



Advancing methodology of solution-state NMR spectroscopy

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This 3 year PhD studentship is available to start on the 1st of September 2019. The studentship is fully funded for 36 months and covers tuition fees and an annual stipend (starting at £15,009 per annum) for a candidate satisfying EPSRC criteria: <https://www.epsrc.ac.uk/skills/students/help/eligibility/>

The programme seeks to advance the repertoire of solution-state NMR spectroscopy by developing new methods for efficient characterisation of organic and inorganic molecules. Applications to reaction kinetics, conformational analysis and analysis of complex mixtures will be explored. Part of the program will be devoted to the translational research in the emerging field of benchtop NMR. The candidate is expected to participate in outreach activities aimed at high schools.

Access will be provided to six 300-800 MHz NMR spectrometers (several equipped with cryoprobes) in the School of Chemistry central NMR facility. For more information about the Uhrín group please see <http://uhringroup.wixsite.com/nmrgroup> and selected publications given below.

The successful candidate will possess, or expect to obtain, a first class or upper-second class undergraduate degree (or equivalent) in chemistry or physics and have strong interest in developing their skills in the area of solution state NMR spectroscopy. This includes methodological aspects but also application of NMR to a range disciplines not limited to chemistry. Aptitude for computers, programming and scripting (e.g. Python) is a bonus.

In the first instance, informal enquiries (accompanied by a CV) should be directed to Prof. Dušan Uhrín Dusan.Uhrin@ed.ac.uk. Formal applications are made through the University's application system http://www.ed.ac.uk/studying/postgraduate/degrees?r=site/view&id=16&cw_xml=. The position will remain open until filled.

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>.

Selected publications

1. Brodaczewska, N., Košťálová, Z., Uhrín, D., (3, 2)D ¹H, ¹³C BIRD^{r,X}-HSQC-TOCSY for NMR structure elucidation of mixtures. Application to complex carbohydrates, *J Biomol. NMR* **70**, 115–122 (2018).
2. Jones, A.B., Lloyd-Jones, G.C., Uhrín, D., SHARPER reaction monitoring: generation of a narrow line-width NMR singlet, without X-pulses, in an inhomogeneous magnetic field, *Anal. Chem.* **89** 10013–10021 (2017).
3. Kew, W., Bell, N.G.A., Goodall, I., Uhrín, D., Advanced solvent signal suppression for the acquisition of 1D and 2D NMR spectra of Scotch Whisky. *Magn. Reson. Chem.* **55**, 785–796 (2017).
4. Bell, N.G.A., Michalchuk, A. A.L., Blackburn, J. W. T., Graham, M.C., Uhrín, D., Isotope-Filtered 4D NMR Spectroscopy for Structure Determination of Humic Substances. *Angew. Chem. Int. Ed.* **54**, 8382–8385 (2015).