

*CURRICULUM VITÆ*

**Benjamin Scharifker**

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## PERSONAL DATA

*Name:* Benjamin Ruben Scharifker Podolsky  
*Born:* Buenos Aires, Argentina, 21 September 1953  
*Nationality:* Venezuela and Argentina  
*Marital Status:* Widower, three children (Julieta, Diego, Alex)  
*Home Address:* Res. Biarritz, PH 19,  
1<sup>a</sup> Av. Los Palos Grandes, Chacao,  
Miranda, Venezuela.  
*Phone:* +58 212 286 1289.  
*Mobile:* +58 424 186 2003

*Current appointment and responsibilities:* Rector *Tel:* +58 212 240 3401  
Universidad Metropolitana, *Fax:* +58 212 240 3639  
Terrazas del Avila, *E-mail:* bscharifker@unimet.edu.ve  
Apartado 76819, Caracas, 1070-A

Professor emeritus *Tel:* +58 212 906 3968.  
Universidad Simon Bolívar, *Fax:* +58 212 906 3969.  
Departamento de Química *E-mail:* benjamin@usb.ve  
Apartado 89000, Caracas 1080-A

## EDUCATION

1970 Baccalaureate in Sciences, Colegio Moral y Luces, Caracas.  
1976 Licentiate in Chemistry, Universidad Simon Bolívar (USB), Caracas.  
1979 Ph.D. (Physical Chemistry and Electrochemistry), University of Southampton, U.K.  
Thesis: "Nucleation and phase formation" (*Advisor:* Prof. Graham Hills).  
1980 Post-doctoral studies, University of Southampton. (*Advisor:* Dr. Laurence M. Peter)

## SCHOLARSHIPS AND AWARDS

1976-1979 National Fund for Research in hydrocarbons (Venezuela), doctoral studies.  
1979-1980 Science Research Council, U.K., post-doctoral studies.  
1986 Tajima Prize, International Society of Electrochemistry.  
1988 Andres Bello Prize in Fundamental Sciences [*J. Electroanal. Chem.*, 240, 61 (1988)] USB.  
1989 Francisco Torrealba Prize for research achievements, USB.  
1990-2012 Researcher, levels III & IV, Program for Promotion of Researchers, Venezuela.  
1991 Prize for published work in Chemistry [*J. Electroanal. Chem.*, 300, 85 (1991)] National Research Council (CONICIT).  
1993 Lorenzo Mendoza Fleury Prize, Polar Foundation.  
1996 Andres Bello Prize in Biological and Chemical Sciences [*J. Electroanal. Chem.*, 383, 37 (1995)] USB.  
1998 Corresponding member, National Academy of Physical, Mathematical and Natural Sciences.  
2003 Member, National Academy of Physical, Mathematical and Natural Sciences.

2003	Member, Latin American Academy of Sciences
2008	City of Baruta Award, Miranda State, Venezuela
2009	Fellow, The World Academy of Sciences (TWAS)
2012	Exemplary Citizen Award, Metropolitan Mayor of Caracas
2014	“Lanzas Coloradas” Award, Casa Uslar Pietri Foundation, Caracas
2014	Ernesto Mayz Vallenilla Award, Universidad Simon Bolívar, Caracas
2016	Commemorative Medal “Bicentennial of the death of Generalissimo Francisco de Miranda”
2017	Simón Bolívar Prize for University achievements, USB

#### **TEACHING AND RESEARCH APPOINTMENTS**

1976	Instructor, Simon Bolivar University, Venezuela.
1977-1980	Instructor, Course on Advanced Techniques in Electrochemistry, University of Southampton, UK.
1979-1980	Research fellow, University of Southampton.
1980-1984	Aggregate professor, Simon Bolivar University.
1984-1986	Senior scientist, Hydrogen Research Center, Texas A&M University, USA
1984-1989	Associate professor, Simon Bolivar University.
1988	Visiting professor, University of Southampton.
1989-2012	Professor, Simon Bolivar University.
2009	Benjamin Meaker Visiting Professor, Institute for Advanced Studies, University of Bristol, UK.
Since 2012	Professor emeritus, Simon Bolivar University.

