Carlos R. Cabrera

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Education

June 1987	Ph.D. in Analytical Chemistry (Photoelectrochemistry), Cornell University, Ithaca, New York. Advisor: Professor Héctor D. Abruña. Thesis: Synthesis and Photoelectrochemistry of Polycrystalline Thin Films of Transition Metal Dichalcogenides.
July 1982	B.S. in Chemistry (*magna cum laude*), Undergraduate Research in Environmental Chemistry, University of Puerto Rico, San Juan, Puerto Rico

Professional Experience

July/2013	Visiting Faculty, DOE-Brookhaven National Laboratory, Upton, NY
June-August/2012	Visiting Faculty, DOE-Brookhaven National Laboratory, Upton, NY
Jan/2012-Present	Interim Scientific Director, UPR Molecular Sciences Research Building
Oct/2010-Present	Associate Vice President for Technology, University of Puerto Rico
Oct/2008-Present	Project Director, Center for Advanced Nanoscale Materials (NASA-University Research Center-$5M/UPR-$1M), UPR, (http//nanomat.uprrp.edu)
Jan/2003-Jan/09	Project Director, Center for Nanoscale Materials (NASA-University Research Centers-$6M), University of Puerto Rico, http//nanomat.uprrp.edu.
Jan/2003-Jan/09	Founder and Director, Nanoscopy Facility: Transmission electron microscope (TEM) and focus ion beam (FIB), http://nanoscopy.ifn.upr.edu/
Aug/2000-Aug/01	NASA Administrator's Fellow, Applied RF Technology Branch and Electrochemistry Branch, NASA Glenn Research Center, Cleveland, Ohio
July/1997-Present	Professor, Department of Chemistry, University of Puerto Rico at Río Piedras
Mar/1995-May/99	Associate Director of Puerto Rico EPSCoR Program, University of Puerto Rico.
Mar/1995-Present	Founder and Director, Surface Microscopy and Spectroscopy Facility, Materials Characterization Center, UPR, http://www.mcc.com.pr/mcc/services/sas
July/1992-June/97	Associate Professor, Department of Chemistry, University of Puerto Rico
Jan/1989-June/92	Assistant Professor, Department of Chemistry, University of Puerto Rico
July/1987-Jan/89	Postdoctoral Research Associate under Professor Allen J. Bard, Electrochemistry in Supercritical Fluids, University of Texas at Austin.
June/1984-July/87	Research Assistant under Professor Héctor D. Abruña, Cornell University
Aug/1983-May/84	Teaching Assistant, Analytical Chemistry Laboratory and General Chemistry II Laboratory, Department of Chemistry, Cornell University

Languages

English and Spanish

Honors and Awards

(a) Dean's List, UPR, 1979-81
(b) ACS Analytical Chemistry Student Award, 1981-82
(c) President, ACS, UPR-Rio Piedras Student Chapter, 1981-82
(d) Scholarly Productivity Award (SPA)-EPSCoR, UPR:(8/9) 1989-2001
(e) President, ACS, Puerto Rico Chapter, 1996
(f) Excellence in Teaching and Productivity, UPR, 1998
(g) NASA Administrator's Fellowship Program, 2000-2001
(h) University of Puerto Rico Presidents Research Award 2000
(i) Member of the Nanotechnology Technical Advisory Group (TAG) of the President's Council of Advisors on Science and Technology, 2003-2005, 2007-2008.
(j) Professor-Researcher of the year 2007, UPR Chemistry Graduate Student Society.
(k) Igaravidez Research Award, Puerto Rico Section, American Chemical Society, 2010.

Professional Society

American Chemical Society, Electrochemical Society, International Society of Electrochemistry, Materials Research Society, AAAS

Courses Taught

A. Graduate Courses

1. Techniques in Surface Analysis
2. Electrochemistry
3. Instrumental Methods of Analysis
4. Theory of Analytical Chemistry
5. Fuel Cells: Theory and Applications
   (Videoconference between two UPR campuses and University of Alabama)
6. Nanotechnology

B. Undergraduate Courses

1. Instrumental Methods of Analysis
2. Laboratory of Instrumental Methods of Analysis
3. Laboratory of Analytical Chemistry
4. General Chemistry

Workshops and Panel Reviews since 2012

1. SBIR/STTR Grant Writing Workshop, March 16, 2012. Puerto Rico Small Business & Technology Centers.
2. SunShot- U.S. Department of Energy, Workshop on Thermochemical Energy Storage for Concentrating Solar Power, Washington, DC, January 8, 2013 (Invited)
3. NSF- Chemical Measurement and Imaging (CMI) EC/SENSR panel review, Virtual-Webex, February 12 and 13, 2013. (Invited)
4. SunShot- U.S. Department of Energy Merit Panel Reviewer for the Concentrating Solar Power (CSP):ELEMENTS Program, September 25 and 26, 2013. (Invited)

Past Funded Research Grants (Since 2000)

1. DOD-EPSCoR ($483,333), "Custom Design of CO-Tolerant Catalysts for Direct Methanol Fuel Cell by Subnanostructuring", Carlos R. Cabrera (PI) and three Co-PIs. 2000-03. Funded. This project is geared toward the design and synthesis of nanocatalyst for methanol oxidation, with application to direct methanol fuel cells.
2. Army Research Laboratory - Collaborative Technical Alliance, sub-contract, ($982,674), "Methanol Fuel Cell Anode Development". (Co-PI with 2 others.). 2001-2009. Funded. This project is a collaborative effort in fuel cells between UPR, Illinois Institute of Technology, Penn State University, University of New Mexico, Motorola, Case Western Reserve University, and Honeywell. The project is on the testing, in real fuel cells, of the catalyst that have been developed at UPR laboratories.
3. NASA-Glenn Research Center "Self-Assembly of Carbon Nanotubes on Pt and Si Electrodes"(NAG3-2769)($24,947, 2002-03), PI.
4. NASA-Glenn Research Center "Training Excellence on Nanotechnology Education and Research (TENER)"($99,811, 2002-2003), PI.
5. NASA-University Research Center, "Center for Nanoscale Materials" ($6M, 2002-2007), PD and 9 co-PIs.
6. NSF-MRI: Acquisition of an Atomic Force Microscope Nanolithography DPN 5000 System, National Science Foundation, DMR, $243,600, 3 years, C. R. Cabrera (Co-PI), L. F. Fonseca, R. Furlan, G. Morell, L. G. Rosa (PI), N. Sepúlveda, and J. Vedrine. October 2009-2012.

Current and Pending Research Grants

7. NASA-URC, "Center for Advanced Nanoscale Materials" ($5.0M-NASA + 1.5M-UPR, 2008-2013, Non-Cost Extension May 2014), PD and 12 co-PIs. Funded.
8. NSF-Chemistry: Label-Free Electrochemical Capacitance DNA Sensing with Passive Wireless Radio Frequency Identification Sensor Technology, $360,000, 3 years, C.R. Cabrera (PI) and Yi Jia (Co-PI), August 15, 2012- August 14, 2015, Funded.
9. NSF-NSEC- UMASS-Center for Hierarchical Manufacturing, Subaward: $450,000, April 1, 2011-March 30, 2016, Funded
10. NASA-Announcement of Flight Opportunities, "Microgravity effects of nanoscale mixing on diffusion limited processes using electrochemical electrodes", PI and Michael Flynn (NASA-ARC) (Co-PI), September 2012, Funded.
11. NASA-Ames Research Center: The development of an ammonia electrochemical removal system (EAR) for water reclamation applications, $60,000, Oct. 1, 2012-Sept. 30, 2014, Funded.
12. NASA- Planetary Instrument Concepts for the Advancement of Solar System Observations (PICASSO), Development of an Unlabelled Real-time Impedimetric Polymerase Chain Reaction (PCR) Microchip for Astronauts Health Monitoring Applications, PI with one Co-PI. $800,000, March 2014-Feb. 2017. Pending

Thesis Advisor- Current Position

(Graduated 20 Ph.D. and 8 M.S.)

