

CURRICULUM VITAE

SUMMARY (2017)

Margarita Miranda Hernández

Researcher "B" T. C.

Institute of Renewable Energies (IER)- UNAM

Temixco, Morelos, México.

A. EDUCATION

PhD in Sciences: Electrochemistry

Title of the thesis: "Electrochemical techniques to discriminate the different stages of electrocrystallization of silver in aqueous medium of ethylamine and ammonia". México November 12, 1999 Institution: UAM-I, Av. Michoacán and La Purísima, Col. Vicentina, Iztapalapa

Master in Chemistry.

Title of the thesis: "Study of electrochemical noise in the morphology of copper electrodeposits". México
Date of obtaining the degree: May 7, 1994. Institution: UAM-I, Av. Michoacán Purísima, Col. Vicentina, Iztapalapa

3. Degree: Chemical

Title of the thesis: "Study of the corrosion rate of metallic reinforcements in concrete structures". Country: México. March 18, 1988. UNAM Faculty of Chemistry, Ciudad Universitaria, Coyoacán, 04510 Mexico, D.F.

B. DISTINCTIONS

Researcher of the National Research System Level II (January 1st, 2013 to December 30, 2017)

C. DIRECTED THESIS

a) Completed theses (4 Doctorate, 3 Masters, 10 Degree)

b) Thesis in process (4 Doctorate, 1 Master, 4 Degree)

D. Journal Articles-Research

D.1 Refereed journals (international): 45 and **in the last 5 years 15** articles on the topic of carbon matrices with different applications

D.2 Research articles published in Memoirs of Congresses (international) **in the last 5 years 20**

D.3 Research articles published in Memoirs of Congresses (National) **in the last 5 years 16**

D.4 Chapters in books

1. Ana Karina Cuentas-Gallegos, Daniella Pacheco-Catalán, **Margarita Miranda-Hernández**. Environmental Friendly Supercapacitors. In Materials for Sustainable Energy Applications. Conversion, Storage, Transmission and Consumption. Copyright © 2009 by Pan Stanford Publishing Pte Ltd. www.panstanford.com.

2. Diane Nayelli Escobar-Muñoz, A.K Cuentas-Gallegos, **M. Miranda-Hernández**. Palladium Electrodeposition on Carbon Paste Electrodes: Early stages of nucleation and growth. In Theoretical and experimental advances in electrodeposition, pp. 89-100. Editor Luis Humberto Mendoza Huizar.

(2008) Research Signpost 37/661 (2), Fort P.O., Trivandrum-695 023, Kerala, India ISBN 978-81-308-0224-4

3. Palomar-Pardavé M, **Miranda-Hernández M**, Batina N and González I. New insights for the quantitative interpretation of potentiostatic current transients during the metal electrodeposition process, in Recent Res. Devel. in Electrochem. S. G. Pandalai Editor, Transworld Reseach Network, Trivandrum. India 1 (1998) 15-29
4. M. Palomar-Pardavé, **Miranda-Hernández M**, I González and N Batina, On the transition from 2D-3D nucleation during the electrolytic formation of silver on vitreous carbon in the overpotential, in Fundamental Aspects of Electrochemical Deposition and Disolution including modeling . M. Paunovic, M. Datta, M. Matlose, T. Osaka and J. B. Talbot, Editors, The Electrochemical Society, Inc., New York, ISBN 1-56677-180-3, (1997) 27-40

D.5 External citations to published works: 570

D.6 Participation in Evaluation Committees

1. Investigation Projects: Basic Science, Stimuli for Innovation, State Funds, of CONACYT scholarship abroad (**25 evaluations**)
2. *Articles in conference proceedings* (**28 evaluations**)
3. *Articles international* (**50**)
4. National articles (**45 evaluations**)

