María Escudero Escribano

Assistant Professor of Chemistry
Department of Chemistry and Nano-Science Centre, University of Copenhagen
Universitetsparken 5, Copenhagen DK-2100
maria.escudero@chem.ku.dk

Current position

Tenure-track Assistant Professor, University of Copenhagen (Denmark) **From March 2017**

Nano-Science Center, Department of Chemistry, University of Copenhagen (UCPH)

- Tenure-track Assistant Professor of Nano-Chemistry, Independent Researcher and Leader of the NanoElectrochemistry and Sustainable Catalysis Group.
- Teaching and supervision at B.Sc., M.Sc., Ph.D. and postdoc levels.

Research experience

Postdoctoral Fellow, Stanford University (United States) ***2015 – 2017***

Department of Chemical Engineering and SLAC National Accelerator Laboratory, Stanford University

- ***Sapere Aude: Research Talent* Fellow**.
- Visiting research scholar at Professor Thomas Jaramillo's group at Stanford Chemical Engineering.
- Design and development of precious metal free electrocatalysts for sustainable energy conversion.
- *In situ* and *operando* synchrotron measurements at Stanford Synchrotron Radiation Lightsource.

Postdoctoral Researcher, Technical University of Denmark, DTU (Denmark) ***2012 – 2015***

Department of Physics, DTU

- Postdoctoral researcher with Professors Ib Chorkendorff and Ifan Stephens.
- Discovery, design, development and characterisation of novel Pt-alloys as electrocatalysts for the oxygen reduction reaction in low-temperature fuel cells. Combination of electrochemical methods with X-ray diffraction and *in situ* synchrotron-based characterisation techniques.
- Teaching and supervision at M.Sc. and Ph.D. levels.

Research stay, University of Ulm (Germany) ***2011***

- Three-month research stay under the supervision of Professor Wolfgang Schmickler.

Research stay, Argonne National Laboratory (United States) ***2009***

- Three-month research at the Materials Science Division at Argonne National Laboratory, supervised by Dr. Nenad Markovic.

Education

PhD, Chemistry, Autonomous University of Madrid (Spain) ***2007 – 2011***

Institute of Physical Chemistry 'Rocasolano', Spanish National Research Council

- Sobresaliente *cum laude, European Doctorate* Mention.
- PhD Advisor: Dr. Ángel Cuesta.
- PhD Title: "Electrocatalysis and surface nanostructuring: atomic ensemble effects and non-covalent interactions".

Bachelor's degree, Chemical Engineering, University of Extremadura (Spain) ***2001 – 2006***

- Best academic record of Chemical Engineering at the University of Extremadura.

Academic achievements

- Author of **34 scientific publications** in international refereed journals, including *Science* (first and corresponding author), *Nature Chemistry, Nature Materials*, *Journal of the American Chemical Society, Angewandte Chemie, Energy and Environmental Science*, *ACS Catalysis* and *Nano Letters*.
- Author of 14 manuscripts submitted or to be submitted in 2019.
- **H-index: 16; > 1200 citations** in publons (Web of Science; Escudero-Escribano, María; Researcher ID: D-1408-2011; ORCID: 0000-0002-6432-3015); **> 1500 citations** in google scholar.
- Co-inventor of **three patents**.
- Received ~**2 million euro funding in grants as a single PI** as an early-career researcher (since 2014).
- Presented several oral communications at international conferences, including **three invited Plenary lectures**, **four invited Keynote lectures** and more than **15 invited talks**.
- Presented **more than 10 invited seminars at universities**, including Stanford University, Massachusetts Institute of Technology and the University of California Berkeley.

Academic awards and honours

2019 **RSEQ Young Researchers Award 2019**, awarded by the Spanish Royal Society of Chemistry (RSEQ).

2019 **Clara Immerwahr Award 2019** from **UniSysCat** (Unifying Systems in Catalysis Cluster of Excellence in Germany), awarded for her "outstanding results in catalysis research" (see: *Angew. Chem. Int. Ed*. **2019**, *58*, 2940).

2018 **Princess of Girona Foundation Scientific Research Award 2018** (highest recognition for researchers under 35 in Spain), awarded for the "scientific, technological and social impact of her work in electrochemical energy conversion".