#### **ADMINISTRATION**

1981-1984	Head of Physical Chemistry Laboratory, Simon Bolivar University.
1982-1984	Head of Physical Chemistry Section, Simon Bolivar University.
1984-1986	Assistant Director, Hydrogen Research Center, Texas A&M University.
1984-1988	Vice-president, Friends of the Air Foundation, Houston, Texas
1986-1987	Head of Physical Chemistry Laboratory, Simon Bolivar University.
1987-1989	Head of Chemistry Department, Simon Bolivar University.
1989-1994	Coordinator for Fine Chemistry, Inter-American Development Bank–CONICIT program.
1991-1994	President, Venezuelan Society of Electrochemistry.
1992-1996	Dean of Research and Development, Simon Bolivar University.
1994-1999	Director at large, National Research Council (CONICIT).
2000-2003	Director at large, Venezuelan Foundation for Promotion of Researchers.
2001-2005	Vice Rector for Administration, Simon Bolivar University.
2005-2009	1 <sup>st</sup> Vice-President, Academy of Physical, Mathematical and Natural Sciences.

2005-2009 Rector, Simon Bolivar University.  
 2009-2011 President, Academy of Physical, Mathematical and Natural Sciences of Venezuela.  
 2010-2011 Academic Vice-Rector, Metropolitan University, Caracas  
 Since 2011 Rector, Metropolitan University, Caracas

#### **BOARDS AND COMMITTEES**

1983-1985 Technical Committee in Chemical Sciences, CONICIT.  
 Since 1984 Editorial Board, Portugaliæ Electrochimica Acta.  
 1987-1988 Organization Secretary, Venezuelan Society of Electrochemistry.  
 1987-1989 President, Galilean Society, Simon Bolivar University.  
 1987-1993 Member of Superior Council, Simon Bolivar University.  
 1989-1993 Vice-president, Galilean Society, Simon Bolivar University.  
 1990-1991 Secretary for Academic Affairs, Professors Association, Simon Bolivar University.  
 1990-1991 Research and Development Council, Simon Bolivar University.  
 1990-1996 Committee for Physical, Mathematical and Chemical Sciences, Program for Promotion of Researchers.  
 1991-1992 Board Member, Program for Promotion of Researchers.  
 1991-1993 President, Technical Committee in Chemical Sciences, CONICIT.  
 Since 1992 Field Editor (Chemistry), Acta Científica Venezolana.  
 1994-1996 General Coordinator of Scientific, Humanistic and Technological Development Councils of National Universities, National Council of Universities.  
 1994-1999 National Secretary, International Society of Electrochemistry.  
 1994-2003 Local Representative in Venezuela, Royal Society of Chemistry.  
 1994-1999 Member of Superior Council, National Research Council, CONICIT.  
 1995 President of Organizing Committee, 45<sup>th</sup> Annual Convention of Venezuelan Association for the Advancement of Science, Caracas.  
 1996-1998 Member of General Council, International Institute for Advanced Study, Caracas.  
 1996 Member of Organizing Committee, 12<sup>th</sup> Ibero-American Electrochemistry Congress, Mérida.  
 1997 Invited Editor, *J. Braz. Chem. Soc.* 8(2), 91-196 (1997).  
 1998-2000 Member of Superior Council, Simon Bolivar University.  
 Since 1999 Editorial Committee, Latin American Journal of Chemistry.  
 2001 Secretary General Caracas Chapter, Venezuelan Association for the Advancement of Science.  
 2001-2003 Member of Board, Venezuelan Association for the Advancement of Science.  
 2002-2004 Publication Committee, International Society of Electrochemistry  
 2004-2005 Coordinator of working group of Vice Rectors for Administration, National Council of Universities.  
 Since 2010 Editorial Board, International Journal of Electrochemistry

