CHRISTIAN LARREA

MChem, Ph.D., Surface Scientist

crlarrea.github.io christian-larrea 0000-0001-7579-7876
+34 617 015 772 crlarrea@outlook.com
Las Palmas de Gran Canaria, SP

EXPERIENCE

Programmer | Freelance

April 2020 – Present Las Palmas, SP

- Developed a web-based interface for database querying through HTML+CSS, JavaScript, MySQL, and PHP.
- Developed scripts for the automation of invoice generation based on Excel files through a combination of Python pandas library and LuaLaTex.
- Created an ecommerce website with secure online payment and shipping by integrating the SumUp platform, Woocommerce, and custom HTML+CSS into Wordpress.
- Designed a console-based administration software for records-keeping and automated email notification tasks.

Data Analyst | XPS Pension Group

January 2020 – April 2020 Belfast, GB

- Extracted, processed, and analysed sensitive client data.
- Developed, debugged, and deployed VBA scripts and Excel formulas for modelling and visualisation of data.
- Researched pension schemes and legislation related to Guaranteed Minimum Pension equalisation.
- Reviewed new data collection protocols and liaised with requests from project management and client teams.

Resort Customer Helper | Jet2holidays

August 2019 – October 2019 San Bartolomé, SP

- Provided in-resort customer support to British holidaymakers concerning local amenities, accommodation, and transport.
- Achieved monthly turnovers of €4000 through sales of excursions, theme parks and shows tickets.
- Managed complaints, liaised with hotel management and mediated conflicts.
- Dealt with cash and credit card payments, reimbursements, and liquidations.

Freelance Scientific Writer | Upwork

January 2019 – March 2019 Telde, SP

- Delivered high-quality pieces of academic writing intended for publication in scientific journals.
- Assisted researchers in reviewing and editing material science articles prior to submission to peer review.
- Liaised with publishers and clients to achieve project requirements and goals promptly.

PROFILE

I am an early-stage scientist who specialises in surface chemistry with substantial experience in ultra-high vacuum technology, surface spectroscopy, and microscopy. I pride myself on being a diligent and determined individual with strong work ethics. I am currently seeking an opportunity to kick start my career.

EDUCATION

Ph.D. in Surface Chemistry
University of St Andrews, GB

November 2013 – June 2018
Supervisors: Prof. Christopher Baddeley & Manfred Buck

Master in Chemistry, 2.1
University of Liverpool, GB

September 2009 – June 2013
Supervisors: Prof. Richard Nichols, Dr Heike Arnolds & Prof. Andrew Hodgson

A-levels, with honours
IES José Frugoni Pérez, SP

September 2006 – June 2008

SKILLS

IT: Microsoft Office Package • LaTeX • Linux • Matlab/Octave • SQL • VBA • HTML+CSS+Javascript • PHP • Wordpress • Python • Numpy • Pandas • Scipy • Matplotlib • Seaborn • Blender • Gwyddion • Inkscape • Arduino • Raspberry Pi

TECHNICAL: TPD • LEED • AES • STM • RAIRS • HREELS • IR • GC • UV/Vis • CV • Chronoamperimetry • XPS • AFM • Maths & Stats • Data Analysis • Machine Learning • UHV

LANGUAGES: Spanish (Native) • English (Fluent) • Portuguese (Intermediate) • German (Beginner)

OTHERS: Oral presentation • Project Management • Problem-solving • Teamwork • Customer Service • Driving licence • First Aid

Post-doctoral Fellow | Queen's University

September 2018 – January 2019 Kingston, CA

- Appointed by Prof. J.H. Horton to lead the project on chemisorption of N-heterocyclic carbenes on silver films for plasmonic biosensing.
- Devised a contamination-free process for the adsorption of N-heterocyclic carbenes onto silver surfaces.
- Employed X-ray photoelectron spectroscopy, cyclic voltammetry, chronoamperometry and atomic force microscopy in the characterisation of self-assembled monolayers.
- Processed, modelled, and fitted spectroscopic and voltammetric data on Matlab/Octave.
- Delivered comprehensive reports about the data collected, their interpretation, and recommendations.
- Assisted technicians with their workload and troubleshooting.
- Mentored Master students in their research and dissertation writing tasks.
- Maintained a clean and safe environment by ensuring that routine laboratory work adhered to health and safety regulations.

