; Co-Supervisor: Lidia Morawska)

Tham Nguyen (Supervisor: Luke Knibbs, QUT; Co- Supervisor: Graham Johnson)

Shayan Mokhtarpour Vanaki (Supervisor: Yuan Tong Gu)

Thuy Chu Van (Supervisor: Richard Brown)

Zhe (Edward) Whang (Supervisor: Zuduo Zheng)

Zhenya Fan (Supervisor: Yuan Tong Gu)

**Masters Students**

Bryce Christensen (Supervisor: Lidia Morawska)

Tara Kuhn (Supervisor: Lidia Morawska)

**Graduate Certificate in Research**

None

**Honours Students**

Haydn Trounce (Supervisor: Branka Miljevic)

Robert Groth (Supervisor: Graham Johnson)

Zachary Brown (Supervisor: Branka Miljevic)

**Postgraduate Completions, PhD**

Buddhi Pushpawela (Supervisor: Rohan Jayaratne; Co- Supervisor: Lidia Morawska)

**Postgraduate Completions, Masters**

None.

**Postgraduate Completions, Honours**

None.

# Destination of our Graduates (Current Positions)

## Academic Positions in Top International Universities / Organisations



### 3. Major Developments

- Professor Lidia Morawska was invited as **the only scientist from Australia invited to participate** to participate in the **World Health Organisation (WHO)'s 'First WHO Global Conference on Air Pollution and Health: Improving Air Quality, Combatting Climate Change – Saving Lives'** held at the WHO headquarters, in Geneva, Switzerland, from 29 October to 1 November 2018. Professor Morawska has worked with the WHO for more than twenty years, and had several

roles to play in this truly historical event. This was a high-level governmental conference, where only a number of scientists get the privilege of being invited to. The message was very clear: air pollution must be terminated through the transition to clean energy. Further, there were pledges made by more than 80 countries/organisations for actions



to make this happen (one of the most impressive was made by the Netherlands). **Professor Morawska** was interviewed by the WHO during this conference, the link: <https://youtu.be/Mckxt-nYKZY>

- A state-of-the-art miniature air quality sensor network was established and operated around the **Gold Coast Commonwealth Games Athletes Village** and provided real time, visualised communication of the monitoring data. The Games took place from the 4-15 April 2018. This project is based on our ARC Linkage Project titled, Establishing Advanced Networks for Air Quality Sensing and Analyses, and QUT Engagement Project titled, *State-of-the-art air quality sensing network for the Gold Coast Commonwealth Games 2018: engaging the community and showcasing QUT as a global leader in innovative technologies.*



- **Link to the map:** <http://www.sensors.net.au/>
- **Link to the project website:** <https://research.qut.edu.au/ilagh/projects/thegoldcoastanditsair/>

The News story was been picked up by Fairfax Media over the Easter weekend, and ran it nationally through [The Age](#), [Sydney Morning Herald](#), [Brisbane Times](#), etc.

- Dr Graham Johnson was promoted to a **Senior Lecturer position**



→ A new research project commenced in 2018 titled, ***Assessment of children's exposure to air pollution in Fiji, its drivers and the burden of disease attributable to it***, funded by the Centre for Air pollution, energy and health Research (CAR) Seed Funding Project. A batch of low-cost air-quality monitors have been deployed by Dr Tom Cole-Hunter and Professor Lidia Morawska with colleagues at Fiji National University and WHO's Western-Pacific Regional Office in Suva, Fiji. These monitors, as a network piloted for the first time in the Pacific Island Countries, are recording two key pollutants related to smoke from biomass and fossil-fuel combustion (carbon monoxide and fine particulate matter). Information on these pollutants will provide a clear picture as to how clean or not the air there is, and how that changes with a transition to clean energy, e.g., municipal electricity sourced from solar panels (as is potentially viable) rather than diesel generators (as is currently common). This work was shared by Professor Morawska with attendees at the WHO's first Global Conference on Air Pollution and Health, held at WHO Headquarters in Geneva, Switzerland, at the end of 2018.