1. Dr. Yolanda Santiago, Hispanic US Citizen, HP, Corvalis, Oregon
2. Dr. Raúl J. Castro, Hispanic US Citizen, Professor, UPR at Cayey, PR.
3. Dr. Héctor De Jesús, , Hispanic US Citizen, Professor, UPR at Bayamon, PR.
4. Dr. María E. Rosa-Montañez, , Hispanic US Citizen, Pharmaceutical Industry, PR.
5. Dr. Estevão Rosim Fachini, Assistant Professor, UPR at Rio Piedras, PR.
6. Dr. Rolando Tremont (MS and Ph.D.), Profesor, UPR at Humacao, PR.
7. Dr. Angel Morales (MS and Ph.D.), Hispanic US Citizen, Professor, UPRRP, PR.
8. Dr. Rosa Brito, Professor, Interamerican University-Metro, PR.
9. Dr. Tatiana Morante-Catacora, Academic Position, Denmark.
10. Dr. Belinda Rosario-Castro, Hispanic US Citizen, Professor, UPR at Humacao, PR.
11. Dr. Germarie Sanchez-Pomales, Hispanic US Citizen, FDA, Missouri.
12. Dr. Lenibel Santiago-Rodríguez, Hispanic US Citizen, EPA, Georgia
13. Dr. Ileana González-González, Hispanic US Citizen, NASA Glenn Research Center
14. Dr. Joel Rivera-Gandia, Hispanic US Citizen, Scientists, Amgen, Juncos, PR
15. Dr. Lyda La Torre (MS and Ph.D.), Faculty, University of Peru, Peru
16. Dr. Eduardo Nicolau, Hispanic US Citizen, Postdoc., NASA-Ames Research Center
17. Dr. Lisandra Arroyo-Ramírez, Hispanic US Citizen, Post-Doctoral, University of Pennsylvania.
18. Dr. Diana Santiago, Hispanic US Citizen, Scientist, NASA-Glenn Research Center, OH
19. Dr. Enid Contés-de Jesús, Hispanic US Citizen, Scientist, NASA-Ames Research Center, CA
20. Dr. Rolando Guzmán-Blas (Chemical Physics), Postdoctoral Researcher UPR.
21. Dr. Lisandro Cunci, Postdoctoral Researcher UPR.
22. Idalia Rivera(MS), Hispanic US Citizen, Pharmaceutical Industry, PR.
23. Jorge García Orozco (MS), Hispanic US Citizen, HP, Aguadilla, PR.
24. Hugo Bolivar (MS), Pharmaceutical Industry, San Juan, PR.
25. Ramonita Diaz-Ayala (MS), Hispanic US Citizen, Pursuing Ph.D. at UPR-Mayagüez
26. Dámaris Suazo (MS), Hispanic US Citizen, Pursuing her Ph.D. in my laboratory

Current Graduate Students and Expected Graduation Date

1. Ileana Feliciano, Hispanic US Citizen May. 2014-Ph.D.
2. Christian Menéndez, Spanish Citizen, May 2014-Ph.D.
3. Damaris Suazo, Hispanic US Citizen, May 2014-Ph.D.
4. Yaritza Hernández, Hispanic US Citizen, May 2014-Ph.D.
5. Edwin Ortiz-Quiles, Hispanic US Citizen, May 2014-Ph.D.
6. Carlos Poventud (Chemical Physics), Hispanic US Citizen, May 2014-Ph.D.
7. Amal Suleiman, Hispanic US Citizen, May 2015-Ph.D.
8. Roberto Martinez, Hispanic US Citizen, May 2015-Ph.D.
9. Raul Acevedo (Physics), Hispanic US Citizen, May 2016 - Ph.D.
10. Myreisa Morales Cruz, Hispanic US Citizen, May 2016-Ph.D.
11. Nadja Solis, Hispanic US Citizen, May 2016- Ph.D.
12. Luis Betancourt, Hispanic US Citizen, 2017 – Ph.D.
13. Diana Coral Diaz, Hispanic US Citizen, 2017 – Ph.D.
14. Juan Corchado, Hispanic US Citizen, 2017 – Ph.D.
15. Keyla Soto, Environmental Science, Hispanic US Citizen, 2017 – Ph.D.
16. Carlos A. Vélez, Hispanic US Citizen, 2017 – Ph.D.

Postgraduate-Scholars Sponsored and Current Position

Dr. André Morneau, Pharmaceutical Company, Puerto Rico
Dr. A. Manivannan, DOE, West Virginia
Dr. Guangli Che, Fuel Cell Company, USA
Dr. Takashi Ohmori, Academia, Japan
Dr. Ying Wang, Fuel Cell Company, MTI, USA
Dr. Yimin Zhu, Fuel Cell Company, Los Alamos, USA
Dr. Felipe Rodríguez-Nieto, Universidad de la Plata, Argentina
Dr. Donald A. Tryk, Yamanashi University, Japan
Dr. M. Aulice Scibioh, North Carolina State University, USA
Dr. Ileana González-González, Assistant Professor at University of Turabo, Gurabo, PR
Dr. Eduardo Nicolau, Joint Postdoctoral with NASA-Ames Research Center

Synergistic Activities

1. Project Director of the Center for Advanced Nanoscale Materials (http://nanomat.uprrp.edu/), a $11M NASA-University Research Center funded program. The Center is currently in its second 5-year cycle that started in October 2008. Fourteen Faculties from the Departments of Chemistry, Physics, and Chemical Engineering from three different University of Puerto Rico (UPR) Campuses, Cayey, Mayagüez, and Río Piedras are part of the Center.
2. Founded in 2003 the Nanoscopy Facility (http://nanoscopy.ifn.upr.edu/) at UPR and was under his supervision until January 2009 when UPR hired an Electron Microscopist.
3. Founder of the Materials Characterization Center (http://www.mcc.com.pr/) and the Surface Microscopy and Spectroscopy Facility (http://www.mcc.com.pr/mcc/services/sas).
4. Presentations at Middle and High Schools in Puerto Rico. These activities are coordinated through the local NSF-Alliance for Minority Participation program. Through the years, Dr. Cabrera's laboratory has had high school students and teachers doing research during the summers.
5. Organized the Nano Summer Camp since 2004 that is sponsored by the Center for Advanced Nanoscale Materials (a NASA-University Research Center). Twelve High School teachers and students (2 teachers and 10 students) participate in this activity every year. They work for 6 weeks in research laboratories at UPR-Rio Piedras, Mayagüez, and Cayey Campuses.
6. Regular reviewer for scientific journals such as Langmuir, Journal of Electroanalytical Chemistry, Nanoletters, Analytical Chemistry, J. Electrochemical Society, J. American Chemical Society, J. Chemical Education, Surface Science, and Applied Surface Science.
7. National Science Foundation continuously uses Dr. Cabrera as a mail and panel reviewer.
8. Science Foundations from Argentina, Chile, Israel, and Poland have used Dr. Cabrera as a mail and/or panel reviewer.
9. Member of the American Chemical Society, Electrochemical Society, and Materials Research Society.
10. Organizing committees of local and international meetings.

