

Research Group Members: Prof Rainer Cramer, CChem FRSC



Professor Rainer Cramer, CChem FRSC
Vordiplom-Mathematics,
Vordiplom-Physics,
Diplom-Physics (Münster);
Dr. rer. nat. (Münster/Vanderbilt)

Professor of Mass Spectrometry and
Bioanalytical Sciences

Contact Details

Email: r.k.cramer@reading.ac.uk

Telephone: +44 (0) 118 378 4550

Publications

<http://scholar.google.co.uk/citations?user=pwJSnIAAAAJ&hl=en>

Current Members

Selahaddin Sezgin, Postdoctoral Research Assistant



I obtained my Ph.D. in Chemistry from the Technical University of Dortmund (Germany), focusing on applications of MALDI imaging mass spectrometry (IMS) such as investigating and mapping the metabolization of drugs in animals and the biosynthesis, transportation and storage processes of secondary natural products with medicinal relevance in plants.

Leaving the area of IMS, I have entered the field of high-throughput screening (HTS) mass spectrometry evaluating the benefits of HTS-MS-capable platforms using MALDI and electrospray ionization (ESI) for screening biochemical assays, which so far could not be addressed using conventional (optical) HTS techniques, in the early stage of active compound discovery within the Crop Science sector of the Bayer AG (Germany).

In October 2021 I joined Prof. Cramer's research group and am part of an interdisciplinary team of (bio)chemists and virologists (University of Reading), clinicians (Royal Berkshire Hospital) and

instrument developers (Waters Corporation) collaborating in a research project, which aims to enable large-scale detection and identification of clinical microbial pathogens and rapid AMR assays using liquid atmospheric pressure (LAP) MALDI MS on a modified bench-top Q-TOF instrument.

Kavya Clement, Postdoctoral Research Assistant



In 2012, I started my integrated course of Bachelor and Master of Technology in Nanotechnology at Amity University, India. This course enabled me to open my eyes towards the nanoworld. Later in 2017, I performed my master thesis internship at the lab of Consiglio Nazionale delle Ricerche, Italy, where I was working on a biosensor based on gold nanoparticles anchored with graphene sheets for the electrochemical detection of biomarkers and DNA mutations. In 2018, I began my PhD in biochemistry at EDyP/ Commissariat à l'énergie atomique et aux énergies alternatives and the Université Grenoble Alpes, France. My research focused on assessing the integrity and stability of bacteriophage T5 capsids using nano-electromechanical sensor-based mass spectrometry (NEMS-MS), a new paradigm for high-throughput biological mass sensing at the single-molecule/particle level. After completing my PhD thesis, I joined Prof. Rainer Cramer's group as a postdoctoral research assistant in 2021. My project aims at developing a high-speed clinical diagnostic instrument for large-scale screening based on novel liquid AP-MALDI MS methodologies.

Evita Hartmane, PhD Student



In 2013 I graduated from the University of Warwick with a BSc(Hons) degree in Biochemistry. During the final year research project, I got my first hands-on experience with Mass Spectrometry (MS) as I was investigating possible calibration approaches for T-wave ion mobility mass spectrometry (TWIMS) to be used for protein analysis. Soon after graduation, I joined an analytical laboratory, Marchwood Scientific Services, based in Southampton, UK, where I was involved in performing tests for persistent organic pollutants (POPs) using mass spectrometric methods. In September 2016, I joined Prof Rainer Cramer's group as a PhD student. The project is aimed at the development of laser desorption (LD) ionization source for real-time reaction monitoring. The project is a collaboration between the Chemistry and Meteorology Departments of the University of Reading, and Waters Corporation, jointly supervised by Prof Rainer Cramer, Dr Christian Pfrang, Prof Giles Harrison and Prof Michael Morris.

