

Tuan V. Vu

update: 10-Aug.-2018

University of Birmingham, UK, B15 2TT

Office: + 44 0 121 41 47297; Email: v.vu@bham.ac.uk

Website: <https://tuanvvu.github.io/profile/index.html>

RESEARCH INTERESTS

My research interests focus on properties, sources and health effects of air pollution. I am also interested in numerical analysis & applied statistics/machine learning for air quality modelling.

APPOINTMENTS

2016- now **Research fellow**, University of Birmingham, UK
2013- 2016 **Marie Curie early researcher**, University of Birmingham, UK
2011- 2012 **Quality production leader**, Decathlon Co, Ltd., Vietnam
2009- 2011 **Research assistant**, University of Ulsan, South Korea

EDUCATION

2013- 2016 **PhD**. Atmospheric science, University of Birmingham, UK
Main advisor: Prof. Roy M. Harrison
2009- 2011 **MSc**. Environmental science, University of Ulsan, South Korea
2004- 2008 **BSc**. Chemistry (honors program), Vietnam National University, Vietnam

AWARDS, SCHOLARSHIPS & FELLOWSHIPS

Marie Curie early researcher Fellowship, University of Birmingham, UK 2013-2016
Best paper presentation award, Brain Korea Program 21, 2010
Best paper award, the 5th International forum on strategic technol. South Korea, 2010
Full master scholarship, University of Ulsan, South of Korea, 2009-2011
4-year scholarship for excellent students, Vietnam National University, 2004-2008
1st Place (perfect score) in entrance exams, Vietnam National University, 2004

PUBLICATIONS

Peer-reviewed journal articles

1. **Vu, T.V.**, Zauili-Sajani, S., Poluzzi, V., Harrison, R.M, 2018. Factors controlling the lung dose of road traffic-generated sub-micrometre aerosols from outdoor into indoor environments. *Air Quality, Atmosphere & Health*, 11, 615-625.
2. Wu, X., **Vu, T.V.**, Shi, Z., Harrison, R.M., Liu, D., Cen, K, 2018. Characterization and Source Apportionment of Organic Aerosols in China - A Review. *Atmospheric Environment*, 189, 187-212.
3. **Vu, T.V.**, Zauli-Sajani, S., Poluzzi, V., Delgado-Saborit, J.M., Harrison, R.M, 2017. Loss processes affecting sub-micrometre particles in a house heavily affected by road traffic emissions. *Aerosol Science & Technology*, 51(10), 1201-1211.
4. Masiol, M., Harrison, R.M., **Vu, T.V.**, Beddows, DCS, 2017. Sources of sub-micrometre particles near a major international airport. *Atmospheric Chemistry and Physics*, 17, 12379-12403.
5. **Vu, T.V.**, Ondráček, J., Ždímal, V., Delgado-Saborit, J.M., Harrison, R.M, 2017. Physical properties and lung deposition of particles emitted from five major indoor sources. *Air Quality, Atmosphere & Health*, 10(1), 1-14.

6. Masiol, M., **Vu, T.V.**, Beddows, DCS., Harrison, R.M, 2016. Source apportionment of wide range particle size spectra and black carbon collected at the airport of Venice (Italy). *Atmospheric Environment*, 139, 56-74.
7. **Vu, T.V.**, Beddows, D.C.S, Delgado-Saborit, J.M., Harrison, R.M, 2016. Source apportionment of the lung dose of ambient sub-micrometre particulate matter. *Aerosol and Air Quality Research*, 16 (7), 1548-1557.
8. Fonseca, A.S., Talbot, N., Schwarz, J., Ondráček, J., Ždímal, V., Kozáková, J., Viana M., Karanasiou, A., Querol, X., Alastuey, A., **Vu, T.V.**, Delgado-Saborit, J.M., Harrison, R.M, 2016. Inter-comparison of four different cascade impactors for fine and ultrafine particle sampling in two European locations. *Atmospheric Chemistry and Physics Discussion*. DOI: 10.5194/acp-2015-1016.
9. **Vu, T.V.**, Delgado-Saborit, J.M., Harrison, R.M, 2015. A review of particle number size distributions from seven major sources and implications for source apportionment studies. *Atmospheric Environment*, 122, 114-132.
10. **Vu, T. V.**, Delgado-Saborit, J.M., Harrison, R.M, 2015. 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 Quality, Atmosphere & Health*, 8 (5), 429 - 440.
11. **Vu, V-T.**, Lee, B-K., Kim, J-T., Lee, C-H., Kim, I-H, 2011. Assessment of carcinogenic risk due to inhalation of polycyclic aromatic hydrocarbons in PM₁₀ from an industrial city: A Korean case-study. *Journal of Hazardous Materials*, 189, 349-356.

