

Biographical Sketch

Roberto A. Martínez Rodríguez

Current Status

PhD Candidate

Dept. of Chemistry, UPR-Rio Piedras

Dept. of Physical-Chemistry, University of Alicante, Spain

Email: Robert_arts_2@hotmail.com



Education

2004-2009 BS Chemistry

Mathematics-Physics, Minor

2011-present UPR-Rio Piedras

2015-present University of Alicante, Spain

Current Research Interest: My research is focus on the development of new, easy and scalable ways to synthesize platinum nanoparticles with controlled shape structures. This project aims to be used in new technologies directed to the development of water recycling systems and the production of energy using alternative sources. I am committed to culminate the PhD with the purpose to introduce my scientific and analytical skills in the Research and Development (R&D) sector.

Research Experience

Jan.-Aug. 2014 Internship, University of Alicante, Spain. (mentor Dr. Juan M. Feliu)

Jan- Aug. 2013 Internship, University of Alicante, Spain. (mentor Dr. Juan M. Feliu)

June 2012 Internship, University of Alicante, Spain. (mentor Dr. Juan M. Feliu)

2009-2010 Research Assistant, UPR- Rio Piedras. (mentor Dr. Carlos Cabrera)

Summer 2009 Research Assistant, UPR-Cayey. (mentor, Dr. Wilfredo Otaño)

2008-2009 Research Assistant, UPR- Cayey. (mentor, Dr. Luis C. Fernández)

Other research Activities

Nov. 2015 NASA Zero gravity simulation flight, Ellington Field, Houston, Texas USA.

Jan. 2016 NASA Zero gravity simulation flight, Ellington Field, Houston, Texas USA.

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Honors

2009	CANM NASA fellowship
2011-2013	PR-Louis Stokes Alliance for Minority Participation Fellowship.
2013	Alfred P. Sloan Foundation fellowship.
2013	Santander Universities- Internship Grant.
2014	Puerto Rico NASA Space Grant Fellowship.
2014	Santiago Grisolia Fellowship from the Valencian Community, Spain.
2015-present	Research Initiative for Scientific Enhancement (RISE) Fellowship.

Presentations

Local presentations

Martinez Rodríguez R.A.; Arroyo-Ramirez L. & Cabrera C. R. IFN Meeting Conference 2011, Methanol Tolerance of Pd Catalysts for the Oxygen Reduction Reaction, Hotel Conquistador, Fajardo PR, September 1, 2011.

Martinez Rodríguez R.A.; Arroyo-Ramirez L. & Cabrera C. R. BEST PRACTICE CONFERENCE 2011, Methanol Tolerance of Pd Catalysts for the Oxygen Reduction Reaction, Hotel Conquistador, San Juan PR, October 23, 2011.

Martinez Rodríguez R.A. & Cabrera C. R. CANM NASA POSTER PRESENTATION, Optimization of Novel Platinum Nanoparticles Synthesis for Ammonia Oxidation, University of Puerto Rico Rio Piedras Campus, February 16, 2012.

Martinez Rodríguez R.A. & Cabrera C. R. PRISM 2012, Optimization of Novel Platinum Nanoparticles Synthesis for Ammonia Oxidation, UPR-Humacao, March 10, 2012.

Martinez Rodríguez R.A. & Cabrera C. R. 7th Transdisciplinary Research Meeting Conference, Synthesis and Optimization of Platinum (1 0 0) oriented Nanoparticles for Ammonia Oxidation Reaction, San Juan PR, May 3, 2012

Martinez Rodríguez R.A. & Cabrera C. R. PREM Symposium, Synthesis and Optimization of Platinum (1 0 0) oriented Nanoparticles for Ammonia Oxidation Reaction, San Juan PR, May 11, 2012

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Rise Conference, Synthesis and electrochemical characterization of cubic Platinum nanoparticles for the development of wastewater bio recycling systems and energy production, Hotel Conquistador San Juan PR, March 18, 2016.