E. FUNDED RESEARCH PROJECTS

1. **Name of the Project:** "Prediction, synthesis, elaboration and calibration of photovoltaic cells and flow batteries", sub-project IX: Evaluation of the oxidation mechanisms and reduction of charge storage molecules, for flow cells. Institution or funding organism: CONACyT-SENER-Frontier (Ref: No.245754) Period: September 2016- August 2017
2. **Name of the Project:** "Development and study of electrocatalytic interfaces, for the optimal design of electrolysis cells". Institution or funding organism: DGAPA-UNAM (Ref: IN201815) Period: 2015- 2017
3. **Name of the Project:** "Electrocatalysts supported in micro and nanostructured carbon matrices". Institution or funding organism: CONACYT (Ref: 0167485), Call for projects of Basic Science 2011 Period: 2012- 2014.
4. **Name of the Project:** "Evaluation of anodes to improve the energy efficiency of CO₂ electrolysis". Institution or funding organism: DGAPA-UNAM Investigation Projects and Technological Innovation Support Program (Ref: IN112212) Period: 2012- 2014.
5. **Name of the Project:** "Electrochemical reduction of CO₂ using catalysts of micro and nanostructured metal particles supported on carbon materials". Ref: INI105509-3. Institution or funding organism: Support Program for Research Projects and Technological Innovation (PAPIIT) DGAPA-UNAM Period: 2009-20011.
6. **Project Name:** Electrochemical Evaluation of the Charge / Discharge efficiency of Modified Nanocarbon Electrodes for use in Electrochemical Capacitors
Institution or funding organism: CONACYT # 50370, Call for Projects of Basic Science 2006
Period: 2007-2009.
7. **Name of the Project:** "Design and optimization of carbon composites for use in peripheral electrochemical energy storage devices". Ref: IN110506-3

Institution or funding organism: Support Program for Research Projects and Technological Innovation (PAPIIT) DGAPA-UNAM
Period: 2006-2008.

- 8. Name of the Project:** "Nanocarbon composites in energy storage applications". Ref: IN113502
Institution or funding organism: Support Program for Research Projects and Technological Innovation (PAPIIT) DGAPA-UNAM
Period: 2003-2005.
- 9. Name of the Project:** "Electrochemical Characterization of Coal Composites for Energy Storage Applications"
Institution or funding organism: CONACyT within the Repatriation / Retention program of Mexican Researchers
Period: May 2001-April 2002.
- 10. Name of the Project:** "Development of an electrochemical methodology to identify the chemical agents responsible for the corrosion contingencies that occur in the primary and catalytic plants, as well as their application in the evaluation of the effectiveness of inhibitors"
Institution or funding organism: PEMEX (project No. GOD 000EAA0110)
Period: September 1997-February 1999.

F. DISTINCTIONS AND AWARDS

- 1. Member of the Mexican Academy of Sciences**
November 2011
- 2. Regional representative (México) before the Ibero-American Electrochemical Society (SIBAE)**
Period 2014 - 2018
- 3. Medal Sor Juana Inés de la Cruz**
By professional career
Granted by: The National Autonomous University of México 2010
- 4. President of the Mexican Society of Electrochemistry**
Period 2007-2009
- 5. Prize for the best PhD thesis in Electrochemistry**
by: The Mexican Society of Electrochemistry
May 2001
- 6. University Merit Medal**
Granted by: The Autonomous Metropolitan University-Iztapalapa
January 24, 2001

G. Lines of research

A. Electrodeposits

- a) Characterization of the initial growth stages (Electrocrystallization)*
- b) Characterization of monolayer formation and three-dimensional growth (3D)*
- c) Electrodeposition methods using different electrochemical techniques*

B. Characterization of Carbon Composites used as Energy storage:

- a) Electrochemical capacitors*
- b) Electrochemical adsorption of Hydrogen*
- c) Flow batteries*

C. Modified carbon electrodes for applications in:

- a) Electrochemical biosystems*
- b) Electrocatalytic Processes (Electrochemical reduction of CO₂)*
- c) Metal oxides supported on carbon*

D. Studies of the stability of different materials in aggressive systems and atmospheres (Corrosion)

H.1 OTHER EXPERIENCE: Organizing Committee Member of Congress and Symposium

1. **"Satellite"** New Processes and Materials Based on Electrochemical Concepts at the Microscopic Level - MicroEchem 2013 ", 16-19 September 2013 2013 Santiago de Querétaro, México. Organizing Committee Member
2. 64th Annual Meeting of the International Society of Electrochemistry (ISE) 8-13 September, 2013 Santiago de Querétaro, México. Organizing Committee Member
3. Fourth San Luis Summer School and Conference on Surfaces, Interfaces and Catalysis, Date: April 14-23, 2007. Marina E. Rincón (Finance Committee), Margarita Miranda Hernández (Scientific Committee)
4. 210 Meeting of the Electrochemical Society and XXI Congress of the Mexican Electrochemistry Society from October 29 to November 3, 2006 Cancún, México Margarita Miranda Hernández (Vice-President of the Mexican Society of Electrochemistry)
5. XX Congress of the Mexican Society of Electrochemistry in Puente de Ixtla, Morelos, México May 22-27, 2005, in that organization participated several researchers of the CIE: Marina E. Rincón (Finance Committee), Hailin Zhao Hu (Committee of Social Activities), Margarita Miranda Hernández (Scientific Committee), Arturo Fernández (Scientific Committee)

H.2 Plenary Conferences: 10

H.3 b) Lectures in Seminars: 25