Articles in progress

1. **Vu, T.V.**, Shi, Z., Cheng, J., Zhang, Q., He, K., Harrison, R.M. Is the air quality improvement action plan in Beijing working? [ready for submission].
2. **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.*
3. 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. [submitted].
4. Shi, Z., **Vu, T.V.**, Kotthaus, S., Fu, P., Zhu, T., Han, Y., Lee, J., Demuzere, M., Grimmond, S., Dunmore, R., Yue, S., Ren, L., He, K., Zhang, Q., Lewis, A., Kelly, F., Loh, M., Sun, Z., Guan, D., Tao, S., Jones, R., Popoola, O., Bloss, W., Liu, D., Wang, S., Zhang, L., Li, J., Sun, Y., Shao, L., Wang, W., Tong, S., Wu, Z., Xie, P., Li, X., Heard, D., Whalley, L., Hewitt, N., Wild, O., Allan, J., Coe, H., Nemitz, E., Yang, F., Ji, D., Harrison, R.M. Introduction to the In-depth study of air pollution sources and processes within Beijing and its surrounding region (APHH-Beijing) [ready for submission].
5. Shi, Z., Lewis, A., Wild, O., Lee, J., Holloway, M., Edwards, P., Dunmore, R., Squires, F., Hopkins, J., Hamilton, J., Rickard, A., **Vu, T.V.**, Whalley, L., Heard, D., Bloss, B., He, K., Zhang, Q., Fu, P., Kramer, L., Liu, D., Harrison, R.M., High ozone pollution as a new norm in developing megacities [in preparation for submission].

Book chapter & Conference papers

1. 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.
2. **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, Lisbon, Portugal*. p.1-8.
3. **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 Technologies*, p. 263-266.

4. 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: Leapfrogging Opportunities for Air Quality Improvement, Xian, China, p. 854-859.*

Selected oral conferences presentations

1. **Vu, T.**, Shi, Z., Liu, D., Harrison, R.M., Wu, X., Brean, J., Fu, P, 2017. The APHH China Research Programme: Chemical Composition and Source Apportionment of Particulate Matter in Beijing. *AGU Fall Meeting, New Orleans, USA.*
2. Slate, E., Whalley, L., Woodward-Massey, R., Ye, C., Crilley, L., Krame,L., **Vu, T.**, Bloss, W., Squires, F., Dunmore,R., Lee, J., Heard D, 2017. Hydroxyl radical observations during the wintertime in Beijing and comparison with steady state model calculations. *AGU Fall Meeting, New Orleans, USA.*
3. Wu, X., **Vu, T.V.**, Shi, Z., Harrison, R.M., Liu, D., Cen, K, 2017. Molecular characterization of organic aerosols during haze days in winter at a rural site near to Beijing. *Aerosol Society Annual Conference, Birmingham, UK.*
4. **Vu, T.V.**, Zauli-Sajani, S., Poluzzi, V., Delgado-Saborit, J.M., Harrison, R.M, 2016. Loss processes affecting submicrometre particles in a house heavily affected by road traffic emissions. **Oral presentation at the UK Review Meeting on Outdoor and Indoor Air Pollution Research, Solihull, UK.**
5. **Vu, T.V.**, Delgado-Saborit, J.M., Sajani, S.Z, Harrison, R.M, 2016. Evaluation of a mass balance model for predicting the penetration, deposition and infiltration rate of submicron particles to the indoor environment. *The 4th UK & Ireland Exposure Science Conference, Buxton, UK.*
6. **Vu, T.V.**, Beddows, D.C.S., Sanderson, P., Delgado-Saborit, J.M., Olatunbosun, O., Crooks M., Harrison, R.M, 2015. An investigation into the particle size distribution collected from an automotive brake caliper test rig. *European Aerosol Conference (EAC), Milan, Italy.*
7. Fonseca, A.S., Talbot, N., Schwarz, J., Ondráček, J., Ždímal, V., Kozáková, J., Viana M., Karanasiou, A., Querol, X., Alastuey, A., **Vu, T.V.**, Delgado-Saborit, J.M., Harrison, R. M, 2015. Inter-comparison of four different cascade impactors for fine and ultrafine particle sampling in two European locations. *European Aerosol Conference (EAC), Milan, Italy.*
8. **Vu, T.V.**, Masiol, M., Harrison, R.M, 2014. Traffic and marine-influenced submicron particle number size distribution in the Venice mainland, Italy. *Aerosol Society Annual Conference, Birmingham, UK.*
9. **Vu, T.V.**, Delgado-Saborit J.M., Harrison, R.M, 2014. Regional lung dose of submicron aerosol particles in urban background, roadside and rural atmospheres. *International Aerosol Conference (IAC), Busan, South Korea.*
10. **Vu, T.V.**, Beddows D.C.S., Harrison, R.M, 2014. Source apportionment of submicron particles deposited in the human respiratory system measured at an urban background site in London. *Annual Review Meeting: Outdoor and Indoor Air Pollution Research, Solihull, UK.*

TEACHING, SKILLS & TRAININGS

Teaching experience: two modules in “Causes & Effects of Air Pollution” to MSc/PG

Programming: R (Advanced) & Python

Modelling technique: Numerical modelling, bayes statistics & machine learning

Fieldwork: Conducted air pollution sampling campaigns in UK, Spain, Czech, Italy, South Korea, China, and India using a wide range of instruments: air samplers (partisol, digitel, high vol, nano-Moudi), particle sizers (SMPS, APS, OPS), hygroscopicity (T-HDMA), aethalometer and gaseous sensors.

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

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

OTHER ACADEMIC ACTIVITIES

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

Member of the Aerosol Society

Reviewer for journals: Atmospheric Chemistry & Physics, npj Climate and Atmospheric Science, Particology.

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.
Phone: +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, Cell Phone: +420 773 400 966
E-mail: zdimal@icpf.cas.cz

Dr Juana Maria Delgado-Saborit

Marie Curie Fellow, Instituto de Salud Global de Barcelona, Spain
Email: juanamaria.delgado@isglobal.org