

Call for a 18-month POST-DOCTORAL Position in GC-MS and GC×GC-MS

Title: Development of GCxGC-HRMS analysis for biomass fuel

Post-Doc at the University of Rouen

Location: A postdoctoral research fellowship is available at Laboratory SMS EA3233, University of Rouen (France) and COBRA laboratory (UMR 6014, www.lab-cobra.fr), university of Rouen (France).

Main goal of the study:

In the context of climate change, it is of primary interest to reduce the use of petroleum fuels. Due to their zero-carbon impact, biomass oils are an interesting alternative to liquid fossil fuels. Nevertheless, the conversion of biomass into these biomass oils needs the development of efficient pyrolysis processes. To a better optimization of these processes, the full molecular characterization of pyrolysis oils is required. In fact, these bio- oils are mixtures of thousands of compounds which represent a challenge in terms of chemical characterization.

Comprehensive two-dimensional gas chromatography (GCxGC), thanks to its high peak capacity, has already demonstrated its high separation power for petroleum compounds. Combined with High Resolution Mass Spectrometry, it offers a fantastic tool for the complete characterization of complex mixtures.

The candidate will develop GCxGC-HRMS analyses using a ZOEX modulator and a HRMS spectrometer. Various sets of columns will be tested to optimize the retention space occupation and characterization of mixtures will be performed. Fractionation of bio-oils by GPC/HPLC/SFC will be also studied.

The candidate shall have a strong background in mass-spectrometry and some knowledge in gas chromatography will be appreciated.

Candidate profile: A PhD in analytical chemistry is required. **The candidate shall have a strong background in mass-spectrometry and some knowledge in gas chromatography will be appreciated.** A strong motivation, good written and excellent relational skills are also expected. Good knowledges in data analysis will be appreciated. The candidate should have a good command of English.

Start February/March 2018

Contact: Prof Pascal Cardinael

Email: pascal.cardinael@univ-rouen.fr

Dr Stéphane Marcotte

Email: stephane.marcotte@insa-rouen.fr