Collaborators

Dr. Héctor D. Abruña, Cornell University
Dr. Luis Echegoyen, University of Texas at El Paso
Mr. Michael Flynn and Dr. Jing Li, NASA Ames Research Center
Dr. Zhongfang Chen, UPR
Dr. Miguel José-Yacamán, Department of Physics and Astronomy, University of Texas at San Antonio

Dr. Michael Meador and Dr. Félix Miranda, NASA Glenn Research Center
Dr. Bryan Coughlin and Dr. James Watkins, University of Massachusetts at Amherst
Dr. Yi Jia, University of Puerto Rico at Mayagüez.
Dr. Dario J. Stacchiola and Dr. Kotaro Sasaki, DOE-Brookhaven National Laboratory

Graduate and Postdoctoral Advisors

Dr. Héctor D. Abruña, Cornell University, Ph.D. Advisor
Dr. Allen J. Bard, University of Texas at Austin, Post-Doctoral Advisor

Editorial Review Board/Associate Editor

1. Research Letters in Nanotechnology (2007-2009, merged with Journal of Nanotechnology)
2. Journal of Nano Education (2007- present)
3. Journal of Nanotechnology (2007- present)
4. Journal of Nanotechnology & Advanced Materials (2013- present)

Advisory Board Member

1. NSF-PREM, University of Texas at San Antonio (February 2011- Present)
2. Center for Hierarchical Manufacturing-UMASS (June 2009-Present)
3. INCREASE, Vice-Chair

Publications

1. Cabrera, C. R.; Abruña, H. D., Blocking of Recombination Sites and Photoassisted Hydrogen Evolution at Surface-Modified Polycrystalline Thin-Films of p-WSe_2. *Journal of Physical Chemistry* **1985,** 89, (7), 1279-1285.
2. Wilcox, C. F.; Weber, K. A.; Abruna, H. D.; Cabrera, C. R., Electrochemical Reduction of Cyclooctabiphenylene and Cyclodecabiphenylene - An Improved Empirical-Model for the Prediction of reduction Potentials of Polycyclic Aromatic-Hydrocarbons. *Journal of Electroanalytical Chemistry* **1986,** 198, (1), 99-105.
3. Cabrera, C. R.; Abruña, H. D., Electrocatalysis of CO_2 Reduction at Surface Modified Metallic and Semiconducting Electrodes. *Journal of Electroanalytical Chemistry* **1986,** 209, (1), 101-107.
4. Cabrera, C. R.; Abruña, H. D.; Simko, S.; Murray, R. W., Synthesis, Surface Characterization and Photoelectrochemical Studies of Polycrystalline Thin-Films of p-WSe_2 with added Ca and Mg. *Solar Energy Materials* **1987,** 15, (4), 277-291.
5. Cabrera, C. R.; Abruña, H. D., Photoelectrochemistry and Catalysis at Surface Modified Polycrystalline Thin-Films of Transition-Metal Dichalcogenides. *Journal of the Electrochemical Society* **1987,** 134, (8B), C462-C462.
6. Cabrera, C. R.; Abruña, H. D., Synthesis and Photoelectrochemistry of Polycrystalline Thin-Films of p-WSe_2, p-WS_2, and p-$MoSe_2$. *Journal of the Electrochemical Society* **1988,** 135, (6), 1436-1442.
7. Cabrera, C. R.; Garcia, E.; Bard, A. J., Elecrtochemistry in Near-Critical and Supercritical Fluids.7. SO_2. *Journal of Electroanalytical Chemistry* **1989,** 260, (2), 457-460.
8. Cabrera, C. R.; Bard, A. J., Elecrochemistry in Near-Critical and Supercritical Fluids.8. Methyl Viologen, Decamethylferrocene, and Ferrocene in Acetonitrile and the Effect of Pressure on Diffusion-Coefficients under Supercritical Conditions. *Journal of Electroanalytical Chemistry* **1989,** 273, (1-2), 147-160.
9. Castro, R. J.; Cabrera, C. R., Photoelectrochemsitry and Surface Studies of Copper Interaction with Rough Surfaces of p-$MoSe_2$. *Journal of the Electrochemical Society* **1992,** 139, (12), 3385-3390.
10. Rivera, I. M.; Cabrera, C. R., Mass Measuremetn of Ferrocene Adsoprtion at Gold Films with the Elecrochemical Quartz Crystal Microbalance. *Journal of the Electrochemical Society* **1993,** 140, (3), L36-L38.
11. Manivannan, A.; Cabrera, C. R., Surface Morphology of a Mechanically Pressed Polycrystalline Silver Wire Studied by Scanning Tunneling Microscopy. *Applied Surface Science* **1993,** 72, (4), 435-439.
12. Santiago, Y.; Cabrera, C. R., Surface Anaysis and Electrochemistry of MoS_2 Thin Films Prepared by Intercalation-Exfoliation Techniques. *Journal of the Electrochemical Society* **1994,** 141, (3), 629-635.
13. Manivannan, A.; Santiago, Y.; Cabrera, C. R., Scanning-Tunneling Microscopy and Spectroscopy of MoS_2 Thin-Films Prepared by an Intercalation-Exfoliation Method. *Journal of Vacuum Science & Technology B* **1994,** 12, (3), 2111-2114.
14. Morneau, A.; Manivannan, A.; Cabrera, C. R., Osmium Carbonyl Cluster Growth on Self-Assembled (3-Mercaptopropyl)Trimethoxysilane on a Gold Surface. *Langmuir* **1994,** 10, (11), 3940-3942.
15. Castro, R. J.; Cabrera, C. R., Silver Photoelectrodeposition at p-$MoSe_2$. *Langmuir* **1995,** 11, (4), 1375-1380.
16. Manivannan, A.; Cabrera, C. R.; Fujishima, A., Characteriation of Exfoliated TaS_2 Thin-Films and The Existence of Charge-Density Waves. *Journal of Vacuum Science & Technology B* **1995,** 13, (3), 1172-1177.
17. Santiago-Ortiz, Y.; Torres, G. I.; Diaz, A.; Cabrera, C. R., Surface-Analysis and Photoelectrochemical Studies of Mixed Polycrystals of p-WSe_2/WS_2. *Journal of the Electrochemical Society* **1995,** 142, (8), 2770-2776.

18. Che, G. G.; Manivannan, A.; Cabrera, C. R., Electrochemically controlled microstructure based on self-assembled thin film of (3-mercaptopropyl) trimethoxysilane at gold electrodes and STM characterization. *Physica A* **1996,** 231, (1-3), 304-316.
19. Che, G. L.; Cabrera, C. R., Molecular recognition based on (3-mercaptopropyl) trimethoxysilane modified gold electrodes. *Journal of Electroanalytical Chemistry* **1996,** 417, (1-2), 155-161.
20. Manivannan, A.; Morneau, A.; Diaz, D. J.; Cabrera, C. R., STM analysis of triosmium carbonyl cluster adsorption at HOPG. *Surface Science* **1996,** 350, (1-3), 239-246.
21. Rosa-Montanez, M. E.; DeJesusCardona, H.; Cabrera, C. R., Experimental setup for the study of oxygen- and water-sensitive electrochemical systems. *Electrochimica Acta* **1997,** 42, (12), 1839-1846.
22. Castro, R. J.; Cabrera, C. R., Photovoltammetry and surface analysis of MoSe2 thin films prepared by an intercalation-exfoliation method. *Journal of the Electrochemical Society* **1997,** 144, (9), 3135-3140.
23. Ohmori, T.; Cabrera, C. R., Electrode potential-dependent acceptor images in p-MoSe2 observed by electrochemical scanning tunneling microscopy. *Langmuir* **1998,** 14, (14), 3723-3726.
24. Che, G. L.; Li, Z. L.; Zhang, H. Q.; Cabrera, C. R., Voltammetry of defect sites at a self-assembled monolayer on a gold surface. *Journal of Electroanalytical Chemistry* **1998,** 453, (1-2), 9-17.
25. Salgado, L.; Sanchez, H.; Cabrera, C. R.; Castro, R. J.; Meas, Y., Underpotential deposition of Cu on partially oxidized Rh electrodes. *Journal of Solid State Electrochemistry* **1998,** 2, (6), 405-412.
26. Ohmori, T.; Castro, R. J.; Cabrera, C. R., Surface modification of MoSe2 in solution using a combined technique of scanning tunneling microscopy indentation with electrochemical etching. *Langmuir* **1998,** 14, (21), 6287-6290.
27. Ohmori, T.; Castro, R. J.; Cabrera, C. R., In situ study of silver electrodeposition at MoSe2 by electrochemical scanning tunneling microscopy. *Langmuir* **1998,** 14, (23), 6755-6760.
28. Rosa-Montanez, M. E.; De Jesus-Cardona, H.; Cabrera-Martinez, C. R., Airtight in situ thin-layer reflection-absorption FT-IR microspectroelectrochemical cell for the study of nonaqueous systems. *Analytical Chemistry* **1998,** 70, (5), 1007-1011.
29. Colucci-Ríos, J.A.; Hernández, R.; Saliceti-Piazza, L.; Cabrera, C.R.; Orengo, A.; Gerena, E. "Fuel Cell Applications in Puerto Rico: An Environmentally Friendly Technology", *DIMENSION* **1998**, 12(1), 8.
30. Fachini, E. R.; Cabrera, C. R., Adsorption and decomposition of Ru-3(CO)(9)(CH3CN)(3) at platinum surfaces: An X-ray photoelectron spectroscopy and Fourier transform-infrared spectroscopy study. *Langmuir* **1999,** 15, (3), 717-721.
31. Diaz, D. J.; Castro, R. J.; Cabrera, C. R., Oxide mediated interaction of Os-3(CO)(11)(NCCH3) at photoelectrochemically oxidized surfaces of MoS2: an STM and XPS study. *Applied Surface Science* **1999,** 141, (1-2), 148-156.
32. Zhang, H. Q.; Wang, Y.; Fachini, E. R.; Cabrera, C. R., Electrochemically codeposited platinum molybdenum oxide electrode for catalytic oxidation of methanol in acid solution. *Electrochemical and Solid State Letters* **1999,** 2, (9), 437-439.
33. Blasini, D.; Castro, R.J.; Cabrera, C.; Batina, N.; González, I., "Study of The (3-Mercaptopropyl)trimethoxysilane Self-Assembly on Iodine Coated Gold Electrodes" Proceedings of the International Symposium on New Directions in Electroanalytical Chemistry II, Electrochemical Society Proceedings, **1999**, 247.
34. Liao, M. S.; Cabrera, C. R.; Ishikawa, Y., A theoretical study of CO adsorption on Pt, Ru and Pt-M (M = Ru, Sn, Ge) clusters. *Surface Science* **2000,** 445, (2-3), 267-282.
35. Binning, R. C.; Liao, M. S.; Cabrera, C. R.; Ishikawa, Y.; Iddir, H.; Liu, R. X.; Smotkin, E. S.; Aldykiewicz, A. J.; Myers, D. J., Density functional calculations on CO attached to PtnRu(10-n) (n=6-10) clusters. *International Journal of Quantum Chemistry* **2000,** 77, (2), 589-598.

