

Tuan V. Vu

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The University of Birmingham, UK
+ 44 0 121 41 47297; v.vu@bham.ac.uk
<https://tuanvvu.github.io/profile/index.html>

My research interests focus on physico-chemical properties of aerosols and its implications for source apportionment, human exposure & climate change studies. I am also interested in air quality modelling using machine/deep learning.

Professional Experience

Research fellow, University of Birmingham, UK, 2016-present

Marie Curie early researcher, University of Birmingham, UK, 2013-2016

Education

PhD. Atmospheric science, University of Birmingham, UK, 2016

Research advisor: Professor Roy M. Harrison

MSc. Environmental science, University of Ulsan, South Korea, 2011

BSc. Chemistry (honors program), Vietnam National University, Vietnam, 2008

Awards & Fellowships

Marie Curie early researcher Fellowship, University of Birmingham, UK 2013-2016

Best paper presentation award, Brain Korea Program 21, 2010

University scholarship, University of Ulsan, South of Korea, 2009-2011

1st place (perfect score) in entrance exams, Vietnam National University, 2004

Grants & Teaching

Grants: Quantitative attribution of secondary organic aerosol in Beijing to its precursors (£275,344 funded by NERC, 2019-2021. I supported my boss (PI) for proposal writing).

Teaching experience:

- To deliver two modules in “MSc Air Pollution & Control” -2018.
- To mentor PhD students (X. Wu, PhD, 2017).

Publications

12 papers (first author: 7), 2 book chapters, 3 conference papers & 4 submitted manuscripts.

1. **Vu, T.V.**, Zauili-Sajani, S., Poluzzi, V., Harrison, R.M. Factors controlling the lung dose of road traffic-generated sub-micrometre aerosols from outdoor into indoor environments. *Air Qual. Atmos. Health* 11, 615-625 (2018).
2. Wu, X., **Vu, T.V.**, Shi, Z., Harrison, R.M., Liu, D., Cen, K. Characterization and source apportionment of organic aerosols in China - A Review. *Atmos. Environ.* 189, 187-212 (2018).
3. Shi, Z., **Vu, T.**, *et al.* Introduction to special issue-In-depth study of air pollution sources and processes with Beijing and its surrounding region (APHH-Beijing). *Atmos. Chem. Physics. Discuss.* (2018).
4. **Vu, T.V.**, Zauli-Sajani, S., Poluzzi, V., Delgado-Saborit, J.M., Harrison, R.M. Loss processes affecting sub-micrometre particles in a house heavily affected by road traffic emissions. *Aerosol Sci. Tech.* 51, 1201-1211 (2017).

5. Masiol, M., Harrison, R.M., **Vu, T.V.**, Beddows, DCS. Sources of sub-micrometre particles near a major international airport. *Atmos. Chem. Phys.* 17,12379-12403 (2017).
6. **Vu, T.V.**, Ondráček, J., Ždímal, V., Delgado-Saborit, J.M., Harrison, R.M. Physical properties and lung deposition of particles emitted from five major indoor sources. *Air Qual. Atmos. Health* 10, 1-14 (2017).
7. Masiol, M., **Vu, T.V.**, Beddows, DCS., Harrison, R.M. Source apportionment of wide range particle size spectra and black carbon collected at the airport of Venice (Italy). *Atmos. Environ.* 139, 56-74 (2016).
8. **Vu, T.V.**, Beddows, D.C.S, Delgado-Saborit, J.M., Harrison, R.M. Source apportionment of the lung dose of ambient sub-micrometre particulate matter. *Aerosol Air Qual. Res.* 16, 1548-1557 (2016).
9. Fonseca, A.S., *et al.* Inter-comparison of four different cascade impactors for fine and ultrafine particle sampling in two European locations. *Atmos. Chem. Phys. Dis.* (2016).
10. **Vu, T.V.**, Delgado-Saborit, J.M., Harrison, R.M. A review of particle number size distributions from seven major sources and implications for source apportionment studies. *Atmos. Environ.* 122, 114-132(2015).
11. **Vu, T. V.**, Delgado-Saborit, J.M., Harrison, R.M. A review of hygroscopic growth factors of submicron aerosols from different sources and its implication for calculation of lung deposition efficiency of ambient aerosols. *Air Qual. Atmos. Health* 8, 429-440 (2015).
12. **Vu, V-T.**, Lee, B-K., Kim, J-T., Lee, C-H., Kim, I-H. Assessment of carcinogenic risk due to inhalation of polycyclic aromatic hydrocarbons in PM₁₀ from an industrial city: A Korean case-study. *J. Hazard. Mater.* 189, 349-356 (2011).