2018 **Energy Technology Division Supramaniam Srinivasan Young Investigator Award 2018** from the **Electrochemical Society (ECS)**, awarded for her innovative research on model electrodes for electrochemical energy conversion technologies.

2018 **Hyundai Young Talent 2018** of "Fuera de Serie".

2017 **Griess Lectureship Award** from the **Royal Society of Chemistry** (RSC).

2017 **SusChem Young Chemistry Researcher Award 2017**, in the Postdoc category (Spanish Technology Platform for Sustainable Chemistry and RSEQ).

2017 **CIDETEC Award 2016** in the category of "Young Researchers in Electrochemistry" (Electrochemistry Group of the RSEQ).

2017 Selected as **one of the five finalists of the Gerhard Ertl Young Investigator Award 2017**.

2016 **European Young Chemist Award 2016 – Gold Medal** (EuCheMS), awarded to researchers under 35 whose research in chemistry displays high level of excellence and distinction (see: *Angew. Chem. Int. Ed.* **2016**, *55*, 14903).

2016 **ISE Travel Award for Young Electrochemists** (International Society of Electrochemistry, ISE) to present my work at the *67th ISE Annual Meeting* in The Hague (The Netherlands).

2015 **AcademiaNet** Elected Member – Excellent women academic portal of the *Robert Bosch Foundation*, *Spektrum der Wissenschaft* and *Nature*; nominated by the Danish National Research Foundation.

2014 **Travel Award** from the **Electrochemical Society** (ECS) to present my work at the *226th ECS Meeting* in Cancun (Mexico).

2013 **Best PhD Thesis in the region of Madrid** Award (RSEQ).

2013 National Award 'Pedro Sánchez': **best PhD Thesis related to Hydrogen Energy and Fuel Cells** (Spanish Hydrogen Association and Spanish Association of Fuel Cells).

2012 **Extraordinary PhD Award** (Autónoma University of Madrid).

2011 **SusChem Young Chemistry Researcher Award 2011**, in the Predoc category (Spanish Technology Platform for Sustainable Chemistry and RSEQ).

2011 **Travel Grant** from the **Group of Electrochemistry** of the RSEQ to attend the *62st ISE Annual Meeting* in Niigata (Japan).

2007 **Best academic record of Chemical Engineering** (University of Extremadura).

Grants

2018-2023 **VILLUM Young Investigator Grant (Villum Foundation).** Awarded amount: 10 million DKK (~1.34 million euro).

2019-2021 **DFF-Project 1** (Danish Council for Independent Research). Awarded amount: 2.28 million DKK (~300 000 euro).

2015-2017 **Sapere Aude: DFF-Research Talent Award** (Danish Council for Independent Research). Awarded amount: 500 000 DKK (~67 000 euro).

2015-2017 **DFF-Individual Postdoctoral Grant** (Danish Council for Independent Research). Awarded amount: 2.13 million DKK (~286 000 euro).

2008-2011 **Stay Grant** for graduate students at the 'Residencia de Estudiantes' (Madrid city council).

2007-2011 **FPI PhD Grant** (Spanish Ministry of Science and Innovation).

2005-2006 **Undergraduate Research Grant** (Spanish Ministry of Education and Science).

Organisation of international meetings and seminars

2018/09 **69th Annual Meeting of the International Society of Electrochemistry in Bologna (Italy)**: Co-organiser of Symposium "Physical and Interfacial Electrochemistry" of the Physical Electrochemistry Division.

2018/11 **Annual Meeting of the Danish Electrochemical Society:** Co-organiser.

2019/05 **Mini-symposium in Electrocatalysis at the University of Copenhagen:** Organiser.

2019/05 **Visit and lecture of Professor Frances H. Arnold (Caltech, 2018 Chemistry Nobel Laureate) at the University of Copenhagen:** Organiser and host.

2019/11 **Annual Meeting of the Danish Electrochemical Society:** Coordinator and main organiser.

Selected invited lectures at international conferences and university seminars

2019/09 **Confirmed invited Keynote speaker, International Symposium "Intermetallic Compounds in Catalysis" (IMCAT 2019)**, Chemnitz (Germany).

2019/09 **Confirmed invited speaker**, **Symposium "Insights into Gas Diffusion Electrodes: From Fundamentals to Industrial Applications"**, Magdeburg (Germany).