Group photo of the Fiji Team



Professor Zhang Hong, JNU International Vice-President and QUT DVC Scott Sheppard signing the joint QUT-JNU PhD agreement

- Professor Zoran Ristovski initiated a **Joint PhD Program** between **Jinan University** and **QUT**, which was **signed** in April 2018. To accompany this joint PhD agreement, a **QUT-JNU joint Laboratory for Air Quality Science and Management** was also established with Professor Ristovski as the Laboratory Director. This is an extension of the excellent collaborative work that was initiated by Dr Congrong He from the ILAQH and Professor Boguang Wang from the JNU. The joint laboratory has been given a large space at **the Institute for Environmental and Climate Research, JNU**. QUT staff, Professor Zoran Ristovski and Dr Congrong He, together with JNU staff, Professor Hao Wang (ILAQH alumni) and Professor Boguang Wang, have been involved in the design of the new laboratory space. This space will be a major boost for the PhD students involved in the joint PhD program. The joint PhD agreement has attracted so far 2 PhD students with 3 more waiting to start in September 2019. A joint masters agreement is in preparation.
- During the visit of the QUT delegation to Guangzhou in November 2018 an **MOU renewal** was signed with the **Guangdong Science and Technology Department**, for joint collaborative research projects. In addition, an **MOU** was also signed with the **Sun Yat-sen University** in Guangzhou, for a joint collaborative research project. These extensions will enable the continuation of the existing project that Prof Ristovski has with SYSU and **Guangdong Science and Technology Department on the** measurements of the oxidative capacity of the atmosphere.





Group photo, visit by the QUT delegation to the Institute for Environmental and Climate Research and joint QUT-JNU laboratory

- Dr Branka Miljevic (Oct & Nov 2018) and Joel Alroe (Jan & Feb 2019) participated in two voyages in the Antarctica, on the Australian icebreaker Aurora Australis as a part of **Chemical and Mesoscale Mechanisms of Polar Cell Aerosol Nucleation (CAMMPCAN)** project – a large, collaborative project led by the University of Melbourne and funded by the Australian Antarctic Division. The aim of the project was to investigate sources and properties of aerosols over the Southern Ocean as they are important for regulating of Earth's climate and yet, particularly poorly understood in the Southern Ocean region. ILAQH researchers and their colleagues were looking after a comprehensive suite of instruments for physical and chemical characterisation of aerosols, their precursors and trace gases which were placed in a unique, mobile, modified shipping container laboratory called AIRBOX (or Atmospheric Integrated Research Facility for Boundaries and Oxidative Experiments; <https://airbox.earthsci.unimelb.edu.au/>). This project will provide the most comprehensive set of atmospheric data for the Southern Ocean region and will help to improve climate models for that part of the world. Links:



- <http://www.antarctica.gov.au/news/2018/seeding-southern-clouds>
- <https://pursuit.unimelb.edu.au/articles/how-do-aerosols-help-our-atmosphere-clean-itself>.

## 4. Awards and Achievements

→ Team “CF Air”, was awarded the 2018 Eureka Prize for Infectious Diseases Research.

*‘The CF Air team has uncovered the process by which the deadly pathogens causing airway infections are transmitted between cystic fibrosis (CF) patients. Their research has attracted considerable attention from the CF community, impacting clinical practice and policy and ultimately reducing infection rates amongst CF patient groups.*

CF AIR includes collaborators from Metro North Hospital and Health Service; Prince Charles Hospital; QIMR Berghofer Medical Research Institute; Children’s Health Queensland; University of Queensland; Griffith University; Gold Coast Health; and QUT. We have been working together for over fifteen years, and among our prior achievements was a paper on this topic published in *Science* in 2016, for which QUT student Nassib Jabbour received an award for (together with collaborators from UK and US). Professor Lidia Morawska, Dr Graham Johnson, and student Nassib Jabbour were part of the team working on transmission of infectious diseases.