36. Pérez-Davis, E.; Kohout, L.L.; Loyselle, P.L.; Manzo, M.A.; Burke, K.A.; Hoberecht, M.A.; Cabrera, C.R., "Energy Storage for Aerospace Applications", *36th Intersociety Energy Conversion and Engineering Conference Proceedings* **2001**.
37. Cabrera, C. R.; Tremont, R.; Blasini, D.; Morales, A.; Mueller, C. H.; Warner, J. D.; Miranda, F. A.; Guo, L. J.; Singh, J., Ferroelectric charge injection MOSFET devices. *Integrated Ferroelectrics* **2001,** 38, (1-4), 913-921.
38. Wang, Y.; Fachini, E. R.; Cruz, G.; Zhu, Y.; Ishikawa, Y.; Colucci, J. A.; Cabrera, C. R., Effect of surface composition of electrochemically codeposited platinum/molybdenum oxide on methanol oxidation. *Journal of the Electrochemical Society* **2001,** 148, (3), C222-C226.
39. Zhu, Y. M.; Cabrera, C. R., Methanol oxidation at the electrochemical codeposited Pt-Os composite electrode. *Electrochemical and Solid State Letters* **2001,** 4, (4), A45-A48.
40. De Jesus-Cardona, H.; del Moral, C.; Cabrera, C. R., Voltammetric study of CO2 reduction at Cu electrodes under different KHCO3 concentrations, temperatures and CO2 pressures. *Journal of Electroanalytical Chemistry* **2001,** 513, (1), 45-51.
41. Cabrera, C.R.; Warner, J.D.; Mueller, C.H.; Van Keuls, F.; Miranda, F.A.; Tremont, R.; Blasini, D.; Morales, A. "Self-Assembled 3-Mercaptopropyltrimethoxysilane (MPS) on $Ba_{0.5}Sr_{0.5}TiO_3$ as an Adhesion Layer for Microwave Devices", *Materials Research Society (MRS) Proceedings*, **2001**, 666, F9.1/1-F9.1/6.
42. Brito, R.; Rodriguez, V. A.; Figueroa, J.; Cabrera, C. R., Adsorption of 3-mercaptopropyltrimethoxysilane and 3-aminopropyltrimethoxysilane at platinum electrodes. *Journal of Electroanalytical Chemistry* **2002,** 520, (1-2), 47-52.
43. Tremont, R.; Cabrera, C. R., Electrochemical and surface analysis study of copper corrosion protection by 1-propanethiol and propyltrimethoxysilane: A comparison with 3-mercaptopropyltrimethoxysilane. *Journal of Applied Electrochemistry* **2002,** 32, (7), 783-793.
44. Ishikawa, Y.; Liao, M. S.; Cabrera, C. R., Energetics of H2O dissociation and COads+OHads reaction on a series of Pt-M mixed metal clusters: a relativistic density-functional study. *Surface Science* **2002,** 513, (1), 98-110.
45. Blasini, D. R.; Tremont, R. J.; Batina, N.; Gonzalez, I.; Cabrera, C. R., Self-assembly of (3-mercaptopropyl)trimethoxysilane on iodine coated gold electrodes. *Journal of Electroanalytical Chemistry* **2003,** 540, 45-52.
46. Brito, R.; Tremont, R.; Feliciano, O.; Cabrera, C. R., Chemical derivatization of self-assembled 3-mercaptopropionic and 16-mercaptohexadecanoic acids at platinum surfaces with 3-aminopropyltrimethoxysilane: a spectroscopic and electrochemical study. *Journal of Electroanalytical Chemistry* **2003,** 540, 53-59.
47. Sosa, E.; Cabrera-Sierra, R.; Oropeza, M. T.; Hernandez, F.; Casillas, N.; Tremont, R.; Cabrera, C.; Gonzalez, I., Electrochemically grown passive films on carbon steel (SAE 1018) in alkaline sour medium. *Electrochimica Acta* **2003,** 48, (12), 1665-1674.
48. Medina, J. R.; Cruz, G.; Cabrera, C. R.; Soderquist, J. A., New direct B-11 NMR-based analysis of organoboranes through their potassium borohydrides. *Journal of Organic Chemistry* **2003,** 68, (12), 4631-4642.
49. Tremont, R. J.; Blasini, D. R.; Cabrera, C. R., Controlled self-assembly of mercapto and silane terminated molecules at Cu surfaces. *Journal of Electroanalytical Chemistry* **2003,** 556, 147-158.
50. Fachini, E. R.; Diaz-Ayala, R.; Casado-Rivera, E.; File, S.; Cabrera, C. R., Surface coordination of ruthenium clusters on platinum nanoparticles for methanol oxidation catalysts. *Langmuir* **2003,** 19, (21), 8986-8993.
51. Tremont, R. J.; Cruz, G.; Cabrera, C. R., Pt electrodeposition on a copper surface modified with 3-mercaptopropyltrimethoxysilane and 1-propanethiol. *Journal of Electroanalytical Chemistry* **2003,** 558, 65-74.

