

## ABOUT ME

“ I am an early-stage scientist 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 develop my career. ”

## EDUCATION

### RESPONSIVE WEB DESIGN CERTIFICATION 300 h

FREEDOCAMP, ONLINE  
FEB 2021 – MAR 2021

### PhD SURFACE CHEMISTRY

UNIVERSITY OF ST ANDREWS, GB  
NOV 2013 – JUN 2018

Supervisors: Prof. Chris Baddeley  
& Prof. Manfred Buck

### MSc CHEMISTRY, 2.1

UNIVERSITY OF LIVERPOOL, GB  
SEP 2009 – JUN 2013

Supervisors: Prof. Richard Nichols,  
Dr Heike Arnolds & Prof. Andrew Hodgson

### A-LEVELS, 9.1/10

IES JOSÉ FRUGONI PÉREZ, SP  
SEP 2006 – JUN 2008

## SKILLS

### </> IT

Microsoft Office Package • LaTeX • Linux •  
Matlab/Octave • SQL • VBA • HTML5 • CSS3  
Javascript • PHP • WordPress • Python •  
Numpy • Pandas • Scipy • Scikit-learn • Mat-  
plotlib • Seaborn • Blender • Gwyddion •  
Inkscape • Arduino • Raspberry Pi

### TECHNICAL

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

### LANGUAGES

Spanish (Native) • English (Fluent) • Por-  
tuguese (Intermediate) • German (Beginner)

### + OTHERS

Oral presentation • Project Management •  
Problem-solving • Teamwork • Customer Ser-  
vice • Driving licence • EU Settlement • First  
Aid

# CHRISTIAN LARREA

## Researcher & Programming Enthusiast

 Github

 LinkedIn

 Orcid

 +34 617 01 57 72    @crlarrea@outlook.com    Las Palmas de Gran Canaria, SP

## WORK EXPERIENCE

### Programmer | Freelance | Las Palmas, SP

Apr 2020 – Presently

- › Developed a web-based interface for database querying combining HTML, CSS, JavaScript, MySQL, and PHP.
- › Developed Python scripts for the automated generation of invoices for a haulage company.
- › Created an e-commerce website with secure online payment and shipping by integrating the SumUp platform, Woocommerce, and custom HTML CSS code into WordPress.
- › Designed a console-based administration software for record-keeping and automated email notification tasks.

### Data Analyst | XPS Pension Group | Belfast, GB

Jan 2020 – Apr 2020

- › 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 | San Bartolomé, SP

Jan 2020 – Apr 2020

- › 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 | Telde, SP

Jan 2019 – Mar 2019

- › 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.

## 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  
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### **Prof. Chris Baddeley**

#### **University of St Andrews**

School of Chemistry, Purdie Building  
St Andrews, KY16 9ST, GB  
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### **Post-doctoral Fellow | Queen's University | Kingston, CA**

Sep 2018 – Jan 2019

- > 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 safe work environment by ensuring that routine laboratory work complied with health and safety regulations.

### **Graduate Researcher | University of St Andrews | St Andrews, GB**

Nov 2013 – Jun 2018

- > 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 | St Andrews, GB**

Feb 2014 – Jun 2017

- > 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.

## PUBLICATIONS & PRESENTATIONS

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- 2019 On-surface condensation of low-dimensional benzotriazole-copper assemblies. *Nanoscale*, 11(27), pp.13017-13031. Grillo, F., Batchelor, D., Larrea, C.R., Francis, S.M., Lacovig, P. and Richardson, N.V., 2019.
- 2018 Investigation of Robust Surface Molecular Architectures under Ultra-High Vacuum. PhD Thesis, University of St Andrews, Scotland, GB. Larrea, C.R., 2018.
- 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. Larrea, C.R., Baddeley, C.J., Narouz, M.R., Mosey, N.J., Horton, J.H. and Crudden, C.M., 2017.
- 2016 Etching metal using N-heterocyclic carbenes. Patents: CA3026196A1, W02017205980A1. Mariampillai, B.E., Alrashed, A.R.E., Crudden, C. M., Horton, J.H., Baddeley, C.J., 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. Larrea C.R., 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. 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.
- Two-dimensional self-assembly of benzotriazole on an inert substrate. *Nanoscale*, 8(17), pp.9167-9177. 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.
- Fabrication of a High-Quality, Porous, Surface-Confined Covalent Organic Framework on a Reactive Metal Surface. *ChemPhysChem*, 17(7), pp.971-975. Larrea, C.R. and Baddeley, C.J., 2016.
- Metallosupramolecular Assembly of Cr and p-Terphenyldinitrile by Dissociation of Metal Carbonyls on Au (111). *The Journal of Physical Chemistry C*, 120(2), pp.1049-1055. Anderson, A.E., Grillo, F., Larrea, C.R., Seljamäe-Green, R.T., Früchtl, H.A. and Baddeley, C.J., 2016.