2019/07 **Plenary lecture, 1st Severo Ochoa workshop on energy storage and harvesting "Energy mining in the 21st century"**, Barcelona (Spain).

2019/06 **Invited seminar, Institute of Chemical Research of Catalonia (ICIQ)**, Tarragona (Spain).

2019/06 **Invited seminar, University of Córdoba**, Córdoba (Spain).

2019/06 **Invited Keynote lecture, International workshop "Materials for today's energy challenges"**, Padova (Italy).

2019/05 **Invited lecture, Clara Immerwahr Award ceremony (as Clara Immerwahr Awardee 2019), Technical University of Berlin**, Berlin (Germany).

2019/04 **Invited speaker**, **Materials for Clean Energy Conference**, London (UK).

2019/04 **Invited speaker**, **257th American Chemical Society (ACS) Meeting**, Symposium: "Frontiers in Catalysis for Energy and Sustainability" (only invited speakers), Orlando (US).

2018/10 **Invited speaker**, **680th WE Heraeus Seminar** on **"Materials Development for Automotive Propulsion"**, Bad Honnef (Germany).

2018/08 **Invited Plenary lecture** at the European Young Chemist Award (EYCA) finalists' session (as the recipient of the EYCA 2016), **7th EuChemS Chemistry Congress**, Liverpool (UK).

2018/07 **Invited seminar**, **Eindhoven University of Technology**, Department of Chemical Engineering and Chemistry, Eindhoven (Netherlands).

2018/06 **Invited seminar**, **University of Cádiz**, Department of Chemistry, Cádiz (Spain).

2018/05 **Invited lecture**, **Southampton Electrochemistry Conference 2018**, University of Southampton (UK).

2018/05 **Keynote lecture**, **233rd ECS Meeting** (Electrochemical Society, ECS), Seattle (US).

2018/03 **Invited seminar**, **Stanford University, SUNCAT seminar**, Department of Chemical Engineering, Stanford (US).

2017/11 **Griess Lectureship Award lectures (awarded and invited by the Royal Society of Chemistry)**, **Universities of Nottingham, Leicester, Loughborough and Derby (UK)**: one day at each University during the Chemistry week in the UK.

2017/11 **Plenary speaker**, **Annual Meeting of the Danish Electrochemical Society**, Lyngby (Denmark).

2017/11 **Invited speaker**, **XIV Simposium of Young Chemistry Researchers of the Spanish Royal Society of Chemistry (RSEQ)**, Badajoz (Spain).

2017/08 **Invited speaker**, **XXVI International Materials Research Congress** (Materials Research Society, MRS), Cancun (Mexico).

2017/07 **Invited speaker**, **XXXVIII Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry (RSEQ)**, Vitoria (Spain).

2017/04 **Invited speaker**, 9th Meeting **"From the witches' cauldrons in materials science"**, Goslar (Germany).

2017/03 **Invited speaker**, **'Gerhard Ertl Young Investigator' finalists' competition session** at the **DPG Spring Meeting**, Dresden (Germany).

2017/01 **Invited seminar**, **University of California Berkeley, Lawrence Berkeley National Laboratory**, Berkeley (US).

2016/05 **Invited seminar**, **Stanford University, SUNCAT seminar**, Department of Chemical Engineering, Stanford (US).

2016/03 **Invited seminar**, **University of Copenhagen**, Department of Chemistry, Copenhagen (Denmark).

2015/05 **Invited seminar**, **Stanford University**, Department of Materials Science and Engineering, Stanford (US).

2015/04 **Invited seminar**, **Massachusetts Institute of Technology (MIT)**, Department of Mechanical Engineering, Cambridge (US).

2014/03 **Invited Keynote Lecture**, **European Hydrogen Energy Conference 2014**, Seville (Spain)

2011/11 **Invited speaker**, **VIII Simposium of Young Chemistry Researchers of the RSEQ**, Malaga (Spain).