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150. Zhou, Y.; Menéndez; C.L.; Guinel, M.J.; Needels; E.C.; González-González, I.; Jackson, D.; Lawrence, N.J.; Cabrera, C.R.; Ph.D.; Cheung, C.L., "Influence of nanostructured ceria support on platinum nanoparticles for alkaline methanol Electrooxidation", *RCS Advances* **2014**, *4 (3)*, 1270-1275.
151. Nicolau, E.; Fonseca, J.; Rodríguez-Martínez, J.; Richardson, Tra-My; Flynn, M.; Griebenow, K.; Cabrera, C.R.**,** "Evaluation of an externally interfaced forward osmosis and bio-electrochemical system for energy recovery and wastewater reclamation", *ACS Sustainable Chemistry & Engineering* **2014,** in press.
152. Cunci, Lisandro; Vélez, Carlos A.; Pérez, Ivan; Suleiman, Amal; Larios, Eduardo; Jose-Yacaman, Miguel; Watkins, James J.; Cabrera, Carlos R., "Platinum Electrodeposition at Unsupported Electrochemically Reduced Nanographene Oxide for Ammonia Oxidation", *ACS Materials and Interfaces*, **2014,** in press.
153. Ortiz-Quiles, E.; Soler, J.; Gobet, M.; Nosach, T.; García-Ricard, O.; Hernandez-Maldonado, A.; Greenbaum, S.; West, W.; Cabrera, C.R.**,** "LiCl Molten Flux Synthesis of Layered-Layered Composite Li_2MnO_3- $LiMO_2$ (M= Mn, Ni, Co) Li-ion Battery Cathode Materials"**,** *RCS Advances* **2014**, in press.
154. Martínez-Rodríguez, Roberto; Vidal-Iglesias, Francisco; Solla-Gullon, Jose; Cabrera, Carlos; Feliu, Juan, "Synthesis of Pt nanoparticles in water-in-oil microemulsion: on the effect of HCl on their surface structure", *J. Am. Chem. Soc.* **2014**, in press**.**
155. Díaz Ayala, R.; Arroyo-Ramírez, L.; Raptis, RG, Cabrera, CR, "Thermal and Surface Analysis of Palladium Pyrazolate Molecular Precursors", *Journal of Thermal Analysis and Calorimetry*, **2014** in press.
156. Contés-de Jesús, E.; Cabrera, C.R.; Li, J. "Methane Detection at Room Temperature Under Humid Conditions Using Carbon Nanotubes Decorated with Platinum Nanoparticles", *Sensors & Actuators: B. Chemical*, **2014** submitted.
157. Jing, Yu; Ortiz-Quiles, Edwin O.; Cabrera, Carlos; Chen, Zhongfang; Zhou, Zhen**, "**Layer-by-Layer Hybrids of MoS_2 and Reduced Graphene Oxide for Lithium Ion Batteries", *ACS Materials and Interfaces*, **2014,** submitted.

Book and Book Chapters

1. **"Espectroscopía del Fotoelectrón de Rayos X: Aplicaciones en la Electroquímica"** in Electroquímica y Electrocatálisis: Volumen IIa: Técnicas de investigación aplicada a sistemas

electroquímicos: *in situ* y *ex situ* (A Chapter on XPS in Electrochemistry with over 90 references). Chapter 16, 220-277. Edited by Professor Nicolás Alonso-Vante**.** www.e-libro.net, **2003**.

2. **"A theory-guided design of bimetallic nanoparticle catalysts for fuel cell applications"**, Y. Ishikawa, M.-S. Liao, C. R. Cabrera, in "Computational Material Sciences, 15" volume of Theoretical and Computational Chemistry Series, Ed. Jerzy Leszczynski, Elsevier Science, **2004**.
3. **"Fuel Cells: A Tool for Nanotechnology Education"**, Donald A. Tryk and Carlos R. Cabrera, Chapter in **Nanoscale Science and Engineering Education,** Eds. Aldrin E. Sweeney and Sudipta Sea, ISBN: 1-58883-085-3, **2008**.
4. **"DNA-Wrapped Carbon Nanotubes: From Synthesis to Applications",** G. Sánchez-Pomales, C. Pagán-Miranda, L. Santiago-Rodríguez, and Carlos R. Cabrera, Carbon Nanotubes, ISBN 978-953-307-054-4, Edited by: J. M. Marulanda, Publisher: InTech, **2010**.
5. **"A urea bioprobe based on platinized boron-doped diamond electrodes: A possible aid for the early diagnosis of renal diseases"**, J. J. Fonseca-Vega, E. Nicolau and C. R. Cabrera, Ed. R.J. Tremont, Recent Advances in Electrochemical Research, ISBN: 978-81-7895-545-2, Transworld Research Network, **2012**.
6. **"Advanced Nanomaterials for Aerospace Applications",** Carlos R. Cabrera, Editor, and Félix A. Miranda, Co-Editor. Submitted, Pan Stanford Publishing **Summer 2014**. Under Galley Proofs Revisions.
7. **"Latest Advances in Modified/Functionalized Carbon Nanotube-based Gas Sensors**", Enid Contés-de Jesús, Jing Li, and Carlos R. Cabrera, "Syntheses and Applications of Carbon Nanotubes and Their Composites", ISBN 978-953-51-1125-2. *DOI: 10.5772/52173*, *Editor Satoru Suzuki, Chapter 15, May, 2013. Over 1000 Downloads (Sept. 8, 2013).*

Patents

1. Provisional Patent Application 61/529,633, "Externally interfaced urea electrochemical bioreactor at forward osmosis/reverse osmosis subsystem for energy and waste recovery in water recycling".
2. Provisional Patent Application 61/471,776, "Preparation and Electrochemistry of Boron Doped Diamond Nanoparticle on Glassy Carbon Electrodes".

Presentations

1. "Photoelectrochemistry of Polycrystalline Thin Films of p-WSe_2", **July 1985**, Department of Chemistry, **Cornell University**.
2. "Photoelectrochemistry and Catalysis with Polycrystalline Thin Films of Transition Metal Dichalcogenide", **Feb. 1988**, Department of Chemistry, **University of Puerto Rico**, Río Piedras (invited)
3. "Photoelectrochemistry and Catalysis with Polycrystalline Thin Films of Transition Metal Dichalcogenides", **Feb. 1988**, Department of Chemistry, University of Puerto Rico, Mayagüez (invited)
4. "Electrochemistry in Near-Critical and Supercritical Acetonitrile", **Nov. 1988**, Department of Chemistry, **University of Toledo**, Toledo, Ohio. (invited)
5. "Electrochemistry in Near-Critical and Supercritical Acetonitrile and SO_2", **March 1989**, Department of Physics, **University of Puerto Rico**, Río Piedras, P.R.
6. "Photointercalation and Photoelectrochemistry with Polycrystalline Thin Films of Transition Metal Dichalcogenides of Group IV and Mixed Dichalcogenides of Group VI", **September 22-23, 1989**, Second Puerto Rico EPSCoR Annual Conference, San Juan, P.R.

7. "Photoelectrochemistry and Photoelectrocatalysis: Source of Energy", **March 1990**, **Cayey University College**, UPR, Cayey, P.R. (invited)
8. "Photoelectrochemistry and Intercalation with Transition Metal Dichalcogenides", **September 28-29,1990**, Third Puerto Rico EPSCoR Annual Conference, Mayaguez, P.R.
9. "Photoelectrochemistry and Intercalation with Transition Metal Dichalcogenides", **December 1990**, ACS Senior Technical Meeting, UPR, Río Piedras, P.R.
10. "Photoelectrochemistry and Intercalation with p-WS_2/WSe_2 and n-$MoSe_2$", **Jan. 1991**, Gordon Conference on Electrochemistry, Ventura, CA.(Poster).
11. "Photoelectrochemistry and Intercalation with p-WS_2/WSe_2 and n-$MoSe_2$", **May 1991**, Electrochemical Society Meeting, Washington, D.C.(invited)
12. "Spectroscopic and Electrochemical Studies of Pt(terpy)Cl^+", **August, 1991**, 202nd ACS National Meeting, New York, N.Y..
13. "Photoelectrochemical and Surface Studies of Copper Electrodeposition at n-$MoSe_2$", **Sept. 1991**, 2nd Pan American Chemical Congress, San Juan, P.R..
14. "Mass Measurements of Adsorption and Underpotential Deposition Processes with the Electrochemical Quartz Crystal Microbalance", **Oct. 1991**, Fourth Puerto Rico EPSCoR Annual Conference, Carolina, P.R.
15. "Mass Measurements of Adsorption and Underpotential Deposition Processes with the Electrochemical Quartz Crystal Microbalance", **November 1991**, 15th Senior Technical Meeting, Ponce, PR.
16. "Mass Measurement of Ferrocene Adsorption at Thin Films of Gold with The Electrochemical Quartz Crystal Microbalance", **August 1992**, Gordon Conference on Physical Electrochemistry, New London, NH.
17. "Synthesis, Surface Analysis, and Photoelectrochemical Properties of p-WSe_2/WS_2", **August 23-28, 1992**, 204th ACS National Meeting, Washington, D.C.
18. "Electrochemical Studies of $Ru_3(CO)_{10}$(bpy)", **August 23-28, 1992**, 204th ACS National Meeting, Washington, D.C.
19. "Photoelectrochemistry and Surface Studies of Thin Films of MoS_2 on Ti", **September 1992**, 43rd Meeting of the International Society of Electrochemistry, Cordoba, Argentina.
20. "Mass Measurement of Ferrocene Adsorption at Gold Films with The Electrochemical Quartz Crystal Microbalance", **October 1992**, Electrochemical Society Meeting, Toronto, Canada.
21. "Photoelectrochemistry and Surface Studies of Thin Films of MoS_2 on Ti", **October 1992**, Electrochemical Society Meeting, Toronto, Canada.
22. "Adsorption Measurements with The Electrochemical Quartz Crystal Microbalance", **October 1992**, **Eastman Kodak**, Rochester, N.Y. (invited)
23. "Adsorption Measurements with the EQCM", **Jan. 1993**, Gordon Research Conference on Electrochemistry, Ventura, CA. (Invited Speaker)
24. "STM of Cluster Modified Surfaces of Au(111) and HOPG", **August 1993**, Gordon Research Conference on Metal and Semiconductor Clusters.
25. "Silver Photoelectrodeposition at p-$MoSe_2$: A Surface Reaction", **September 1993**, 44th International Society of Electrochemistry Meeting (ISE), Berlin, Germany.
26. "Mechanistic Studies on the Electrochemical Reduction of CO_2 at Copper Electrodes at Different Pressures and Temperature", **September 1993**, Progress in Electrocatalysis: Theory and Practice, Ferrara, Italy. (Poster)
27. "CO_2 activation at Cu Surfaces on Piezoelectric Devices", **September 1993**, Progress in Electrocatalysis: Theory and Practice, Ferrara, Italy.(Poster)
28. "STM of Layer Semiconductors and Cluster Modified Surfaces", **November 1993**, 17th Senior Technical Meeting, Humacao, Puerto Rico.