Graduate Researcher | University of St Andrews

November 2013 – June 2018 St Andrews, GB

- Engineered a protocol for the fabrication of surface-confined covalent organic frameworks onto gold-palladium alloys.
- Applied statistic tools in the quantitative description of surface nanoarchitectures.
- Demonstrated the in-vacuo adsorption of N-heterocyclic carbenes to gold and copper surfaces and the effect of substituents in their binding mode.
- Proved the reduction of a model copper oxide to metallic copper by the adsorption of N-heterocyclic carbenes.
- Authored scientific articles and patents.
- Presented results in conferences, school meetings, and colloquia.
- Maintained, assembled and modified ultra-high vacuum equipment.

Laboratory Demonstrator | University of St Andrews

February 2014 – June 2017 St Andrews, GB

- Supervised Master students in their laboratory coursework and aided in data interpretation.
- Taught experimental physical chemistry techniques and assessed undergraduate students.
- Facilitated educational resources and provided private lessons.

REFERENCES

Ronan Donaghy
XPS Pension Group

1st Floor - Flax House 83-91 Adelaide St, Belfast, BT2 8FE, GB
@ ronan.donaghy@xafinityconsulting.com
+44 (0) 791 612 5995

Dr Grant Simpson
Universität Graz

8010 Graz, Heinrichstraße 28/IV, AT
@ grant.simpson@uni-graz.at
+43 (0) 316 380 5511

Dr Gabriele Schatte
Queen's University

90 Bader Ln, Kingston, ON K7L 2S8, CA
@ gabriele.schatte@chem.queensu.ca
+1 613 533 6000 (ext. 74474)

Prof. Chris Baddeley
University of St Andrews

School of Chemistry, Purdie Building, St Andrews, KY16 9ST, GB
@ cjb14@st-andrews.ac.uk
+44 (0)1334 467236

PUBLICATIONS & PRESENTATIONS

2019 Grillo, F., Batchelor, D., Larrea, C.R., Francis, S.M., Lacovig, P. and Richardson, N.V., 2019. On-surface condensation of low-dimensional benzotriazole-copper assemblies. Nanoscale, 11(27), pp.13017-13031.

2018 Larrea, C.R., 2018. Investigation of Robust Surface Molecular Architectures under Ultra-High Vacuum. PhD Thesis, University of St Andrews, Scotland, GB.

2017 Larrea, C.R., Baddeley, C.J., Narouz, M.R., Mosey, N.J., Horton, J.H. and Crudden, C.M., 2017. N-Heterocyclic Carbene Self-assembled Monolayers on Copper and Gold: Dramatic Effect of Wingtip Groups on Binding, Orientation and Assembly. ChemPhysChem, 18(24), pp.3536-3539.

2016 Mariampillai, B.E., Alrashed, A.R.E., Crudden, C. M., Horton, J.H., Baddeley, C.J., Larrea, C.R., 2016. Etching metal using N-heterocyclic carbenes. Patents: CA3026196A1, WO2017205980A1.

Larrea C.R., 2016. Fabrication of a porous sCOF on a reactive surface. European Conference on Surface Science 32. Grenoble, FR.

Larrea C.R., 2016 Fabrication of a porous sCOF on a reactive surface. RSC Surface Reactivity & Catalysis Group. Glasgow, GB.

Crudden, C.M., Horton, J.H., Narouz, M.R., Li, Z., Smith, C.A., Munro, K., Baddeley, C.J., Larrea, C.R., Drevniok, B., Thanabalasingam, B. and McLean, A.B., 2016. Simple direct formation of self-assembled N-heterocyclic carbene monolayers on gold and their application in biosensing. Nature communications, 7(1), pp.1-7.

Grillo, F., Torres, J.G., Treanor, M.J., Larrea, C.R., Goetze, J.P., Lacovig, P., Früchtl, H.A., Schaub, R. and Richardson, N.V., 2016. Two-dimensional self-assembly of benzotriazole on an inert substrate. Nanoscale, 8(17), pp.9167-9177.

Larrea, C.R. and Baddeley, C.J., 2016. Fabrication of a High-Quality, Porous, Surface-Confined Covalent Organic Framework on a Reactive Metal Surface. ChemPhysChem, 17(7), pp.971-975.

Anderson, A.E., Grillo, F., Larrea, C.R., Seljamäe-Green, R.T., Früchtl, H.A. and Baddeley, C.J., 2016. Metallosupramolecular Assembly of Cr and p-Terphenyldinitrile by Dissociation of Metal Carbonyls on Au (111). The Journal of PhysicalChemistry C, 120(2), pp.1049-1055.