PhD position in liquid chromatography-mass spectrometry

Vrije Universiteit Brussel (www.vub.ac.be) is an internationally oriented university in Brussels, the heart of Europe. Through tailor-made high-quality research and education, VUB wants to contribute in an active and committed way to a better society for tomorrow.

The PhD student will be working in the Eeltink research group in the Department of Chemical Engineering at the Vrije Universiteit Brussel. The main research themes of the Eeltink group are *i*) Advancing fundamentals of separation science, *ii*) design and development of functionalized monolithic nanomaterials, *iii*) Realizing novel concepts via microfluidic solutions, and *iv*) Developing UHPLC^n-MS/MS workflows in support of post-genomic biotechnology and medical diagnostics.

PhD research project:

Recent studies in the field of proteomics have demonstrated that over 80% of proteins exert their function as part of larger assemblies. Interactions between biomolecules have proven to be critical for all levels of cellular function, and hence affect physiological function. Hence, the possibility to identify protein-interaction networks involved in cell regulation provides new opportunities to detect and treat diseases, as new drug targets allowing regulation of multi-protein complexes involved in cell signaling can be developed

The PhD project aims at realizing novel comprehensive multi-dimensional-dimensional liquid-chromatography workflows that maintain protein conformation during analysis, allowing for unprecedented separations, targeting profiling and regulation of biomolecular-interactions networks. The key objectives are:

- Development and performance characterization of novel polymer-monolithic column technologies for high-resolution protein separations, maintaining protein 3D conformation (and biological activity) during analysis.
- Establishing native high-resolution 1D-LC–MS methods (HIC, IEX, and SEC) by hyphenation of the capillary column technology directly to (ion-mobility) mass spectrometry.
- Development of comprehensive two- and three-dimensional LC workflows protocols for unravelling of biomolecular interaction networks, *i.e.* to acquire more accurate information on the chemical composition of biomolecule assemblies directly in contemporary life-science matrices.

Results will be presented at conferences and published in international journals. The PhD student is expected to complete the PhD thesis within 4 years. In addition, the PhD student will contribute to the education program of the university.

A 6 months research internship is foreseen in the Biomolecular Analysis/ Analytical Chemistry group at the VU University (Amsterdam, NL) of Professor G.W Somsen.

Admission requirements:

- MSc degree in the field of (analytical) chemistry.
- Strong background and interest in separation science, mass spectrometry, and life-science research.
- Very good knowledge in spoken and written English.

Interested?

Please send you application letter, including your motivation to apply, curriculum vitae, grade list, and two letters of recommendation by email to: Prof. Dr. S. Eeltink (seeltink@vub.be). (Closing date for application is 31th of January 2018).