29. "STM Studies of Microcrystalline Osmium Cluster on HOPG Substrate", **March 1994**, 207th ACS National Meeting, San Diego, CA.
30. "Scanning Tunneling Microscopy of Osmium Cluster Modified Gold and Graphite Surfaces", **May 1994**, Sixth Puerto Rico EPSCoR Annual Conference, San Juan, PR.
31. "STM of the Cluster Self-Assembled Triosmium Monolayer on Gold Surface", **March 1994**, 207th ACS National Meeting, San Diego, CA.
32. "Photoelectrochemical Behavior of Mixed Polycrystalline Thin Films of p-WS_xSe_y", **May 1994**, The Electrochemical Society Meeting, San Franscisco, CA.
33. "STM and QCM Studies of Osmium Cluster Modified Thiol/Au and HOPG Surface", **May 1994**, The Electrochemical Society Meeting, San Franscisco, CA.
34. "Surface Analysis Studies of Silver Photoelectrodeposition at p-$MoSe_2$", **August 1994**, 208th ACS National Meeting, Washington, DC.
35. "Mechanistic Studies of CO_2 Reduction at Cu Electrodes at Different Pressures and Temperatures", **November 1994**, 17th Senior Technical Meeting, Aguadilla, PR.
36. "STM of Layered Semiconductors and Cluster Modified Surfaces", **December 1994**, Universidad Autónoma de Madrid, Madrid, Spain. (invited)
37. "Mechanistic Studies of CO_2 Reduction at Cu Electrodes at Different Pressures and Temperatures", **January 1995**, Gordon Research Conference on Electrochemistry, Ventura, CA. (Poster)
38. "Nanometer Defect Prepared by Self-Assembled Monolayer Electrodeposition of (3-Mercaptopropyl)trimethoxysilane (MPS) at Gold Electrodes", **August 1995**, 210th ACS National Meeting, Chicago, Illinois.
39. "Surface Analysis of Triosmium Carbonyl Cluster Modified Surfaces of Au and HOPG", **August 1995**, 210th ACS National Meeting, Chicago, Illinois. (invited)
40. "Surface Analysis and Photoelectrochemistry of $MoSe_2$ Thin Films Prepared by an Intercalation Exfoliation Method", **October 1995**, The Electrochemical Society 188th Meeting, Chicago, Illinois.
41. "A Molecular Recognition System Based on Electrochemically Controlled Self-Assembled Monolayer of MPS on Gold Electrodes", **October 1995**, The Electrochemical Society 188th Meeting, Chicago, Illinois.
42. "Self-Assembled Thin Film of (3-mercaptopropyl)trimethoxysilane at Gold Electrodes", **November 1995**, 19th Senior Technical Meeting, Lajas, Puerto Rico.
43. "Surface Analysis and Voltammetric Studies of the Electroreduction of CO_2 at Copper Electrodes", **March 1996**, XII Congreso Iberoamericano y IX Encuentro Venezolano de Electroquímica, Merida, Venezuela. (invited)
44. "Mixed Metal Cluster Modified Surfaces: Towards the Development of Novel Electrocatalyst", **May 1996**, Eigth Puerto Rico EPSCoR Annual Conference, Ponce, PR.
45. "Mixed Metal Cluster Modified Surfaces: Novel Bifunctional Electrocatalyst for Direct-Methanol Fuel Cells", **May 1996**, ARO Meeting, **Illinois Institute of Technology, Chicago**, Illinois. (invited)
46. "Metal Cluster Modified Surfaces: Towards the Development of Novel Bifunctional Electrodes for Electrocatalysis", **June 1996**, First Spanish/Japanese Conference on Fundamentals and Applications of Molecular Functional Electrodes and Materials, **Universidad Autónoma de Madrid**, Madrid, Spain. (invited)
47. "Surface Analysis of Bifunctional Catalyst used for the Electrocatalytic Oxidation of Methanol", **August 1996**, Electrochemical Surface Science in the International Scene Symposium, 212th ACS National Meeting, Orlando, Florida. (invited)
48. "Espectroscopía del fotoelectrón: Técnica analítica para el análisis de superficies modificadas", **October 1996**, XI Congreso Nacional de Electroquímica, La Sociedad Mexicana de Electroquímica, Jalapa, México. (Invited)

49. "Laminas Delgadas de Dicalcogenuros de Metales de Transicion: Nueva Fase Catalítica", **March 1997**, Instituto de Catálisis y Petroquímica, **Universidad Autónoma de Madrid,** Cantoblanco, Madrid, Spain.
50. "Análisis de Superficies y Electroquímica de 3-Mercaptopropiltrimetoxysilano en Au", **March 1997**, Departamento de Química Analítica e Instrumental, **Universidad Autónoma de Madrid**, Cantoblanco, Madrid, Spain.
51. "Metal Cluster Modified Surfaces: Toward the Development of Novel Catalysts for Methanol-Air Fuel Cells", **July 1997**, New Materials for Fuel Cell and Modern Battery Systems II, Montréal (Québec) Canada.
52. "Análisis de Superficies y Electroquímica de 3-Mercaptopropiltrimetoxysilano en Au", **July 1997**, Departamento de Química Física, **Universidad de Alicante, Alicante, Spain**. (Invited)
53. "Espectroscopía del fotoelectrón: Técnica analítica para el análisis de superficies modificadas", **September 1997**, Department of Chemistry, Pontifical Catholic University of Puerto Rico, Ponce, Puerto Rico. (Invited)
54. "Espectroscopía del fotoelectrón: Técnica analítica para el análisis de superficies modificadas", XX Reunion del Grupo Especializado de Electroquímica, **Septiembre 1997**, IV Reunion Iberica de Electroquimica, **Universidad de Alicante,** Alicante, Spain. (Invited)
55. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **November 1997**, 21st Senior Technical Meeting, La Parguera, Lajas, PR.
56. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **March 1998,** Department of Chemistry, **University of Texas at Austin**, Austin, Texas.
57. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **March 1998,** Department of Chemistry, **University of North Texas**, Denton, Texas.
58. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **March 1998,** Department of Chemistry, **Texas A&M University**, College Station, Texas.
59. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **March 1998,** Department of Chemistry, **University of Houston**, Houston, Texas.
60. "X-ray photoelectron spectroscopy of $Ru_3(CO)_9(CH_3CN)_3$ modified Pt Surfaces", **March 1998**, 215th American Chemical Society, Dallas, Texas.
61. "Surface modification of $MoSe_2$ in solution using a combined technique of STM indentation and electrochemical etching", **March 1998**, 215th ACS, Dallas, Texas.
62. "X-ray Photoelectron Spectroscopy Study of $Ru_3(CO)_9(CH_3CN)_3$ Modified Pt Surfaces: A Method to Prepare Pt/Ru Catalysts", **September 1998**, Mt. Fuji Conference on Molecular and Polymer Based Electrodes, Japan.
63. "Silver Photoelectrodeposition at $MoSe_2$: A Corrosion-Induced Mechanism", **September 1998**, Department of Applied Chemistry, **University of Tokyo**, Japan.
64. "X-ray Photoelectron Spectroscopy of $Ru_3(CO)_9(CH_3CN)_3$ Modified Platinum Electrodes", **September 1998**, 49th ISE Annual Meeting, Kitakyushu, Japan.
65. "In-Situ Electrochemical Scanning Tunneling Microscopy of Silver Electrodeposition at p-$MoSe_2$", **September 1998**, 49th ISE Annual Meeting, Kitakyushu, Japan.
66. "Nanostructuring Electrochemical Interfaces: From Self-Assembled Monolayers to Layered Materials", **October 1998**, Department of Chemistry, **University of Puerto Rico**, Rio Piedras Campus, San Juan, Puerto Rico.
67. "Nanostructuring Electrochemical Interfaces: From Self-Assembled Monolayers to Layered Materials", **October 1998**, Department of Chemistry, **University at Buffalo**, State University of New York (SUNY), Buffalo, New York.
68. "Ru/Pt Surfaces Prepared by the Adsorption and Decomposition of $Ru_3(CO)_9(CH_3CN)_3$ on Pt", **April 1999**, Workshop on Design Catalysts for Fuel Processor/Fuel Cell Systems, Chicago, Illinois.