Publications in international peer reviewed journals

*** Papers where María is corresponding author**

2019

34. A. Bagger, R.M. Arán-Ais, J.H. Stenlid, E. Campos dos Santos, L. Arnarson, K.D. Jensen, **M. Escudero-Escribano**, B. Roldán-Cuenya, J. Rossmeisl, "Ab initio cyclic voltammetry on Cu single-crystals in acidic, neutral and alkaline solutions" (2019), ***ChemPhysChem**, accepted.*
Invited to the **s*pecial issue "Electrocatalysis"**.*

33. P. Sebastián-Pascual, S. Mezzavilla, I.E.L. Stephens, **M. Escudero-Escribano***, "Structure-sensitivity and electrolyte effects in CO_2 electroreduction: from model studies to applications" (2019) ***ChemCatChem**,* DOI: 10.1002/cctc.201900552.
Invited to the ***special issue "Women of Catalysis"***.

32. B.J.V. Davies, M. Arenz, J. Rossmeisl, **M. Escudero-Escribano***, "Electrochemical synthesis of high-value chemicals: detection of key reaction intermediates and products combining gas chromatography-mass spectrometry and *in-situ* infrared spectroscopy" (2019) ***J. Phys. Chem. C**, 123,* 12762.
Invited to the ***special issue "Young Scientists".***

31. G. Sievers, A.W. Jensen, V. Brüser, M. Arenz, **M. Escudero-Escribano***, "Sputtered Pt thin films for oxygen reduction in gas diffusion electrodes – a model system for studies under realistic conditions" (2019) ***Surfaces**, 2,* 336*.*
Invited to the ***special issue "Electrochemical Surface Science"***.

30. B.J.V. Davies, M. Saric, M.C. Figueiredo, N.C. Schjødt, S. Dahl, P.G. Moses, **M. Escudero-Escribano***, M. Arenz, J. Rossmeisl, "Electrochemically generated copper carbonyl for selective dimethyl carbonate synthesis" (2019), ***ACS Catalysis***, *9*, 859.

2018

29. **M. Escudero-Escribano***, A.F. Pedersen, E.T. Ulrikkeholm, K.D. Jensen, M.H. Hansen, J. Rossmeisl, I.E.L. Stephens, I. Chorkendorff, "Active site formation and stability of Gd/Pt(111) electrocatalysts for oxygen reduction: an in situ grazing incidence X-ray diffraction study" (2018), ***Chemistry: A European Journal***, *24*, 12280. **Times cited: 3**
Frontispiece and Hot Paper. Invited to the Young Chemists Special Issue 2018.

28. **M. Escudero-Escribano***, K.D. Jensen, A.W. Jensen "Recent advances in bimetallic electrocatalysts for oxygen reduction: design principles, structure-function relations and active phase elucidation" (2018), ***Current Opinion in Electrochemistry***, *8*, 135. **Times cited: 4**
Invited for the Special Themed Issue "Surface Electrochemistry", edited by Professor Marc Koper.

27. D. Higgins, M. Wette, B. Gibbons, S. Siahrostami, C. Hahn, **M. Escudero-Escribano**, M. Garcia-Melchor, Z. Ulisses, R. Davis, A. Mehta, B. Clemens, J. Nørskov, T.F. Jaramillo, "Copper silver thin films as model phase segregated electrocatalyst for oxygen reduction in alkaline electrolytes" (2018), ***ACS Applied Energy Materials**, 1,* 1990. **Times cited: 4**

26. M. Inaba, A.W. Jensen, G. Sievers, **M. Escudero-Escribano**, A. Zana, M. Arenz, "Benchmarking high surface area electrocatalysts in a gas diffusion electrode: measurement of the the oxygen reduction activities under realistic conditions" (2018), ***Energy and Environmental Science***, *11*, 988. **Times cited: 8**

25. K.D. Jensen, J. Tymoczko, A.S. Bandarenka, I. Chorkendroff, **M. Escudero-Escribano***, I.E.L. Stephens, "Elucidation of the oxygen reduction volcano in alkaline media using a copper-platinum(111) alloy" (2018), ***Angewandte Chemie International Edition***, *57*, 2800. **Times cited: 14**
Frontispiece and **VIP. Research highlights** in ***Nature Reviews Chemistry*** and ***Nature Catalysis*.**

24. **M. Escudero-Escribano***, A.F. Pedersen, E. Paoli, R. Frydendal, D. Friebel, P. Malacrida, J. Rossmeisl, I.E.L. Stephens, I. Chorkendorff, "Importance of surface IrO_x in stabilizing RuO_2 for oxygen evolution" (2018), ***Journal of Physical Chemistry B***, *122*, 947. **Times cited: 10**