e.hartmane@pgr.reading.ac.uk

Sophie Lellman, PhD Student



My first job after finishing school was at UCB Pharma, Slough, in the analytical and physical chemistry team, where I was involved in the profiling of drug compounds by LC-MS to support medicinal chemists. I then went to university, and I graduated from the University of Surrey with a BSc (Hons) degree in Biochemistry in 2018. During my studies, I undertook an industrial placement year at Thermo Fisher, Basingstoke, where I worked in the microbiology research and development

department, working on a new microbial identification tool. I joined the University of Reading in 2018, as a PhD student in Prof. Rainer Cramer's group. My project is focused on the development of liquid AP-MALDI MS for microbial profiling and biotyping. The project is supervised by Prof. Rainer Cramer and Dr. Kevin Lovelock, in collaboration with Dr. Shabnam Iyer from the Royal Berkshire Hospital.

s.lellman@pgr.reading.ac.uk

Henriette Krenkel, PhD Student



In 2012, I started my BSc in Chemistry at the Technische Universität Dresden (Germany). After two years, I decided to participate in a binational programme with the Ecole européenne de chimie, polymères et matériaux in Strasbourg (France) as part of the University of Strasbourg. This double-diploma programme allowed me to attend courses in France for two years and specialise in analytical chemistry. As part of the course programme I also undertook two work placements, one of them at the Helmholtz Centre for Environmental Research – UFZ in Leipzig (Germany) in the Department of Effect-Directed Analysis. Afterwards I came back to Dresden in order to receive the MSc degree in Chemistry in 2017, thanks to my master thesis in which I investigated the possibility of the breakdown of antibiotics in liquid systems by employing genetically modified yeast strains. In the autumn term of 2018, I joined the Cramer research group for my PhD, trying to optimise the liquid AP-MALDI ion source and sample preparation as well as exploring possible applications.

h.i.krenkel@pgr.reading.ac.uk

Elliott Mwando, Jr, PhD Student



In 2012, I graduated with a BSc degree in Chemistry (Single major) from the University of Botswana (Gaborone, Botswana). Thereafter I pursued an MSc in Analytical Chemistry at the same institution under Professor Kwenga Sichilongo's research group. The focus of my MSc was on HPLC MS/MS method development of antiretroviral (ARVs) drugs in human blood plasma – A contrast of extraction efficiencies using selected sample preparation techniques. After graduating in 2016, I worked as a full-time demonstrator for the University's Department of Chemistry. In 2018, I was awarded a commonwealth scholarship for developing countries to pursue a PhD at the University of Reading with Professor Rainer Cramer as my supervisor. My work will involve nanoHPLC MS/MS method development of ARVs in human blood plasma. The method will be used for therapeutic drug monitoring purposes for patients in Botswana.

e.mwandojr@pgr.reading.ac.uk

Bob Challen, PhD Student



In 2013, I started my BSc (Hons) in Analytical Chemistry and Forensic Sciences at Coventry University, graduating in 2016. Following this, I decided to continue my studies in analytical sciences by beginning an MSc in Analytical Sciences and Instrumentation at the University of Warwick, undertaking a thesis project in the supercharging of small molecules using a novel supercharging source and FT-ICR MS. After graduating in 2017, I began working in the quality control department for a bespoke pharmaceuticals company in Didcot, utilising a wide range of analytical techniques to ensure API quality and purity from raw material to finished product. After leaving this position in 2018, I took a quality control position in a specialist pharmaceuticals company in Ruislip, analysing specially formulated liquid suspensions of APIs. In 2019, I joined the University of Reading as a PhD student in Prof. Rainer Cramer's group. My project is focused on developing liquid AP-MALDI MS

towards the goal of real-time, online measurements of hydrogen-deuterium exchange (HDX) and enzyme assay kinetics.

b.challen@pgr.reading.ac.uk

Artur Liszka, MSc Student



In 2005, I got accepted to the University of Cincinnati, studying Chemical Technology at the College of Applied Science. After my freshmen year, I got accepted for an internship with Sun Chemical as part of CPT (Curricular Practical Training), working for four terms in the R&D department. The research focused on dispersion mechanism, polymeric dispersants chemistry, pigment surface treatment and synthesis reactions. Then, I continued my internship in the Technical Services department, where I evaluated cosmetics and paints for colour quality and application preferences. I also did my senior project in this department studying Effect on Spectral Reflectance Curves of Fluorescein Dyes by Halogen Substitution. After graduation, I remained for OPT (Optional Practical Training) program with Sun Chemical Technical Services for another year. Later I moved to England and started working for Bradfield College as Chemistry Technician. In 2020 I was accepted to the University of Reading part-time MSc programme, where I joined Professor Cramer's research group. My project is focused on characterizing SARS-CoV-2 biomolecules by AP-MALDI MS. The project is supervised by Prof. Rainer Cramer and Dr Kevin Lovelock.