69. "(3-Mercaptopropyl)trimethoxysilane and Propyltrimethoxysilane as Cu Corrosion Inhibitor in KCl Solution", **May 1999**, 195th Electrochemical Society Meeting, Seattle, Washington.
70. "pH Dependent Controlled Patterning of p-$MoSe_2$ Surfaces by In-Situ Electrochemical Scanning Tunneling Microscopy", **May 1999**, 195th Electrochemical Society Meeting, Seattle, Washington.
71. "Study on The (3-Mercaptopropyl)trimethoxysilane Self-Assembly on Iodine Coated Gold Electrodes", **May 1999**, 195th Electrochemical Society Meeting, Seattle, Washington.
72. "X-ray Photoelectron Spectroscopy of Modified Surfaces", **May 1999**, Argonne National Laboratory, Argonne, Illinois.
73. "The Undergraduate Experience at UPR", Workshop on Minority Ph.D. Development in Chemistry, Gerogia Institute of Technology, Atlanta, Georgia, **June 2-4, 1999**.
74. "Nanostructuring Electrochemical Interfaces", Metropolitan University, San Juan, Puerto Rico, **November, 1999**.
75. "Nanostructuring Electrochemical Interfaces", Lehman College, CUNY, New York, NY, **December, 1999**.
76. "Atomic Force Microscopy", Medical Science Campus, University of Puerto Rico, San Juan, Puerto Rico, **December, 1999**.
77. "Co-Electrodeposition of Pt/MoOx for Methanol Oxidation", Gordon Research Conference on Electrochemistry, Ventura, California, **January 2000**.
78. "Pt/Ru and Pt/MoOx Catalyst for Methanol Oxidation", University of Tokyo, Tokyo, Japan, **March 2000**. (invited)
79. "Pt/Ru and Pt/MoOx Catalyst for Methanol Oxidation", Toyota Central R&D Laboratories, Nagakute, Aichi, Japan, **March 2000**. (invited)
80. "Nanoestructurando superficies de electrodos por Autoensamblaje Molecular", Plenaria, XIV Congreso de la Sociedad Iberoamericana de Electroquimica y XV Congreso de la Sociedad Mexicana de Electroquímica, Oaxaca, México, **May 2000**.
81. "Atomic Force Microscopy", Pfizer, Connecticut, **July 2000**.
82. " Bimetallic Particle Preparation by Coordination Chemistry and Co-Electrodeposition Methods: Its use in methanol oxidation", International Conference on Elementary Processes in Molecule-Metal Surface Interactions, Carolina, Puerto Rico, **November 2000**.
83. "Self-assembled Monolayers with Adhesion Properties", NASA Glenn Research Center, Cleveland, Ohio, **January 2001**.
84. "Polarization Charge Control in a MOS Structure", International Symposium on Integrated Ferroelectrics (ISIF) 2001 Meeting, Colorado Springs, Colorado, **March 11-14, 2001.**
85. "Modeling of Nanoscale Ferroelectric MOSFET Devices", International Symposium on Integrated Ferroelectrics (ISIF) 2001 Meeting, Colorado Springs, Colorado, **March 2001.**
86. "Carbon Nanotubes as a Material for NanoEnergy Storage Concepts", NANOSPACE 2001, **March 2001**, Galvestone, Texas.
87. "Self-Assembled 3-Mercaptopropyltrimethoxysilane (MPS) on $Ba_{0.5}Sr_{0.5}TiO_3$ as an Adhesion Layer for Microwave Devices", MRS Spring Meeting, **April 2001.**
88. "Nanotechnology", **November, 2001**, Universidad Metropolitana, San Juan, PR.
89. "Direct Methanol Fuel Cell Catalysts Prepared by Co-deposition and Coordination Chemistry", University of Kentucky, Lexington, KY, **November, 2001**.
90. "X-ray Photoelectron Spectroscopy in Electrochemistry", **October 2002**, Universidad de Santander, Bucaramanga, Colombia. (invited)
91. "Sequential and Co-Deposition of Pt/Ru on HOPG Substrates: A morphological and electrocatalytic study", International Conference on Elementary Processes in Molecule-Metal Surface Interactions II, **May 2003**, San Juan, Puerto Rico.
92. "Sequential and Co-Deposition of Pt/Ru on HOPG Substrates", Pan-American Advance Study Institute (PASI), **October 2003**, Rio de Janeiro.

