



## PhD position

### Gas and particle phase partitioning of semi-volatile biogenic organic compounds



The Institut Mines-Télécom Lille Douai (France) and Max Planck Institute (Germany) invite applications for a PhD thesis on the field of atmospheric sciences.

#### **Context:**

Atmospheric aerosol particles of micrometric sizes can have a significant impact on climate and human health. From climatic perspective, aerosols can interact with solar radiation and modify cloud properties such as precipitation, radiative forcing and lifetime. The impact on clouds is particularly sensitive over remote areas where aerosol concentrations are relatively low. Conversely, under most urbanized areas, aerosol particles play a significant role on health degradation. World Health Organization has classified particulate matter as carcinogenic to humans, associating outdoor pollution as responsible for a total of 3.7 million premature deaths in 2012.

Aerosol particles have a wide range of sources. Those can be termed primary, i.e. directly emitted in the atmosphere such as desert dust, sea salt, pollens, or secondary, formed in the atmosphere from gaseous precursors. Secondary processes are recognized nowadays as highly relevant under most atmospheric conditions (clean or polluted), whether by forming aerosol particles through nucleation, or by condensing onto pre-existing particles (primary or also secondary). Among atmospheric species known to be involved on secondary formation, organics make up the most elusive group, given its ubiquity in the earth's atmosphere, reactivity and vast numbers. Organic compounds of biogenic origin, especially from vegetation, are particularly relevant. Those dominate atmospheric composition and reactivity over large forested areas, such as the Amazon rainforest, but also have been identified to play a significant role over urban areas.

#### **Scientific objectives:**

The objective of this PhD thesis is to study semi-volatile biogenic organic compounds, with a particular emphasis on the gas/particulate partitioning. To that end, the PhD candidate shall deploy a Proton-Transfer-Reaction Mass Spectrometer coupled with a real-time particle inlet at the Amazon Tall Tower Observatory (ATTO), located on a remote site in Central Amazon. The student will work in collaboration with Brazilians and German researchers responsible for ongoing measurements on site, including aerosol particles, gas-phase compounds, atmospheric dynamics, etc.

The successful applicant will hold an MSc degree or equivalent, preferably in a relevant area of atmospheric sciences. Previous experience with instrumentation and data analysis will be assets for this position. Good proficiency in English is a prerequisite.

Applicants are invited to send their Curriculum Vitae, a cover letter, and two reference letters to:

- Dr. Joel F. de Brito ([joel.brito@imt-lille-douai.fr](mailto:joel.brito@imt-lille-douai.fr))

Review of applications will begin immediately and continue until the position is filled.