Since 2010 Member of the Board, Assembly for Education, Caracas  
Since 2013 Secretary of the Board, Venezuelan Association of University Rectors

#### MEMBERSHIP IN SCIENTIFIC AND PROFESSIONAL SOCIETIES

Academy of Physical, Mathematical and Natural Sciences, Galilean Society, International Society of Electrochemistry, Royal Society of Chemistry, The Electrochemical Society, Venezuelan Association for the Advancement of Science, Venezuelan Association of Chemistry, Venezuelan Society of Electrochemistry.

#### RESEARCH INTERESTS

Nucleation and phase formation. Electrocrystallization. Energy conversion and clean energies. Interfacial electrochemical reactions. Electrocatalysis. Conducting polymers. Adsorption at solid-liquid interfaces. Ultramicroelectrodes.

#### JOURNAL REVIEWER

*Acta Científica Venezolana. Analytical Chemistry. Avances en Química. Boletín de la Academia de Ciencias Físicas, Matemáticas y Naturales. Chemical Science. ChemElectroChem. ChemPhysChem. Ciencia. Electrochemistry Communications. Electrochemical and Solid State Letters. Electrochimica Acta. Interciencia. International Journal of Electrochemistry. Journal of Applied Electrochemistry. Journal of Colloid and Interface Science. Journal of Electroanalytical Chemistry. Journal of Solid State Chemistry. Journal of the Brazilian Chemical Society. Journal of the Electrochemical Society. Journal of the Mexican Chemical Society. Journal of Physical Chemistry. Langmuir. Materials Chemistry and Physics. Polymer. Portugalia Electrochimica Acta. Revista de la Facultad de Ingeniería-UCV. Revista Latinoamericana de Metalurgia y Materiales. Revista de la Sociedad Venezolana de Química. Revista Técnica de Ingeniería LUZ. Solid State Ionics. Surface and Coatings Technology. Universidad, Ciencia y Tecnología. Thin Solid Films. Water Research.*

#### DISSERTATIONS OF RESEARCH STUDENTS

1. J.D. Reid, *Galvanostatic studies of anodic film growth*, BSc. (Chem.), University of Southampton, 1979.
2. R.J. Rugeles, *Electrocrystallization of copper sulphide on copper*, Licentiate (Lic). Chem., USB, 1982.
3. M.E. Marmodoro, *Lead deposition onto single crystals and polycrystalline silver in the presence of halides*, Lic. Chem., USB, 1982.
4. J. Mostany, *Studies on three-dimensional nucleation*, Lic. Chem., USB, 1982.
5. Z.M. Ferreira, *Electrodeposition of lead sulphide*, Lic. Chem., USB, 1983.
6. C.A. Benucci, *Study on the formation of two-dimensional phases during sulphide adsorption on mercury*, Lic. Chem., USB, 1984.
7. J. Parra, *Effect of halogenides on the electrodeposition of lead onto vitreous carbon*, Lic. Chem., USB, 1984.
8. L. Milgram, *Electrodeposition of cadmium sulphide*, Lic. Chem., USB, 1984.
9. G.C. Wehrmann, *Study of viologen reduction processes*, Lic. Chem., USB, 1984.
10. N. Kasrin, *Effects of halides and pH on the formation and reduction of iridium oxide films*, Lic. Chem., USB, 1984.
11. D.C. Alonzo, *Some structural and electrocatalytic aspects of metal adatoms on platinum*, Lic. Chem., USB, 1988.

