Lukasz G. Migas

📍 University of Manchester, School of Chemistry & Manchester Institute of Biotechnology

✉ lukasz.migas@manchester.ac.uk | lukas.migas@yahoo.com

📞 +44 (0) 7738207371

⬡ https://github.com/lukasz-migas

🌐 https://lukasz-migas.com

SUMMARY

I am an ambitious, focused and creative scientist seeking a postdoctoral position at the interface of experimental, programming and data analysis fields. My expertise is in mass spectrometry and computational methods to investigate protein structure as well as in software development of tools to study ion mobility mass spectrometry and imaging mass spectrometry datasets. My scientific interests lie in building novel tools to interrogate complex samples and in development of open-source software in MS, IM-MS and MSI areas of research

EDUCATION AND SCIENTIFIC EXPERIENCE

2014 – Present

PhD researcher in Mass Spectrometry in Prof. Perdita Barran's group

University of Manchester, School of Chemistry

2015 – Present

Professional Internship for PhD students (PIPS) → CASE studentship

Waters Corporation

2013

DAAD RISE summer internship in Prof. Bernhard Wünsch's group

Westfälische Wilhelms-Universität Münster (Germany)

2011

Nano-info-bio summer internship in Dr. Lindsey Munro's group

Manchester Metropolitan University

2010 – 2014

MChem (Hons) Chemistry – 1st class in Dr. Lindsey Munro's group

Manchester Metropolitan University

SKILLS

Mass Spectrometry   **Expertise** 🔶🔶🔶🔶◻

Gained practical knowledge of instrument operation, maintenance and troubleshooting. Instruments used throughout my PhD included Waters Q-ToF Ultima, Waters Synapt G2, G2S and G2Si, Waters Xevo Q-ToF and TQs, Agilent IM-Q-ToF 6560, Thermo Q-Exacitive and a number of in-house modified IM-Q-ToF instruments with nano-ESI, ESI, DESI and MALDI sources

Native and Structural Mass Spectrometry   🔶🔶🔶🔶◻

Studied a number of mono- and multimeric proteins, intrinsically disordered proteins, protein-protein and protein-ligand systems using native MS and IM-MS methodologies

Programming   🔶🔶🔶🔶🔶

Developed open-source software for the acquisition and analysis of activated IM-MS/CIU datasets (ORIGAMI) and feature-rich environment incorporating clustering, embedding, supervised and unsupervised machine learning methods (MSIML) to analyse imaging mass spectrometry and other spectroscopic datasets

Python	●●●●●	GUI design	●●●●●
MATLAB	●●●●○	Big Data	●●●●●
C++, C#, R	●●○○○	Interactive Programming	●●●●○

Data Analysis, Visualisation and Presentation   🔶🔶🔶🔶◻

Excellent knowledge of analysis and visualisation tools in Python, MATLAB, R and OriginPro

Machine Learning

Incorporated supervised classification methods to enable machine learning driven acquisitions on DESI/MALDI imaging MS platforms. Good knowledge of deep learning, clustering, bootstrapping, cross-validation and model evaluation

Communication

Gained excellent communication skills through a number of published articles and oral and poster presentations at conferences and meetings

Languages Polish (mother tongue), English (fluent)
Personal Efficient, organised, reliable, fast learner, resilient and hard-working

PUBLICATIONS

R Beveridge*, **LG Migas***, R Das, RV Pappu, R Kriwacki, PE Barran. Ion Mobility Mass Spectrometry Uncovers the Impact of the Patterning of Oppositely Charged Residues on the Conformational Distributions of Intrinsically Disordered Proteins, *manuscript submitted,* https://doi.org/10.26434/chemrxiv.7303988.v1 (pre-print)
.

R Beveridge*, **LG Migas***, R Das, RV Pappu, R Kriwacki, PE Barran. Ion Mobility Mass Spectrometry Measures the Conformational Landscape of p27 and Its Domains and How This Is Modulated upon Interaction with Cdk2/cyclin A, *manuscript submitted,* https://doi.org/10.26434/chemrxiv.7312277.v1 (pre-print)

EA Jones, E Hoyes, **LG Migas**, P Harapanahalli, RC. Chapman, J Brown, S Pringle, Z Takats, A fully automated DESI-MS imaging platform applied to 3D tissue imaging - from slide loading to data processing, *manuscript submitted*

R Upton, **LG Migas**, KJ Pacholarz, RG Beniston, D Firth, S Estdale, PE Barran, Hybrid Mass Spectrometry Methods Reveal Lot-to-Lot Differences and Delineate the Effects of Glycosylation on the Structure of Herceptin®, *manuscript submitted,* https://doi.org/10.26434/chemrxiv.6871472.v1 (pre-print)

D Stuchfield, AP France, **LG Migas**, A Thalhammer, A Bremer, B Bellina, PE Barran, The Use of Mass Spectrometry to Examine IDPs: Unique Insights and Caveats, Methods in Enzymology, *in press*