23. A.F. Pedersen, **M. Escudero-Escribano**, B. Sebok, A. Bodin, E. Paoli, R. Frydendal, D. Friebel, I.E.L. Stephens, J. Rossmeisl, I. Chorkendorff, A. Nilsson, "Operando XAS study of the surface oxidation state on a monolayer IrO_x on RuO_x and Ru oxide based nanoparticles for oxygen evolution in acidic media" (2018), ***Journal of Physical Chemistry B***, *122*, 878. **Times cited: 9**

2017

22. A.L. Strickler, **M. Escudero-Escribano**, T.F. Jaramillo, "Core-shell Au@metal-oxide nanoparticulate electrocatalysts for enhanced oxygen evolution" (2017), ***Nano Letters***, *17*, 6040. **Times cited: 36**

21. E. Zamburlini, K.D. Jensen, I.E.L. Stephens, I. Chorkendorff, **M. Escudero-Escribano***, "Benchmarking Pt and Pt-lanthanide sputtered thin films for oxygen electroreduction: fabrication and electrochemical characterisation" (2017), ***Electrochimica Acta***, *247*, 708. **Times cited: 7**

20. **M. Escudero-Escribano**, U. Grønbjerg, A. Velazquez-Palenzuela, P. Malacrida, J. Rossmeisl, I. Chorkendorff, I.E.L. Stephens, J. Schiøtz, "New platinum alloy catalysts for oxygen electroreduction based on abundant alkali earth metals" (2017), ***Electrocatalysis***, *8*, 594. **Times cited: 7**

19. N. Lindahl, E. Zamburlini, L. Feng, H. Gronbeck, **M. Escudero-Escribano**, I.E.L. Stephens, I. Chorkendorff, C. Langhammer, B. Wickman, "High specific and mass activity for the oxygen reduction reaction for thin film catalysts of sputtered Pt_3Y" (2017), ***Advanced Materials Interfaces***, *4*, 1700311. **Times cited: 5**

2016

18. A.F. Pedersen, E.T. Ulrikkeholm, **M. Escudero-Escribano**, T.P. Johansson, P. Malacrida, C.M. Pedersen, M.H. Hansen, K.D. Jensen, J. Rossmeisl, D. Friebel, A. Nilsson, I. Chorkendorff, I.E.L. Stephens, "Probing the nanoscale structure of the catalytically active overlayer on Pt alloys with rare earths" (2016) ***Nano Energy***, *29*, 249.**Times cited: 16**

17. **M. Escudero-Escribano**, C. Wildi, J.A. Mwanda, A. Cuesta, "Metallization of cyanide-modified Pt(111) electrodes with copper" (2016) ***Journal of Solid State Electrochemistry***, *20*, 1087. **Times cited: 2**

16. E.T. Ulrikkeholm, A.F. Pedersen, U.G. Vej-Hansen, **M. Escudero-Escribano**, I.E.L. Stephens, D. Friebel, A. Mehta, J. Schiøtz, R.K. Feidenhansl', A. Nilsson, I. Chorkendorff, "Pt_xGd alloy formation on Pt(111): preparation and structural characterization" (2016) ***Surface Science***, *652*, 114. **Times cited: 8**

15. **M. Escudero-Escribano***, P. Malacrida, M.H. Hansen, U.G. Vej-Hansen, A. Velazquez-Valenzuela, V. Tripkovic, J. Schiøtz, J. Rossmeisl, I.E.L. Stephens, I. Chorkendorff, "Tuning the activity of Pt alloy electrocatalysts by means of the lanthanide contraction" (2016) ***Science***, *352*, 73. **Times cited: 200**
"**Highly cited paper**" ("**top 1% in the field of Chemistry**", Web of Science).

