



## **Development of an ambient mass spectrometry platform for rapid mass spectrometry characterisation of proteins**

A PhD studentship is available in the group of Dr. David Clarke (School of Chemistry, The University of Edinburgh; [www.clarkelab.co.uk](http://www.clarkelab.co.uk)). The studentship is fully funded for 42 months by the University of Edinburgh and covers tuition fees and an annual stipend (starting at £18,622 per annum) for a candidate satisfying EPSRC residency criteria. <https://www.ukri.org/councils/esrc/career-and-skills-development/funding-for-postgraduate-training/eligibility-for-studentship-funding/#contents-list>

The project will start in September 2024.

### **Project Summary**

This is a collaborative project between the School of Chemistry and Vibrat-Ion Ltd, a UK-based SME who are developing novel ionisation techniques for mass spectrometry (MS) and other analytical science applications. During the project we will develop Vibrat-Ion's prototype Beacon ion source – a new device that uses pulsed ultrasonic pierced-plate (PUPP) nebulizers for efficient ionisation of biological samples with minimal sample preparation. The Beacon ion source will be integrated with a range of protein mass spectrometry techniques developed in the Clarke group (bottom-up and top-down MS, native MS, and protein footprinting MS). The resulting new platform technology will allow rapid and automated characterisation protein folding, protein-ligand binding, protein post-translational modification states and protein production levels during recombinant expression. The ability to perform these analyses in 'real-time' with minimal sample preparation will be particularly useful for the characterisation and production of protein therapeutics (such as antibody-drug conjugates, engineered vaccines, and monoclonal antibodies).

The project will be based in the School of Chemistry at the University of Edinburgh. In addition, the student will gain from interaction with a commercial partner and an industrial supervisor. The School of Chemistry houses state-of-the-art mass spectrometry instrumentation including a FT-ICR MS platforms, ion mobility equipped Q-ToF systems and MALDI-ToF-ToF. Training on these instruments will be provided and these facilities will be made available throughout the project. The student will learn skills in protein mass spectrometry, recombinant protein production, protein chemistry, and biochemistry. The ideal candidate will have a strong interest in mass spectrometry, protein chemistry and structural biology and an enthusiasm for multidisciplinary research.

In the first instance, the initial application (including cover letter and CV) should be directed to: Dr. David Clarke, School of Chemistry, University of Edinburgh, David Brewster Road, Edinburgh EH9 3FJ, UK; [dave.clarke@ed.ac.uk](mailto:dave.clarke@ed.ac.uk). Informal discussions prior to applications are encouraged.

The position will remain open until filled.

### **IMPORTANT**

Before Submitting your cover letter and CV, please complete the online [School of Chemistry Equality, Diversity and Inclusion Form 2024](#).

**The form will automatically generate a unique "Receipt Number" that you MUST include in your cover letter.**

### **Equality and Diversity**

The School of Chemistry holds a Silver Athena SWAN award in recognition of our commitment to advance gender equality in higher education. The University is a member of the Race Equality Charter and is a Stonewall Scotland Diversity Champion, actively promoting LGBT equality. The University has a range of initiatives to support a family friendly working environment. See our University Initiatives website for further information. University Initiatives website:

<https://www.ed.ac.uk/equality-diversity/help-advice/family-friendly>