93. "Sequential and Co-Deposition of Pt/Ru on HOPG Substrates: A morphological and electrocatalytic Study", Materials Research Society Fall Meeting, **December 2003**, Boston.
94. "Center for Nanoscale Materials", Purdue University, Argonne National Lab., and Kennedy Space Center, **February 2004**.
95. "Center for Nanoscale Materials", NASA-Glenn Research Center, **July 2004**.
96. "Novel Self-Assembly of Nano-to-Microsized Palladium Rings and Tubes, Nanostructured Materials and Nanotechnology, The XIV International Materials Research Congress 2005, Cancún, México. **August 22, 2005**. (invited)
97. "Self-assembled monolayers of DNA-functionalized carbon nanotubes, The XIV International Materials Research Congress 2005, Cancún, México. **August 23, 2005**.
98. "Nanotechnology", Polytechnic University, San Juan Puerto Rico, **September 2005**. (invited)
99. "Nanotechnology in Puerto Rico", 18th EPSCoR National Conference, Rio Grande, PR, **September 2005**. (invited).
100. "Nanotechnology in Puerto Rico", Universidad de La Habana, **April 2006**.
101. "Nanotechnology in Puerto Rico", Universidad de San Carlos de Guatemala, **July 27, 2006**.
102. "Fuel Cells and Nanotechnology", Universidad Javeriana, Bogota, Colombia **Sept. 2006**.
103. "DNA and Carbon Nanotube Self-Assembled Monolayers on Metallic Surfaces: An Electrochemistry and Surface Analysis Study", Federation of Analytical Chemistry & Spectroscopy Societies (FACSS), Orlando, FL, **September 2006**. (invited)
104. "Nanostructuring Electrochemical Interfaces", University of South Florida, Tampa, FL, **September 2006**.
105. Sequential Deposition of Pt-Ru, Pt-Mo, Pt-Ru-Mo at HOPG, Vulcan, and Diamond Films, Electrochemical Society Meeting, Cancun, MX, **October 2006.**
106. Pt deposition on Carbon (Vulcan) using the rotating disk slurry electrode technique, Electrochemistry Gordon Conference (Poster), **January 2007**.
107. "Electrochemical Deposition and Electrocatalysis of Direct Methanol Fuel Cell Catalysts at Different Carbon Support Material", University of South Carolina, **April 2007**
108. "Electrochemical Deposition and Electrocatalysis of Direct Methanol Fuel Cell Catalysts at Different Carbon Support Material", Clemson University, South Carolina, **April 2007**
109. "Nanostruturing Electrochemical Interfaces: Li Ion Batteries, Fuel Cells, and DNA Sensors", Cornell University, **September 2007**
110. "Nanostruturing Electrochemical Interfaces: Li Ion Batteries, Fuel Cells, and DNA Sensors", University of Puerto Rico- Rio Piedras, **September 2007**
111. Lithium Intercalation at Single-Wall Carbon Nanotubes Chemically Attached at Platinum Electrode Surfaces, 212th Meeting, The Electrochemical Society, Washington, DC, **October 2007**
112. Rotating Disk-Slurry Electrode Technique: Electrochemical Preparation of Pt and PtRu Nanoparticles for Direct Methanol Fuel Cell Applications, 212th Meeting, The Electrochemical Society, Washington, DC, **October 2007**
113. Electrochemical Impedance Spectroscopy Detection of Single-Stranded DNA Self-Assembled Monolayers onGold Electrode Surfaces", 212th Meeting, The Electrochemical Society, Washington, DC, **October 2007.**
114. "Nanostruturing Electrochemical Interfaces: Li Ion Batteries, Fuel Cells, and DNA Sensors", NSF, Washington, DC, **March 2008**. (invited)
115. "Nanostruturing Electrochemical Interfaces: Li Ion Batteries, Fuel Cells, and DNA Sensors", University of Texas at San Antonio, Texas, **July 2008**. (invited)
116. "Electrochemical Preparation of Pt and PtRu Nanoparticles at Carbon Support Materials using Rotating Disk Slurry Electrode (RoDSE) Technique , ISE, Seville, Spain, **September 2008**. (invited)
117. Nanotechnology Education at UPR, San Carlos University of Guatemala, Guatemala City, Guatemala, **October 2008**. (invited)

118. Nanostructuring Electrochemical Interfaces, The Ohio State University, Columbus, OH, **December 2008**. (invited)
119. Center for Advanced Nanoscale Materials, CANEUS 2009 Workshop, NASA Ames Research Center, Moffett Field, CA, **March 2009**.
120. Center for Advanced Nanoscale Materials, HBCU/MI Symposium, NASA Glenn Research Center, Cleveland, OH, **July 2009**.
121. Advanced Nanoscale Materials for Aerospace Applications, Nanoscience and Nanotechnology Workshop 2009, Frascati, Italy, **Oct. 2009**. (invited)
122. Advanced Nanoscale Materials for Aerospace Applications, Interamerican University, Bayamón, PR, **February 2010.** (invited)
123. Advanced Nanoscale Materials for Aerospace Applications, Catholic University, Ponce, PR, **April 2010**. (invited)
124. Bioelectrochemical Oxidation of Urea at Urease and Platinum Modified Boron Doped Diamond Electrodes, ICEI 2010, Geneva, NY, **June 2010**.
125. Thermal and Electrochemical Analysis of Electrodeposited Pt Nanoparticles at Nanocarbon Materials, 38th Annual North American Thermal Analysis Society Conference, Philadelphia, PA, **August 2010**. (invited)
126. Transmission Electron Microscopy of Electrodeposited Platinum Nanoparticles at High Surface Area Carbon Bulk Material, 17th International Microscopy Congress, Rio de Janeiro, Brazil, **September 2010**. (invited)
127. "Ammonia Oxidation Enhancement at Square-Wave Treated Platinum Particle Modified Boron-Doped Diamond Electrodes", Electrochemical Society Meeting, Las Vegas, **October 2010**.
128. "Bioelectrochemical Oxidation of Urea with Urease and Platinized Boron Doped Diamond Electrodes", Electrochemical Society Meeting, Las Vegas, **October 2010**
129. "Nanostructuring Electrochemical Interfaces : from Li ion anodes to fuel cell catalysts", Georgia Institute of Technology, **October 2010**. (invited)
130. "Nanostructuring Electrochemical Interfaces : from Li ion anodes to (bio) fuel cell catalysts", University of Texas at El Paso, El Paso, Texas, **February 2011**. (invited)
131. "Nanostructuring Electrochemical Interfaces : from Li ion anodes to (bio) fuel cell catalysts", University of Puerto Rico at Humacao, **September 2011**. (invited)
132. "Nanostructuring Electrochemical Interfaces : from Li ion anodes to (bio) fuel cell catalysts", University of Turabo, Caguas, PR, **October 2011**. (invited)
133. "Nanostructuring Electrochemical Interfaces : Synthesis of Fuel Cell Catalysts", New York University, New York, NY, **November 2011.** (invited)
134. "Nanostructuring Electrochemical Interfaces : Synthesis of fuel cell catalysts", DOE Brookhaven National Laboratory, Long Beach, NY, **November 2011**. (invited)
135. NASA-University Research Centers : Center for Advanced Nanoscale Materials, NASA Education Stakeholders' Summit, VA, **November 2011**. (invited)
136. "Doped Diamond Nanoparticles as a Support for Pt and PtRu Catalysts for Direct Methanol Fuel Cells", Materials Research Society Meeting, San Francisco, CA, **April 2012**. (invited)
137. "Diamond Nanoparticles as Catalyst Support for Direct Methanol Fuel Cells", New Diamond and Nano Carbons Conference, San Juan, PR, **May 2012**. (invited)
138. "Nanostructured Electrochemical Interfaces: Synthesis of Fuel Cell Catalyst/Support Systems", XXVII Congreso de la Sociedad Mexicana de Electroquímica and 5th Meeting of the Mexican Section of The Electrochemical Society, 11-15, Toluca, México, **June 2012**. (invited)
139. "Nanostructured Electrochemical Interfaces: From Li-ion Battery Anodes to Synthesis of Fuel Cell Catalyst/Support Systems", Annual Meeting Puerto Rico Chemist Association, Rio Grande, PR, **August 2012**. (invited)

140. "Faradaic and Non-Faradaic Electrochemical Biosensors", IBERSENSOR 2012, San Juan, Puerto Rico, **October 2012**. (invited)
141. "Nanostructured Electrochemical Interfaces: From Li-ion Battery Anodes to Synthesis of Fuel Cell Catalyst/Support Systems", 30th Congreso Latinoamericano de Química, Cancun, México, **November 2012**. (invited)
142. "Nanostructured Electrochemical Interfaces: From Li-ion Battery Anodes to Synthesis of Fuel Cell Catalyst/Support Systems", Department of Chemistry, University of Puerto Rico at Mayagüez, **May 2013**. (invited)
143. "EDTA Assisted Ce(III)/Pt Vulcan XC-72 Catalyst Synthesis for Direct Methanol Fuel Cell Applications", NSLS User Meeting, Brookhaven National Laboratory, NY, **May 2013**.
144. "Pt-Ceria Nanorods amd Nanoparticles Direct Methanol and Butanol Fuel Cell Applications", Photon Science Friday Lunch Time Seminar Series, NSLS, Brookhaven National Laboratory, NY **July 19, 2013**. (invited)
145. "Bioelectrochemistry of Urea for Ammonia Fuel Cell Applications", The 64th Annual Meeting of the International Society of Electrochemistry, Querétaro, Mexico, September 10, 2013. (invited)
146. "Nanostructured Electrochemical Interfaces: From Li-ion Battery Anodes to Synthesis of Fuel Cell Catalyst/Support Systems", Department of Chemistry, University of Guanajuato, Guanajuato, Mexico, **September 11, 2013**. (invited)
147. "Faradaic and Non-Faradaic Electrochemical Biosensors", Metropolitan University, San Juan, Puerto Rico, **December 2013**. (invited)