

## Dr Irina Nikolova

Research Fellow

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### About

Dr Nikolova's research focuses on improving the predictive capability of the behavior of traffic-generated nanoparticles in an urban environment. Her research involves model development that will incorporate the condensed-mass advection model MADVEC with the street scale canyon model CiTTYCAT/CiTTY-Street and a Large-Eddy simulation (LES) model. The proposed modelling system, accounting for particle dynamics, will be extensively validated in the urban atmosphere and run to test possible mitigation scenarios.

### Qualifications

B.Sc (physics and meteorology), University of Sofia, Bulgaria in 2002

M.Sc (physics and meteorology), University of Sofia, Bulgaria in 2003

Ph.D, University of Antwerp, Belgium in 2012

### Biography

Dr. Nikolova obtained her PhD from the University of Antwerp in 2012. Her PhD research was sponsored by the Flemish Institute of Technological Research (VITO) and dealt with modelling emission, formation and dispersion of ultrafine particles in an urban environment . She subsequently worked for an year at the Catholic University of Louvain in the group of Prof. Andre Berger before taking up the post of research fellow at Birmingham.

### Research

#### Research interests

- Air quality in urban areas
- Vehicle exhaust emissions
- Ultrafine particles and aerosol dynamics
- Modelling techniques

### Publications

**Nikolova, I.**, Janssen, S., Vrancken, K., Vos, P., Mishra, V. and Berghmans, P. (2011). Size resolved ultrafine particles emission model - A continuous size distribution approach. *Science of the Total Environment*, 409, issue 18, 3492-3499.

**Nikolova, I.**, Janssen, S., Vrancken, K., Vos, P., Mishra, V. and Berghmans, P. (2011). Dispersion modelling of traffic induced ultrafine particles in a street canyon in Antwerp, Belgium and comparison with observations. *Science of the Total Environment*, 412, 336-343.

Vos, P., **Nikolova, I.** and Janssen, S. (2012). A high-order model for accurately simulating the size distribution of ultrafine particles in a traffic tunnel. *Atmospheric Environment*, 59, 415-425.

**Nikolova, I.**, Yin, Q., Berger, A., Singh, U. and Karami, P. (2013). The last interglacial (Eemian) climate simulated by LOVECLIM and CCSM3. *Climate of the past*, 9, doi:10.5194/cp-9-1789-2013, 1789-1806.

**Nikolova, I.**, Janssen, S., Vos, P. and Berghmans, P. (2014). Modelling the mixing of size resolved traffic induced and background ultrafine particles from an urban street canyon to adjacent backyards. *Aerosol and Air Quality Research*, 14, issue 1, 145-155.