12. A. Leone, *Synthesis, characterization and electrocatalytic applications of polyaniline thin films*, Lic. Chem., USB, 1989.
13. W. Marino, *Electrochemical formation and growth of polypyrrole films and their modification with metal particles*, Lic. Chem., USB, 1990.
14. C.L. Ferro, *Microcalorimetric studies of the electrochemical double layer*, Lic. Chem., USB, 1990.
15. A. Serruya, *In-situ microscopic study of the spatial distribution of nuclei on electrodes and the kinetics of nucleation*, Lic. Chem., USB, 1992.
16. D. Fermín, *Mechanism of the electrochemical formation of polypyrrole films in aqueous media*, Lic. Chem., USB, 1992.
17. O. Yépez, *Studies on the electrochemical oxidation of one-carbon species*, Dr. Chem., USB, 1995.
18. J. Mostany, *Study of conducting metal and polymer phases on electrodes*, Dr. Chem., USB, 1995.
19. P. Ferreira, *Synthesis and characterization of conducting polymers applied to secondary batteries*, Mater. Eng., USB, 1996.
20. A. Serruya, *Kinetic study of electrochemical nucleation and spatial distribution of Ag, Hg, Tl and Pb nuclei*, MSc. Chem., USB, 1997.
21. O. Mejías, *Microgravimetric study of the redox process of polypyrrole films*, Lic. Chem., USB, 1997.
22. E. Bastidas and D. Prince, *Study on the physical properties of polypyrrole and polypyrrole/polypropylene composites*, Mater. Eng., USB, 1997.
23. R. Arena, *CO<sub>2</sub> corrosion of carbon steels evaluated with electrochemical impedance using rotating cylinders*, MSc. Chem., USB, 1998.
24. I. Medina, *Hydrodesulfuration of model molecules using microwaves as heating source*, Lic. Chem., USB, 1998.
25. Y. Zucaro, *Characterization of polypyrrole-polyacrylamide mixtures*, MSc. Chem., USB, 1999.
26. J.C. Chesneau, L. Martínez and A. Montero, *Characterization of a pump-type flow reactor for electrolysis of emulsions*, Chem. Eng., USB, 1999.
27. M. Méndez, *Flow rate effects on the protecting properties of crude oils against CO<sub>2</sub> corrosion*, Lic. Chem., USB, 2001.
28. I. Suárez, *Kinetic study of electrochemical microstructures*, Dr. Chem., USB, 2001.
29. R. Buceta, *Study of adsorption enthalpies of hydrogen on platinum in aqueous media*, Lic. Chem., USB, 2002.
30. M.E. Vicioso, *In situ IR spectroelectrochemical study of thiourea and thiocyanate electrooxidation on platinum, gold and copper*, MSc. Chem., USB, 2004.
31. D. Mazaira, *The potentiostatic current transient for nucleation with diffusion-controlled growth. Hierarchical overlap model*, Lic. Chem., USB, 2006.
32. D. Branco, *The potentiostatic transient for electrochemical nucleation with diffusion controlled growth of spherical caps*, Lic. Chem., USB, 2008.
33. R. Arenare, *Electrochemical characterization of solid oxide fuel cells*, Dr. Chem., USB, 2009.
34. O. Díaz, *Electrochemical formation of bimetallic phases*, M.Sc. Chem., USB, 2011.
35. S. Blanco, *Metal nanowires: synthesis, characterization and application to the development of sensors*, Dr. Eng., USB, 2014.
36. C. Hidalgo, *Study of the electrodeposition of silver-palladium bimetallic phases*, Lic. Chem., USB, 2014.

