

Post-doctoral position available at CNRS-LISA, Créteil, France
Atmospheric reactivity of multifunctional organic nitrates

Financial support: H2020 project EUROCHAMP-2020

Duration: 1 year

Starting date: Spring 2019

Salary: around 2000 €, commensurate with experience (social services and health insurance included)

Scientific context

Organic Nitrates (ONs) are formed in NO_x rich air (typically urban areas) by the degradation of volatile organic compounds (VOCs). Due to their rather long lifetimes, they can act as reservoirs for reactive nitrogen by undergoing long-range transport in the free troposphere before decomposing and releasing NO_x in remote regions. Therefore, they play a key role in the distribution of reactive Nitrogen species and consequently in the formation of ozone and other secondary pollutants and their distribution at the regional and global scales. Among the ONs, a variety of multifunctional species such as hydroxy-nitrates, carbonyl-nitrates and d nitrates is formed and significantly contributes to the reactive Nitrogen budget in both rural and urban areas. These multifunctional ONs are low-volatile and highly soluble and are thus capable of strongly partitioning to the atmospheric condensed phases (droplets, aerosols). Recent field observations have shown that organic nitrates are important components of total OA. However, there is a strong lack of experimental data on the reactivity of these species in both gas and condensed phases, in particular for multifunctional compounds.

In the framework of European project [EUROCHAMP-2020](https://www.eurochamp.org), the CNRS-LISA laboratory is involved in the study of the gas-phase reactivity of ONs in order to improve the carbon balance during simulation chambers experiments (WP10).

Mission

The successful candidate will study the gas-phase reactivity of multifunctional organic nitrates in simulation chambers. A selection of multifunctional ONs which will be preliminarily synthesized with the help of an organic chemist will be studied. Experiments will be carried out in the CESAM platform which includes two simulation chambers (<https://www.eurochamp.org/Facilities/SimulationChambers/CESAM.aspx>).

The candidate will also contribute to EUROCHAMP-2020 project through participation to the “multi-chamber experiments”. This task aims at carrying out “reference” experiments in various chambers in order to improve the comparability and the interoperability of the chamber studies.

Candidate profile

A PhD in atmospheric sciences is required. Good knowledge in atmospheric chemistry, kinetics and analytical techniques (mass spectrometry, FTIR) is appreciated.

Candidates must have a good capability to communicate (oral and written) in English. A knowledge of French would also be appreciated.

Application

Please send by email to the contact a detailed CV, a letter of application with research interests and the name of two referees.

Contact

Prof. Bénédicte Picquet-Varrault, LISA, CNRS, Université Paris Est-Créteil, Université Paris-Diderot

Email: benedicte.picquet-varrault@lisa.u-pec.fr