2015

14. C.M. Pedersen, **M. Escudero-Escribano**, A. Velázquez-Palenzuela, L.H. Christensen, I.E.L. Stephens, I. Chorkendroff, "Benchmarking Pt-based electrocatalysts for low-temperature fuel cell reactions with the rotating disk electrode: oxygen reduction and hydrogen oxidation in the presence of CO (review article)" (2015) ***Electrochimica Acta***, *179,* 647. **Times cited: 46**

13. A. Velázquez-Valenzuela, F. Masini, A.F. Pedersen, **M. Escudero-Escribano**, D. Deiana, P. Malacrida, T.W. Hansen, D. Friebel, A. Nilsson, I.E.L. Stephens, I. Chorkendorff, "The enhanced activity of mass-selected Pt_xGd nanoparticles for oxygen electroreduction" (2015) ***Journal of Catalysis***, *328*, 297. **Times cited: 28**

2014

12. P. Malacrida, **M. Escudero-Escribano**, A. Verdaguer-Casadevall, I.E.L. Stephens, I. Chorkendorff, "Enhanced activity and stability of Pt-La and Pt-Ce alloys for oxygen electroreduction: the elucidation of the active surface phase" (2014), ***Journal of Materials Chemistry A***, *2*, 4234. **Times cited: 52**

11. T.P. Johansson, E.T. Ulrikkeholm, P. Hernandez-Fernandez, **M. Escudero-Escribano**, P. Malacrida, I.E.L. Stephens, I. Chorkendorff, "Towards the elucidation of the high oxygen electroreduction activity of Pt_xY: surface science and electrochemical studies on Pt(111)/Y" (2014) ***Physical Chemistry Chemical Physics***, *16*, 13718. **Times cited: 18**

2013

10. S. Siahrostami, A. Verdaguer-Casadevall, M. Karamad, D. Deiana, P. Malacrida, B. Wickman, **M. Escudero-Escribano**, E. A. Paoli, R. Frydendal, T. W. Hansen, I. Chorkendorff, I.E.L. Stephens, J. Rossmeisl, "Enabling direct H_2O_2 production via rational electrocatalyst design" (2013) ***Nature Materials***, *12*, 1137. **Times cited: 165**

9. C. Vaz-Domínguez, **M. Escudero-Escribano**, A. Cuesta, F. Prieto-Dapena, C. Cerrillos, M. Rueda, "Electrochemical STM study of the adsorption of adenine on Au(111) electrodes" (2013) ***Electrochemical Communications***, *35*, 61. **Times cited: 16**

8. A. Cuesta, G. Cabello, F. Hartl, **M. Escudero-Escribano**, C. Vaz-Domínguez, L. Kibler, C. Gutiérrez, M. Osawa, "Electrooxidation of formic acid on gold: an ATR-SEIRAS study of the role of adsorbed formate" (2013) ***Catalisis Today***, *202*, 79. **Times cited: 36**

2012

7. **M. Escudero-Escribano**, A. Verdaguer-Casadevall, P. Malacrida, U. Grønbjerg, B. P. Knudsen, A. K. Jepsen, J. Rossmeisl, I.E.L. Stephens, I. Chorkendorff, "Pt_5Gd as a highly active and stable catalyst for oxygen electroreduction" (2012) ***Journal of the American Chemical Society***, *134*, 16476. **Times cited: 107**

6. **M. Escudero-Escribano**, G. J. Soldano, P. Quaino, W. Schmickler, M. E. Zoloff-Michoff, E. P. M. Leiva, A. Cuesta, "Cyanide-modified Pt(111): structure, stability and hydrogen adsorption" (2012) ***Electrochimica Acta***, *82*, 524. **Times cited: 14**

2011

5. **M. Escudero-Escribano**, M. E. Zoloff-Michoff, E. P. M. Leiva, N. M. Markovic, C. Gutiérrez, A. Cuesta, "Quantitative study of non-covalent interactions at the electrode-electrolyte interface using cyanide-modified Pt(111) electrodes" (2011) ***ChemPhysChem***, *12*, 2230. **Times cited: 32**

2010

4. D. Strmcnik**,** **M. Escudero-Escribano**, K. Kodama, V. R. Stamenkovic, A. Cuesta, N. M. Markovic, "Enhanced electrocatalysis of the oxygen reduction reaction based on patterning of platinum surfaces with cyanide" (2010) ***Nature Chemistry***, *2*, 880. **Times cited: 170**

2009

3. **M. Escudero**, J. F. Marco, A. Cuesta, "Surface decoration at the atomic scale using a molecular pattern" (2009), ***Journal of Physical Chemistry C***, *113*, 12340. **Times cited: 6**