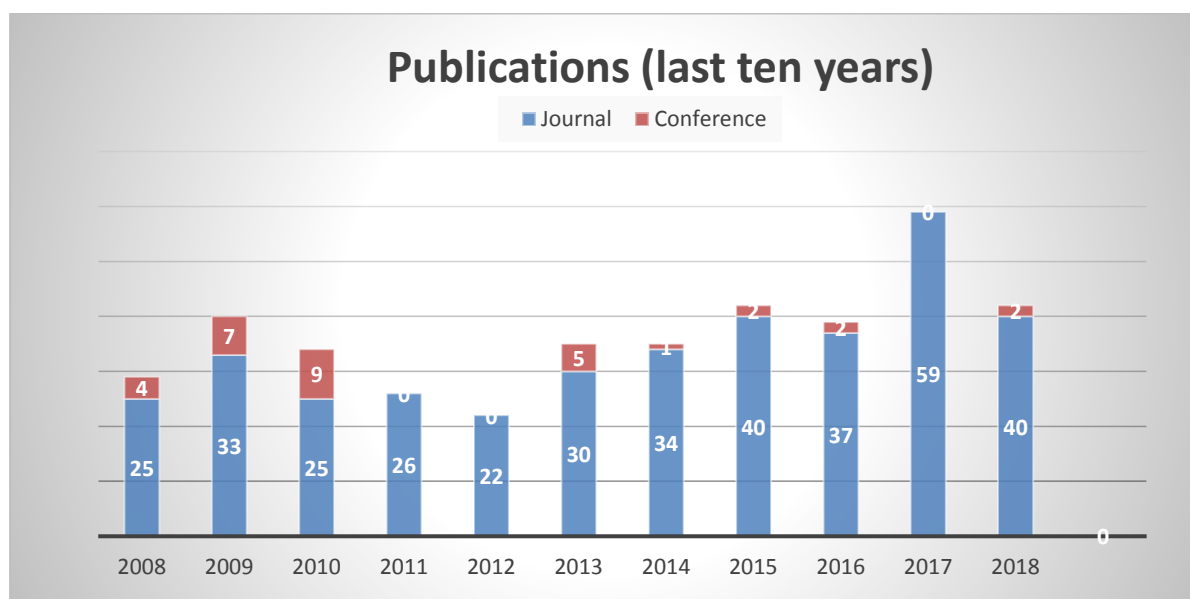


→ Professor **Lidia Morawska** and Professor **Zoran Ristovski** were appointed an **Adjunct Professor** positions at the **Jinan University**, Guangzhou, China in July and April 2018, respectively.

→ Dr **Branka Miljevic** was awarded the **SEF Faculty Award** in 2018.

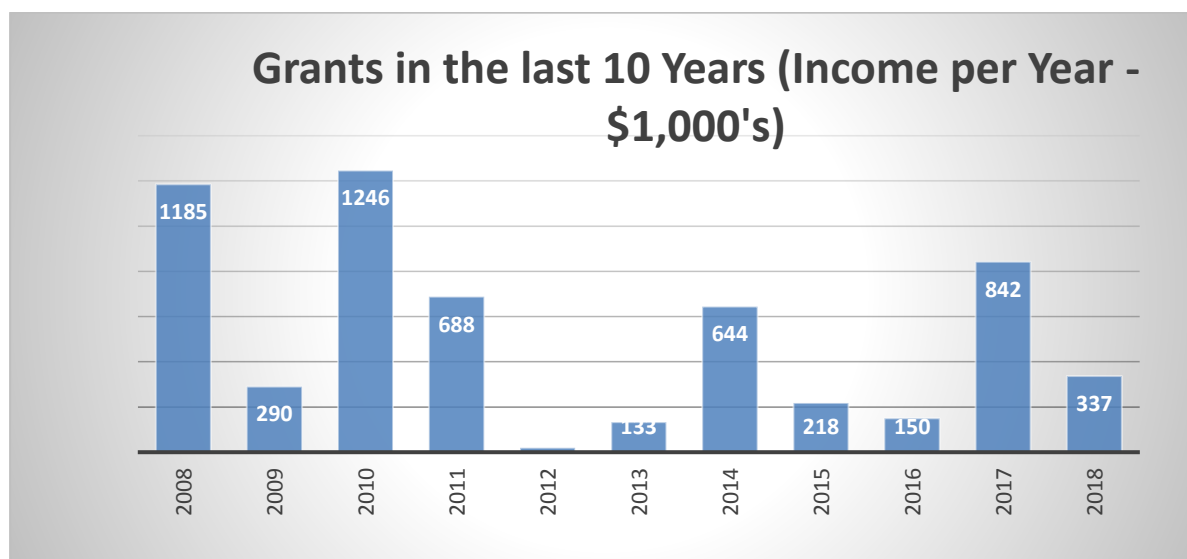
→ PhD student **Buddhi Pushpawela** (Principal Supervisor: Rohan Jayaratne) received the HDR Student of the month award for June 2018.