LG Migas, CJ Gray, SL Flitsch, PE Barran, A Careful Consideration of the Influence of Structure, Partial charges and Basis Sets on Collision Cross Sections of Monosaccharides when Comparing Values from DFT Calculated Conformers to those Obtained Experimentally, *manuscript submitted,* https://doi.org/10.1101/162305 (pre-print)

J Ujma, V Kopysov, NS Nagornova, **LG Migas**, MG Lizio, EW Blanch, C MacPhee, OV Boyarkin, PE Barran, Initial Steps of Amyloidogenic Peptide Assembly Revealed by Cold-Ion Spectroscopy, *Angew. Chem. Int. Ed.*, 2018, **57** (1), 213-217, https://doi.org/10.1002/ange.201710188

LG Migas AP France, B Bellina, PE Barran, ORIGAMI: A software suite for activated ion mobility mass spectrometry (aIM-MS) applied to multimeric protein assemblies, *Int. J. Mass Spectrom.*, 2018, **427**, 20-28, http://doi.org/10.1101/152686

CJ Gray, B Schindler, **LG Migas**, M Picmanova, AR Allouche, AP Green, S Mandal, MS Motawia, R Sánchez-Pérez, N Bjarnholt, BL Møller, AM Rijs, PE Barran, I Compagnon, CE Eyers, SL Flitsch, Bottom-up elucidation of glycosidic bond stereochemistry, *Anal. Chem.,* 2017, **89** (8), 4540-4549, https://doi.org/10.1021/acs.analchem.6b04998

R Beveridge, **LG Migas**, KAP Payne, NS Scrutton, D Leys, PE Barran, Mass spectrometry locates local and allosteric conformational changes that occur on cofactor binding, *Nat. Commun.,* 2016, **7**, https://doi.org/10.1038/ncomms12163

CJ Gray, B Thomas, R Upton, **LG Migas**, CE Eyers, PE Barran, SL Flitsch, Applications of ion mobility mass spectrometry for high throughput, high resolution glycan analysis, *Biochim. Biophys. Acta,* 2016, **1860** (8), 1688-1709, https://doi.org/10.1016/j.bbagen.2016.02.003

C Nortcliffe, **LG Migas**, X Liu, H Tien Ngo, KA Jolliffe, PE Barran. The potential of ion mobility mass spectrometry for tuning synthetic host guest systems: A case study using novel zinc(II)dipicolylamine anion sensors*, Int. J. Mass Spectrom.*, 2015, **391**, 62-70, https://doi.org/10.1016/j.ijms.2015.07.030

CONFERENCES, PRESENTATIONS, POSTERS AND COURSES

- August 2018 – Poster presentation – IMSC, Florence, Italy
- April 2018 – Oral presentation – Spring SciX, Glasgow, UK
- June 2017 – Oral presentation – ASMS, Indianapolis, USA
- March 2017 – Oral presentation – APS March Meeting, New Orleans, USA
- April 2017 – Poster presentation – Imaging MS SIG Meeting, Sheffield, UK
- January 2017 – Poster presentation – Agilent User's Meeting, Cheadle, UK
- July 2017 – Poster presentation – BMSS IM-MS SIG Meeting, London, UK
- August 2016 – Oral presentation – CECAM (Computational methods for modelling multiply-charged droplets), Lausanne, Switzerland
- April 2016 – Poster presentation – IBBI, Oxford, UK
- September 2015 – Oral presentation – BMSS – Birmingham, UK
- August 2015 – Poster presentation – Analytical Research Forum, London, UK

FUNDING & AWARDS

- June 2018 – Best Student Paper award from *International Journal of Mass Spectrometry*
- July 2017 – Best poster award at the BMSS IM-MS SIG meeting
- April 2016 – Best poster award at IBBI 2016
- January 2016 – PIPS to CASE PhD top-up
- September 2014 – Presidents Doctoral Award scholarship
- June 2014 – RSC John Leach Memorial Prize
- June 2013 – DAAD RISE scholarship
- June 2011 – Nano-info-bio scholarship
- Several travel grants from RSC and BMSS to attend national and international conferences

PROFESSIONAL MEMBERSHIPS

Member of Royal Society of Chemistry, British Mass Spectrometry Society and American Mass Spectrometry Society

INTERESTS

Badminton, Squash, Climbing, Music, Films and Books

REFERENCES

Perdita E. Barran
Professor
Michael Barber Centre for Collaborative Mass Spectrometry
University of Manchester
+44 (0) 161 275 0256
perdita.barran@manchester.ac.uk

Sabine L. Flitsch
Professor
University of Manchester
+44 (0) 161 306 5172
sabine.flitsch@manchester.ac.uk

Richard Chapman
Head of Strategic Engineering and Informatics
Waters Corporation
+44 (0) 161 946 2552
richard_chapman@waters.com

Emrys Jones
Senior Research Scientist
Waters Corporation
+44 (0) 161 946 2400
emrys_jones@waters.com