Articles in progress

1. **Vu, T.V.**, Shi, Z., Cheng, J., Zhang., Q., He, K., Wang, S., Harrison, R.M. Clean air action and air quality trends in Beijing Megacity [submitted].
2. **Vu, T.V.**, Shi, Z, Harrison, R.M. Prediction of hygroscopic growth factors of submicron aerosols using different machine learning techniques [submitted].
3. **Vu, T.V.**, Shi, Z, Harrison, R.M. Effectiveness of policies of traffic management on Beijing air quality [a manuscript preparation].
4. Lyu, R., Shi, Z., Alam, M.S., Wu, X., Liu, D., **Vu, T.V.**, Stark, C., Fu, P., Feng, Y., Harrison R.M. Alkanes and aliphatic carbonyl compounds in wintertime PM_{2.5} in Beijing, China [revised].
5. Lyu, R., Shi, Z., Alam, M.S., Wu, X., Liu, D., **Vu, T.V.**, Stark, C., Fu, P., Feng, Y., Harrison R.M. Insight into the composition of organic compounds ($\geq C_6$) in PM_{2.5} in wintertime in Beijing, China [submitted].

Book chapters & conference papers

1. **Vu, T.V.**, Harrison, R.M. Chemical and physical properties of indoor air pollutants. *An invited book chapter in "Indoor Air Pollution" by the Royal Society of Chemistry publisher [pre-print]*.
2. Lee, B-K and **Vu, V.T.**, 2010. Sources, distribution and toxicity of polyaromatic hydrocarbons (PAHs) in particular matter, *Air Pollution*, p. 99-122. *SCIYO. ISBN: 978-953-307-143-5*.
3. **Vu, V.T** and Lee, B-K, 2011. Elemental and organic carbon in PM₁₀ from urban and background areas in a typical industrial city, Korea. *Proceedings of the 11th Global Conference on Global Warming, 1-8. Lisbon, Portugal*.
4. **Vu, V.T.**, Lee, B-K., Ny, M-T., Kim, J-T, 2010. A study on characteristics of organic carbon and polycyclic aromatic hydrocarbons (PAHs) in PM₁₀ at the residential and industrial areas in Ulsan of Korea. *Proceedings of the 5th International Symposium on Strategic Tech.* 263-266.
5. Lee, B-K., **Vu, V.T.**, Kim, J-T, 2010. Seasonal variation and source apportionment of polycyclic aromatic hydrocarbons (PAHs) in PM₁₀ in an industrial city, Korea. *Proceedings of A&WMA International Specialty Conference, 854-859. Xian, China*.

Selected conferences presentations: I presented my research at AGU Fall meeting (USA, 2017), Aerosol Society Annual Conference (UK, 2016-2017), UK Review Meeting on Outdoor & Indoor Air Pollution Research [UK, 2015-2016], EAC conference [2013-2015].

Skills & Trainings

Programming: R (statistics & data visualisation) & Python (deep/machine learning)

Modelling technique: Numerical modelling & machine learning; PMF & CMB models

Fieldwork: Organized and conducted air pollution sampling campaigns in UK, Spain, Czech, Italy, South Korea, China, and India using a wide range of instruments: air samplers, particle sizers (SMPS, APS, OPS), T-HDMA, AE-33 and gaseous sensors.

Lab-work: GCxGC-ToFMS, GC-MS, OC/EC sunset analyser, IC, ICP-MS & XRF

Advanced training courses: Atmospheric composition data analysis using R (Uni. of York, 2015, funded by NERC); Mathematical modelling approaches to understanding environmental fate (Uni. of Birmingham, 2015); Aerosol characteristics in modern microenvironments (Uni. of Helsinki, 2015); Techniques for monitoring exposure to aerosol (Uni. of Essex, 2014 & Spanish National Research Council, 2013).

Other Academic Activities

Visiting researcher: Spanish National Research Council (Spain, Jul.2013); University of Venice (Italy, Apr.2014); Norwegian Institute for Air Research (Norway, Nov.2014), Institute of Chemical Process Fundamental-Czech Academy of Sciences (Czech Republic, Feb.-Aug.2015), Institute of Atmospheric Physics-Chinese Academy of Science (China, Nov.2016-Jul.2017), Indian Institute of Technology Delhi (India, Jan.2018).

Member of the Aerosol Society, AGU.

Reviewer for journals: Atmos. Chem. Phys., npj Clim. Atmos. Sci., Sci. Rep., Chemosphere., Air Qual. Atmos. Health., Particuology.

References

Professor Roy M. Harrison, OBE, FRS

Queen Elizabeth II Birmingham Centenary Professor of Environmental Health

Head of Division of Environmental Health and Risk Management

School of Geography, Earth and Environmental Sciences, University of Birmingham, UK.

Tel: +44 (0)121 41 43494, Fax: +44 (0)121 41 43709

Email: r.m.harrison@bham.ac.uk

Dr Vladimir Zdimal

Head of Laboratory of Aerosols Chemistry and Physics

Institute of Chemical Process Fundamentals of the ASCR

Rozvojová 135, CZ-165 02 Praha 6, Czech Republic

Tel: +420 220 390 246, Fax: +420 220 920 661

E-mail: zdimal@icpf.cas.cz

Dr Juana Maria Delgado-Saborit

Marie Curie Fellow

Barcelona Institute for global health

Roselló, 132, 7th floor, 08036 Barcelona, Spain

Tel. +34 93 227 1806

Email: juanamaria.delgado@isglobal.org