## 5. Peer Reviewed Publications



**Figure 1.** ILAQH Refereed Publications per Year (2008-2018)

## 6. Competitive Grants (Granted)



**Figure 2.** ILAQH Grant Income Distribution per Year (2008-2018)

### Australian Competitive Grants (Awarded)

#### **Administered by QUT (QUT Lead-CI)**

**Project Scheme:** Australian Research Council Discovery Projects 2018 (2018-2020)

**Chief Investigators:** Zoran Ristovski, Branka Miljevic, Richard Brown, Svetlana Stevanovic

**Awarded:** \$354,636

**Project Title:** Secondary Aerosol Formation from Engine Exhaust Emissions

**Project Scheme:** NHMRC Centres for Research Excellence, Centre for Air pollution, energy and health Research (CAR) Seed Funding Grant (2018-2019)

**Chief Investigators:** Lidia Morawska, Bin Jalaludin, Luke Knibbs, Paul Jagals, Donald Wilson, Amelia Turagabeci

**Awarded:** \$20,000

**Project Title:** Assessment of children's exposure to air pollution in Fiji, its drivers and the burden of disease attributable to it (APP1116412)

**Project Scheme:** NHMRC Centres for Research Excellence, Centre for Air pollution, energy and health Research (CAR), Postdoctoral Fellowship

**Chief Investigators:** Dr Tom Cole-Hunter

**Awarded:** \$74,548

**Project Scheme:** Advance Queensland Women's Academic Fund

**Chief Investigators:** Branka Miljevic

**Awarded:** \$6,750



### **Administered by external organisations (QUT Co-CI)**

**Project Scheme:** NHMRC Centres for Research Excellence, Project Grant (2018-2021)

**Administering Organisation:** Led by Professor Guy Marks, the UNSW

**Chief Investigators:** Bin Jalaludin, Geoffrey Morgan, Yuming Guo, Luke Knibbs, Lidia Morawska, Jane Heyworth, Andrea Hinwood

**Awarded:** \$1,041,409.50

**Project Title:** Air pollution and mortality and morbidity in adult Australians (APMMA Study): a large population based cohort study (APP1142222)

**Project Scheme:** NHMRC Centres for Research Excellence, CAR Seed Funding Grant (2018-2019)

**Administering Organisation:** Led by Professor Guy Marks, The University of New South Wales and Woolcock Institute for Medical Research, Lidia Morawska

**Chief Investigators:** Guy Marks, Lidia Morawska

**Awarded:** \$20,000

**Project Title:** Biomarkers of “deep lung” effects of ultrafine particles (APP1116412)

**Project Scheme:** NHMRC Centres for Research Excellence, CAR Seed Funding Grant (2018-2019)

**Administering Organisation:** Led by Dr Gayan Bowatte Melbourne School of Population and Global Health The University of Melbourne

**Chief Investigators:** Gayan Bowatte, Lidia Morawska

**Awarded:** \$20,000

**Project Title:** Building a 3D air pollution model for the city of Kandy, Sri Lanka: a platform to evaluate health outcomes (APP1116412)

**Project Scheme:** Australian Museum Eureka Award 2018

**Administering Organisation:** Led by Professor Scott Bell, The Prince Charles Hospital

**Chief Investigators:** Scott Bell, Claire Wainwright, Keith Grimwood, Lidia Morawska, Luke Knibbs, Timothy Kidd

**Project Title:** Cystic fibrosis – Mechanisms and methods to prevent airborne pathogens

**Project Scheme:** Australian Antarctic Science Grant

**Administrating Organisation:** Led By R. Schofield, The University of Melbourne

**Chief Investigators:** R. Schofield, S. Alexander, J. Fisher, R. Humphries, M. Keywood, A. Klekociuk, T. Lane, S. Lawson, A. Protat, Z. Ristovski, S. Utembe, M. Woodhouse

**Awarded:** \$105,000 + \$799,000 in-kind logistic support

**Project Title:** CAMMPCAN – Chemical and Mesoscale Mechanisms of Polar Cell Aerosol Nucleation (Project 4431)

**Project Scheme:** QUT Catapult Projects (2018)

**Chief Investigators:** Tom Rainey, Zoran Ristovski, Graham Johnson

**Awarded:** \$42,000 (led by Tom Rainey)

**Project Title:** Cheaper and more effective face masks through design and paper science

### **Foreign Competitive Grants (Awarded)**

**Project Scheme:** Federal Ministry for Environment, Nature Conservation, Building and Nuclear Safety (BMUB) (2018-2019)

**Chief Investigators:** Lidia Morawska and Tunga Salthammer

**Awarded:** 93,497.00 EUR / \$145,071 AUD

**Project Title:** Trends of ambient air pollution and climate in Central Europe – indoor/outdoor ratios of key pollutants and implications for indoor air quality