a.liszka@pgr.reading.ac.uk

Ioanna Tsokou, MSc Student



I graduated from the University of Ioannina, Greece in September 2020 with a BSc in Chemistry. My theoretical thesis project was "Synthesis and Photophysical properties of Photoluminescent Ag(I) complexes". After my undergraduate studies I completed an internship at the Municipal water supply and sewerage company of Alexandria, Greece, doing basic duties such as pH monitoring, flow measurements and chlorination. In September 2021, I joined Prof. Rainer Cramer's group as an MSc student. My project is focused on the investigation of different target substrates for use in AP-MALDI mass spectrometry. The project is supervised by Prof. Rainer Cramer and Prof. Frantisek Hartl.

i.tsokou@pgr.reading.ac.uk

Past Members

- 2015-2021 Ryan Williamson** PhD student
- 2018-2020 Cristian Piras** Postdoctoral Research Associate
- 2013-2020 Jeff Brown** Part-time PhD student
- 2014-2019 Emanuele Scollo** Part-time PhD student
- 2014-2018 Oliver Hale** PhD student / Research Assistant
- 2011-2018 (Attila) Frank Torma** Part-time PhD student
- 2018 Lisa Deininger** Postdoctoral Research Assistant
- 2017 Tamara Skarke** DAAD summer student
- 2015-2016 Rebekka Meeks** Part-time MSc student
- 2016 Andy Pocock** BMSS summer student
- 2014-2017 Pavel Ryumin** Postdoctoral Scientist
- 2014 Rosie Nicholson** EPSRC vacation bursary student
- 2013-2014 Louise Barker** MSc student
- 2013-2014 Shivani Singh** MSc student
- 2013-2014 Ryan Williamson** MChem / BMSS summer student
- 2013-2014 Jessica Evans** MChem / ACTF summer student
- 2013 Laurence Bindschedler** Visiting Scientist
- 2012-2016 Kanjana Wiangnon** PhD student
- 2010-2015 Chhaya Patole** PhD student / Research Technician
- 2009-2014 Brian Flatley** PhD student
- 2009-2010 Joscelyn Sarsby** MChem / BMSS summer student
- 2007-2008 Oliver Kollas** MSc student
- 2006-2011 Davinia Mills** Research Technician
- 2006-2010 Mark Towers** PhD student

2005-2013 Celia Smith Research Technician
2005-2012 Laurence Bindschedler Senior Research Associate
2005-2011 Sally Ewen PhD student
2005-2011 Trevor Gibson Senior Research Technician
2005-2010 Melanie Bottoms PhD student
2005-2009 Kate Cooke PhD student
2005-2009 Ali Tiss Postdoctoral Scientist
2005-2007 Magnus Palmblad Senior Research Fellow
2003-2009 Richard Jacob PhD student
2003-2004 Musarat Kabir MRes student
2003-2004 Annalisa Valisa Visiting PhD student
2003-2004 John Sinclair Scientific Officer
2003-2004 Mark Weeks Postdoctoral Scientist
2001-2005 Bertran Gerrits Research Assistant / PhD student
2001-2004 Andrew Thompson Postdoctoral Scientist
2001-2004 Denis Calnan Higher Scientific Officer
2000-2004 Pedro R. Cutillas PhD student / Postdoctoral Scientist
2000-2004 Malcolm Saxton Scientific Officer
2000-2003 Pedro R. Cutillas PhD student
2000-2001 Daniel Spencer Higher Scientific Officer
1999-2003 Sarah Hart PhD student
1999-2000 Jens-Oliver Koopmann Postdoctoral Scientist
1999-2000 Nick Totty Research Associate
1998-2004 Steve Corless Higher Scientific Officer
1997-2001 Robert Chalkley PhD student