## TECHNICAL REPORTS AND MONOGRAPHS

1. Electrochemical three-dimensional multiple nucleation, B.R. Scharifker, *Associate Professor Dissertation*, Simon Bolivar University, 131 pp. (1983).
2. Nucleation and phase formation on electrodes, B.R. Scharifker, *Final Report, CONICIT Grant No. S1-1227*, Caracas, 208 pp. (1985).
3. Theoretical and experimental aspects of microelectrodes, B.R. Scharifker, *Full Professor Dissertation*, Simon Bolivar University, 105 pp. (1988).
4. Direct conversion of methane. Electrochemical conversion of methane to methanol: Pt as electrode, M.M. Ramírez de Agudelo, B. Scharifker, J. Salazar, M. Milo, O. Yépez and A. Pedraza, *Technical Report INT-02013,88*, PDVSA-Intevep, 33 pp. (1988).
5. Direct conversion of methane. Electrochemical conversion of methane to methanol: Effects of adatoms on Pt, M.M. Ramírez de Agudelo, B. Scharifker, J. Salazar, M. Milo and D. Alonso, *Technical Report INT-02014, 88*, PDVSA-Intevep, 26 pp. (1988).
6. Direct conversion of methane. Electrochemical conversion of methane to methanol: Palladium as electrode, M.M. Ramírez de Agudelo, B. Scharifker, J. Salazar, M. Milo, O. Yépez and J.C. De Jesus, *Technical Report INT-02015,88*, PDVSA-Intevep, 34 pp. (1988).
7. Direct conversion of methane. Electrochemical conversion of methane to methanol: Chemically modified electrodes, M.M. Ramírez de Agudelo, B. Scharifker, J. Salazar, M. Milo, A. Leone and W. Marino, *Technical Report INT-02016, 88*, PDVSA-Intevep, 42 pp. (1988).
8. Direct conversion of methane. Electrochemical conversion of methane to methanol: Analytical methods, M.M. Ramírez de Agudelo, B. Scharifker, J. Salazar, M. Milo and J.C. De Jesus, *Technical Report INT-02017,88*, PDVSA-Intevep, 17 pp. (1988).
9. Direct conversion of methane. Electrochemical conversion of methane to methanol: Hydrogen in palladium, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02355.91*, PDVSA-Intevep, 56 pp. (1990).
10. Direct conversion of methane. Electrochemical conversion of methane to methanol: Porous electrodes, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02356, 91*, PDVSA-Intevep, 13 pp. (1990).
11. Direct conversion of methane. Electrochemical conversion of methane to methanol: Analytical methods, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02357, 91*, PDVSA-Intevep, 13 pp. (1990).
12. Direct conversion of methane. Electrochemical conversion of methane to methanol: Platinum as electrode, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02358, 91*, PDVSA-Intevep, 21 pp. (1990).
13. Direct conversion of methane. Electrochemical conversion of methane to methanol: Palladium as electrode, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02359, 91*, PDVSA-Intevep, 31 pp. (1990).
14. Direct conversion of methane. Electrochemical conversion of methane to methanol: Chemically modified electrodes, B. Scharifker, V. Baez and F. Rosa, *Technical Report INT-02360, 91*, PDVSA-Intevep, 60 pp. (1990).
15. Electrochemical improvement of Diesel fuel, E. Garcia Pastoriza, B.R. Scharifker, D. Fermín and M. Milo, *Technical report Funindes (USB)-PDVSA-Intevep*, 93 pp. (1992).
16. Studies of the spatial distribution of nuclei on electrodes, B.R. Scharifker, *Final Report, CONICIT Grant No. S1-1998*, Caracas, 153 pp. (1993).
17. Electrochemical improvement of fuels, I. Suárez, L. Angulo, M. Milo, B.R. Scharifker and E. Garcia Pastoriza, *Technical report Funindes (USB)-PDVSA-Intevep*, 119 pp. (1994).
18. Electrochemical desulfuration of naphtha's, E. García Pastoriza, B.R. Scharifker, A. Zapata, I. Suárez, A. Serruya and M. Milo, *Technical report Funindes (USB)-PDVSA-Intevep* (1996).
19. Studies on the synthesis of polypyrrole thin films and their insulating-conducting transition, B.R. Scharifker,

*Dissertation for incorporation as corresponding member*, National Academy of Physical, Mathematical and Natural Sciences, Caracas, 27 pp. (1999).