## 7. Other Public Sector / New Consultancy Research Projects Commenced

**Project Scheme:** Puma Energy Commercial Project

**Chief Investigators:** Zoran Ristovski, Richard Brown

**Awarded:** \$30,504

**Project Title:** Puma Energy NextGen Diesel emission testing

**Project Scheme:** Defence Science and Technology Group (DST Group) 2018

**Chief Investigators:** Zoran Ristovski, Branka Miljevic, Joel Alroe

**Awarded:** \$20,000

**Project Title:** Near sea surface aerosol characterisation using AIRBOX on Garden Island

**Project Scheme:** Australian Institute for Marine Science 2018

**Chief Investigators:** M Gibbs, Z Ristovski, K Vella

**Awarded:** \$333,149

**Project Title:** Reef Restoration and Adaptation Program Design Phase (2017-2019)

## 8. Collaborations

### World Health Organisation

#### Lidia Morawska

- Attended by invitation as a as an expert on air pollution, to participate and co-chair the **'Meeting of the Guideline Development Group for the update of the WHO Global Air Quality Guidelines'** held from 14 to 16 March 2018 in Bonn, Germany.
- Attended by invitation as **a expert to this activity**, to participate and give a presentation at the **'Policy Roundtable for Clean Household Air and Health in China (WHO Beijing)'** held on the 10<sup>th</sup> April 2018 in Beijing, China.
- Invited by Jessica Lewis and Heather Adair-Rohani from the WHO as a as an expert on air pollution, to conduct an External Review and provide comments on the **'Proxy-indicator approach for assessing the quality of a Cooking Energy System'**, an approach developed by Energising Development (EnDev), in May 2018. The work is continuing.
- Finalisation of the **'WHO Housing and Health Guidelines'**, launched at the **'15<sup>th</sup> International Conference on Urban Health'**, in Kampala, Uganda, 26-30 November 2018.
- Invited to conduct an External Review of the Thematic Working Group for Air Quality report on **'Air Quality Country Profiles: Western Pacific Region'** as by requested by the **WHO Regional Office for the Western Pacific (WHO WPRO)** in June-July 2018. The purpose to evaluate current status of region and countries of Western Pacific region regarding air pollution.
- Attended by invitation as a as an expert on air pollution, to participate and moderate a parallel session titled, *"Ambient air quality monitoring, modelling and forecasting – the next stage"*, on 30 October, day 1 of the **'First WHO Global Conference on Air Pollution and Health: Improving Air Quality, Combatting Climate Change – Saving Lives'** held from 29 October to 1 November 2018, at WHO headquarters, in Geneva, Switzerland.

## 9. Conference Presentations (Keynote/Plenary)

### **Lidia Morawska**

Invited Plenary Presentation at the **'WHO Beijing Policy Roundtable for Clean Household Air and Health'**, China, 10 April 2018. Presentation: *International perspectives on air quality and its impact on human health and the environment.*

Invited Plenary Presentation at the **'AEROSOLS2018 Conference'** held in Cassino, Italy, 18-20 April 2018. Presentation: *Ultrafine particles: two decades of research and the debate is still on!*

Invited Speaker at the **'RISUD Annual International Symposium 2018 (RAIS 2018)'** workshop on Urban Air Pollution and Health, Hong Kong Polytechnic University, Hong Kong, China, 29-30 June 2018. Presentation: *Urban Air: from exposure to health risk assessment.*

Invited Speaker at **'The Institute for Environmental and Climate Research (ECI)'**, Jinan University, in Guangzhou, China, 2-4 July 2018. Presentation: *Urban Air: now and in the future.*

Invited Presentation at the **'Victorian Government Clean Air Summit'**, Melbourne, Victoria, 27 August 2018. Presentation: *Applications of low-cost sensing technologies for air quality monitoring and exposure assessment: how far have they gone?*

Invited Plenary Presentation at **the Inaugural Stakeholder Workshop: 'Assessing Environmental Health Risk and Impact of Air Pollution in Pacific Island Countries'**, hosted by the School of Public Health and Primary Care, Fiji National University Suva, Fiji, 27 September 2018. Presentation: *Air quality, health and energy transition: big picture and the current project*

Invited Plenary Presentation at the **'15<sup>th</sup> International Conference on Urban Health'**, in Kampala, Uganda, 26-30 November 2018. Presentation: *Global Epidemics of Urban Air Pollution and How to Stop it.*