2. A. Cuesta, **M. Escudero**, B. Lanova, H. Baltruschat, "Cyclic voltammetry, FTIRS and DEMS study of the electrooxidation of carbon monoxide, formic acid and methanol on cyanide-modified Pt(111) electrodes" (2009) ***Langmuir***, *25,* 6500. **Times cited: 101**

2008

1. A. Cuesta, **M. Escudero**, "Electrochemical and FTIRS characterisation of NO adlayers on cyanide-modified-Pt(111) electrodes: The mechanism of nitric oxide electroreduction on Pt" (2008) ***Physical Chemistry Chemical Physics***, *10*, 3628. **Times cited: 25**

Patents

- I. E.L. Stephens, **M. Escudero-Escribano**, A. Verdaguer-Casadevall, P. Malacrida, U. Grønbjerg, B. P. Knudsen, A. K. Jepsen, J. Rossmeisl, I. Chorkendorff, "Platinum and palladium alloys suitable as fuel cell electrodes", WO 2014005599, published, **2014**.
- I. E.L. Stephens, **M. Escudero-Escribano**, A. Verdaguer-Casadevall, P. Malacrida, U. Grønbjerg, J. Schiotz, J. Rossmeisl, I. Chorkendorff, "Platinum and palladium alloys suitable as fuel cell electrodes", WO 2014079462, published, **2014**.
- I. E.L. Stephens, A. Verdaguer-Casadevall, B. Wickman, P. Malacrida, S. Siahrostami, **M. Escudero-Escribano**, M. Karamad, J. Rossmeisl, I. Chorkendorff, "Catalysts for electrochemical synthesis of hydrogen peroxide", WO 2014174065, published, **2014**.

Selected oral contributions in conferences as presenting author

- "Tailored electrochemical interfaces for oxygen electrocatalysis", Materials for Today's Energy Challenges International Workshop, Padua (Italy), **2019. Invited Keynote lecture**.
- "Enhanced oxygen electrocatalysis for renewable energy conversion", Materials for Clean Energy Conference, London (UK), **2019. Invited lecture**.
- "Tailoring the active phase for oxygen electrocatalysis", 257th American Chemical Society (ACS) Meeting, Orlando (US), **2019. Invited lecture**.
- "Elucidating the active phase of Pt electrocatalysts for oxygen reduction", 680th WE-Heraeus Seminar "Materials development for automotive propulsion", Bad Honnef (Germany), **2018. Invited lecture**.
- "*In situ* elucidation of the active surface phase for oxygen electrocatalysis", *69th Annual Meeting of the International Society of Electrochemistry (ISE)*, Bologna (Italy), **2018**.
- "Tailored electrochemical interfaces and European Young Chemist Award", 7th EuChemS Chemistry Congress, Liverpool (UK), **2018. Invited Plenary lecture**.
- "Elucidation of the oxygen reduction volcano in acidic and alkaline media", Southampton Electrochemistry Conference, University of Southampton (UK), **2018. Invited lecture**.
- "Enhanced oxygen electrocatalysis by electronic and geometric effects", 233rd ECS Meeting (Electrochemical Society, ECS), Seattle (US), **2018. Invited Keynote lecture.**
- "Pt-lanthanide catalysts for oxygen electroreduction: from bulk alloys to thin films and nanoparticles", XXVI International Materials Research Congress. Cancun (Mexico), **2017**. **Invited oral contribution**.
- "Enhanced oxygen electroreduction activity by atomic ensemble and electronic effects", 38th Meeting of the Electrochemistry Group of the Spanish Royal Society of Chemistry. Vitoria (Spain), **2017**. **Invited oral contribution**.
- "Tuning the active site in electrocatalysis: geometric and electronic effects", 9th Meeting "From the witches cauldrons in materials science". Goslar (Germany), **2017**. **Invited oral contribution**.
- "Enhanced electrocatalysis for polymer electrolyte membrane fuel cells and electrolyzers", *253rd American Chemical Society (ACS) Meeting*. San Francisco (US), **2017**.
- "Tuning the electrocatalytically active site: atomic ensemble effects and surface strain", *DPG (German Physical Society) Spring Meeting*. Dresden (Germany), **2017**. **Invited oral contribution**.
- "Exploring the lanthanide contraction to tune the activity and stability of Pt", *PRiME 2016/230th ECS Meeting*. Honolulu, Hawaii (US), **2016**.
- "Tuning the electrocatalytic activity, stability and reactivity of Pt alloys by means of the lanthanide contraction", *67th Annual ISE Meeting.* The Hague (The Netherlands), **2016**.