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Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Forward Research and Innovation Summit, Electrocatalytic activity of Pt-Rh nanoparticles synthesized in the presence of surface modifiers. Sheraton Convention Center, San Juan PR, September 17, 2016.

International Presentations

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 226th ECS meeting conference and SMEQ Joint International Meeting, Electrochemical Study of the Effect of Adsorbates and Precursors in the Synthesis of Well-Defined Platinum Nanoparticles Using Water-in-Oil Microemulsion, Cancún, México, October 2014.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 2^{ndo} Congreso Online de Jóvenes de Electroquímica, Effect of adsorbates and precursors in the synthesis of well-defined platinum and platinum-rhodium nanoparticles using water-in-oil microemulsion in acid aqueous phase, University of Alicante, Spain, May 2015.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., XVII Encuentro Ibérico de Electroquímica, Síntesis y propiedades electrocatalíticas de nanopartículas de Pt y Pt-Rh con formas preferenciales, University of Vigo, Spain, July 13-15, 2015.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 251th ACS meeting conference, Electrochemical study of the effect of adsorbates and precursors in the synthesis of well-defined bimetallic platinum-rhodium nanoparticles using water-in-oil microemulsion, San Diego, California, March 13-17, 2016

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 3^{er} Congreso Online de Jóvenes de Electroquímica, Synthesis and electrochemical study of the effect of adsorbates and precursors of well-defined bimetallic platinum-rhodium nanoparticles using water-in-oil microemulsion, University of Alicante, May 23-27, 2016.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., XVIII Encuentro Ibérico de Electroquímica, Estudio electroquímico fundamental del efecto de HCl y H₂SO₄ como agentes modificadores para la síntesis de nanocubos de platino. University of Alicante, Spain, July 17-20, 2016.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 253th ACS meeting conference, Electrochemical Behavior of Shape Controlled Pt-Rh nanoparticles for Ammonia Oxidation in Alkaline Medium for Direct Alkaline Fuel Cell Applications, San Francisco, California, April 2-6, 2017.

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Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 68th Annual Meeting of the International Society of Electrochemistry, Electrochemical study about the effect of HCl and H₂SO₄ as surface modifiers in the synthesis of platinum nanocubes, Providence, Rhode Island, August 27-September 1st, 2017.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Materials, Characterization and Catalysis Workshop, Understanding the electrochemical behavior of shape-controlled Pt-Rh nanoparticles in the oxidation of ethanol and ammonia for direct fuel cell applications, ETH Zurich, Switzerland, 15-17, January 2018.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., 1er Simposio de ciencias básicas, modelado matemático y liderazgo, Liderazgo y gestión al éxito: presentación de mi desarrollo profesional en a investigación y consejos para ser exitoso, Los Mochis, México, March, 13-15, 2018.

Publications

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Synthesis of Pt Nanoparticles in Water-in-Oil Microemulsion: Effect of HCl on Their Surface Structure. *J. Am. Chem. Soc.* (2014), 136, 1280–1283

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Synthesis and Electrocatalytic Properties of H₂SO₄-Induced (100) Pt Nanoparticles Prepared in Water-in-Oil Microemulsion. *Chem.Phys.Chem*, 15 (2014) 1997-2001.

Martínez-Rodríguez R.A.; Vidal-Iglesias F.J.; Solla-Gullón J.; Cabrera C.R. and Feliu J.M., Electrochemical Characterisation of Platinum Nanoparticles Prepared in a Water-in-Oil Microemulsion in the Presence of Different Modifiers and Metal Precursors *ChemElectroChem* (2016) 3, (10), 1601-1608.

Collaborations

Acevedo, R., Poventud-Estrada, C.M., Morales-Navas, C., Martínez Rodríguez R.A. Quiles-Ortiz E., Vidal-Iglesias F.J.; Solla-Gullón J.; Nicolau E.; Feliu J.M. Echegoyen L.; Cabrera C.R. Chronoamperometric Study of Ammonia Oxidation in a Direct Ammonia Alkaline Fuel Cell under the Influence of Microgravity, *Microgravity Sci. Technol.* (2017) 29: 253.