Invited Plenary Presentation at the **'Healthy-Polis Workshop: Clean Air, Low Carbon Cities'**, Kampala, Uganda, 27 November 2018. Presentation: *A tale of two cities: Beijing and London*

### **Zoran Ristovski**

Invited Presentation at the **'Sino-German Symposium on Bridging Aerosol Chemistry and Health Effects: Challenges and Opportunities for Analytical Chemistry'**, 20-23 March 2018, Guangzhou, China. Presentation: *Oxidative Capacity of Combustion Generated Particulate Matter*

Invited Speaker at **'The Institute for Environmental and Climate Research (ECI)'**, Jinan University, in Guangzhou, China, November 2018. Presentation: *Real-Time Monitoring of the Oxidative Capacity of Atmospheric Aerosols.*

Invited Speaker at **'College of Environmental Sciences and Engineering'**, Peking University, in Beijing, China, 29<sup>th</sup> November 2018. Presentation: *Measurements of oxidative capacity of combustion generated nanoparticles using novel pro fluorescent probes.*



**Branka Miljevic**

Invited Presentation at the **Queensland Mass Spectrometry Symposium** held at QUT in Brisbane on the 6-7 December 2018. Presentation: *From the Great Barrier Reef to Antarctica: chasing sulphuric acid using chemical ionisation mass spectrometry*

## **10. Presentations - Other**

**Zoran Ristovski**

Delivered a CAR Webinar on "Particulate emissions from biodiesel fuels – Are we going towards cleaner biofuels?", on Thursday, 21<sup>st</sup> June 2018.

## 11. Activities – Other

### Lidia Morawska

- Co-Guest Editor for the Special Issue titled “Environmental Research Letters special issue on energy transitions and health” for the *Environmental Research Letters* Journal.
- Co-Guest Editor for the Special Issue titled “Environmental Research Letters” for the *Science of the Total Environment* Journal.

## 12. Media Appearances

### **Lidia Morawska**

Many media appearances / interviews, for example:

- Gold Coast Commonwealth Games Project was picked up by Fairfax Media, and nationally through [The Age](#), [Sydney Morning Herald](#), [Brisbane Times](#).

### **Zoran Ristovski**

Many media appearances / interviews, for example:

- CAHA (and friends) in the media: Australian climate and energy policy ignoring billions in potential health savings, experts say, July 2018.
- Is a potential health danger smouldering away without us realising? **Front page** of the Sydney Morning Herald, 4 January 2019. [To Read the Article](#)

### **Branka Miljevic**

Media appearances include:

- Video representing Chemistry in CPME at the 7<sup>th</sup> European Chemical Sciences conference hosted by the Royal Society of Chemistry, 26-30 August 2018.

## 13. Visitors

- Ms. Haoyu Jiang, *Visiting Research Student*, Guangzhou Institute of Geochemistry, 11 October 2017 to the 9 October 2018
- Professor Yan Cheng, *Visiting Research Academic*, Xi'an Jiaotong University, 25 October 2017 – 25 October 2018
- Professor Xulong Wang, *Visiting Research Academic*, Chinese Academy of Sciences, 15 December 2017 – 14 June 2018
- Mr. Kun (Evan) Zhang, *Visiting Research Student*, East China University of Science and Technology, 31 January 2018 to 21 January 2019
- Professor Xulong Wang, *Visiting Academic*, Chinese Academy of Sciences, 5 January 2018 – 3 July 2018
- Ms. Juliana Regis, *Visiting Research Doctoral Student*, Federal University of São Paulo, Brazil, 12 April – 31 March 2018
- Ms. Rabbaneh Roughani, *Visiting Research Doctoral Student*, University of Tehran, Tehran, Iran, 12 April – 31 March 2018
- Mr. Karl Staudt, *Visiting Research Student*, Polytech Blaise Pascal University Graduate School of Engineering, Clermont Ferrand, France, 7 May 2018 – 15 July 2018
- Dr. Lidwina Bertrand, *National Scientific and Technical Research Council*, Córdoba, 9 May – 31 May 2018
- Professor Hai Guo, *Visiting Research Academic*, Hong Kong Polytechnic University, in July and August 2018
- Professor Heidi Salonen, *Visiting Research Academic*, AALTO, Finland, 26 November 2018 – 1 February 2019
- Ms. Nini Pang, *Visiting Research Doctoral Student*, Beijing University of Chemical Technology, 30 October 2018 – 30 April 2019
- Dr Marc Mallet, *Visiting Research Industry Fellow*, 3 months 1 December 2018 – 31 March 2019