- "Controlling the activity and stability of Pt-based electrocatalysts by means of the lanthanide contraction", *228th ECS Meeting*, Phoenix (US), **2015**.
- "What's the optimum strain for Pt alloys for oxygen electroreduction?", *226th ECS Meeting*, Chicago (US), **2015**.
- "Engineering the activity and stability of Pt-alloy cathode fuel-cell electrocatalysts by tuning the Pt-Pt distance" *226th ECS Meeting*. Cancún (México), **2014**.
- "Enabling low-temperature fuel cells via improved Pt-based cathode catalysts", *European Hydrogen Energy Conference 2014*. Seville (Spain), **2014**. **Invited Keynote lecture**.
- "Trends in the activity and stability of Pt-alloy catalysts for the ORR: a focus on novel alloys of Pt and lanthanides", *64th Annual ISE Meeting.* Santiago de Querétaro (México), **2013**.
- "Modificación de la actividad electrocatalítica con un patrón molecular", *VIII Simposium of Young Chemistry Researchers (RSEQ)*, Málaga (Spain), **2011**. **Invited oral contribution**.
- "Adsorption phenomena on cyanide-modified Pt(111): experiment and theory at the electrochemical interface", *62nd Annual ISE Meeting*. Niigata (Japan), **2011**.
- "Electrocatalysis and surface nanostructuring: atomic ensemble effects and non-covalent interactions", *61st Annual ISE Meeting*. Nice (France) **2010**.

Supervision and mentoring

- Currently **supervising 3 postdocs**: Bethan J.V. Davies, Kim D. Jensen and Paula Sebastián-Pascual.
- Currently **supervising 3 PhD students** (as main supervisor): Anders W. Jensen (2017-2020), José Alejandro Arminio-Ravelo (2018-2021) and Inês Pereira (2018-2021).
- Currently **supervising 3 MSc students**: Elena Gómez-González (2019-2020), Elena Nielsen (2019-2020) and Elena Plaza-Mayoral (2019-2020).
- Finalised **co-supervision of 2 postdocs**: Jonathan Quinson (2017-2019) and Marta Figueiredo (2017).
- Finalised **co-supervision of 3 PhD students**: Bethan J.V. Davies (2019), Kim D. Jensen (2017), and Eleonora Zamburlini (2016).
- Finalised **supervision of 2 MSc students**: Anders Jepsen, M.Sc. in Physics and Nanotechnology at DTU (2012). Mark: 12/12; Alejandro Arminio-Ravelo, M.Sc. in Chemistry at UCPH (2018). Mark: 12/12.

Miscellaneous

- Manuscript reviewer for international refereed journals such as *Nature Chemistry, Nature Materials, Angewandte Chemie*, *Nature Energy, Nature Catalysis*, *ACS Catalysis*, *Nature Reviews Chemistry, Advanced Materials*, *Journal of Catalysis* and *Electrochimica Acta.*
- **2018-present: Chair** of the **Danish Electrochemical Society**.
- **2018-2019: Early Career Advisory Board Member** of **ACS Catalysis**.
- **2017-present**: **Board Member** of the **Danish Electrochemical Society**.
- **2017-present**: Member of the **American Chemical Society (ACS)**. Member of the **Division of Catalysis Science and Technology** since 2019.
- **2015-present**: Elected Member of **AcademiaNet – Expert Database for Outstanding Female Academics**, nominated by the Danish National Research Foundation (only by nomination).
- **2014-present**: Member of the **Electrochemical Society (ECS)**.
- **2011-present**: Member of the **Spanish Royal Society of Chemistry (RSEQ)**, the **Group of Electrochemistry of the RSEQ** and the **Group of Young Chemistry Researchers of the RSEQ**.
- **2009-present**: Member of the **International Society of Electrochemistry (ISE)**.