20. Recovery of vanadium contained in acid solutions, R. Arenare and B.R. Scharifker, *Technical report PTS-Pentóxido-ExxonMobil*, Sartenejas, 14 pp. (2000).
21. Studies on electrochemical phase formation, B.R. Scharifker, *Dissertation for incorporation as full member*, National Academy of Physical, Mathematical and Natural Sciences, Caracas, 64 pp. (2004).

## BOOKS

1. *Proceedings of the fourth National Meeting on Electrochemistry*, B.R. Scharifker, I.J. Suárez and J. Mostany (Eds.), Venezuelan Electrochemical Society, Caracas (1991), 395 pp (ISBN: 980-237-047-9).
2. *Monographs of Chemistry*, G. Agrifoglio, R. Almeida, C. Bifano, L. Cortés, C. De la Cruz, D. Iacocca, S. Krestonosich, M.B. Mostue, W. Olivares and B. Scharifker, Deanna Marciano (Ed.), Miró, Caracas (1992):  
*Stoichiometry*, 99 pp (ISBN: 980-316-014-1). 2<sup>nd</sup> edn., 1997 (ISBN: 980-316-027-3).  
*Atomic structure and periodic table*, 97 pp (ISBN: 980-316-019-x).  
*Chemical bond*, 112 pp (ISBN: 980-316-020-x).  
*States of matter*, 121 pp (ISBN: 980-316-021-x).  
*Solutions*, 125 pp (ISBN: 980-316-022-2).  
*Chemical equilibrium*, 129 pp (ISBN: 980-316-021-4).  
*Energy, entropy and chemical dynamics*, 207 pp (ISBN: 980-316-024-9).  
*Electrochemistry and redox reactions*, 86 pp (ISBN: 980-316-023-0).
3. *Solar hydrogen, clean energy of the future*, Spanish version by B. Scharifker et al., of *Solar Hydrogen Energy, the power to save the Earth*, by J.O'M. Bockris, T.N. Veziroglu and D. Smith, Cuatro Vientos, Santiago de Chile (1994), 158 pp (ISBN: 956-242-012-4).
4. *Proceedings of the 10<sup>th</sup> National Meeting on Electrochemistry*, I.J. Suárez, B.R. Scharifker and J. Mostany (Eds.), Venezuelan Electrochemical Society, Caracas (1998), 186 pp. (ISBN: 980-237-174-2).
5. *The profession of professors*, Collection Alma Mater, Equinoccio, Caracas (2013), 28 pp.

## ARTICLES

1. The real economy of energy: hydrogen, *Química Hoy*, 1(1), 31-34 (1988).
2. Research in Electrochemistry, *Química Hoy*, 2(19), 14-18 (1989).
3. A proposal about the "Venezuelan university problem". *Bulletin APUSB* (1991).
4. Fine Chemistry and industrial development (with R. Sanchez), *Investigación & Gerencia*, 10(3), 129-134 (1993).
5. The transparency of the Program for the Promotion of Researchers (with F. Garcia Sanchez), *El Diario de Caracas*, 21 May (1994).
6. More comments on scientific papers and their credibility, *Rev. Soc. Ven. Quím.*, 17(1), 7-8 (1994).
7. Experimental research in Venezuelan universities, in: *Proceedings of the 5<sup>th</sup> Seminar on Research in Venezuelan Universities*, CDCHT, Caracas, 1995, pp. 54-61.
8. Characterisation of research at universities. Case studies: evaluation and new proposals, in: *Programs for the stimulus of university research, evaluation and new proposals*, CDCHT, Caracas, 1996, pp. 55-66.
9. About the impact of research and development, *Carta Semanal* 24(15), 12-14 (1996).
10. Impact of university research, *Carta Semanal* 24(20), 21-23 (1996).
11. Venezuelan Science and technology in 2020, *Bulletin AsoVAC, Caracas*, (33), 6-10 (1996).

12. Editorial, *J. Braz. Chem. Soc.*, Vol. 8, No. 2, March/April, 91-193 (1997).
13. Post-academic science ¿a new way of building knowledge?, *Interciencia*, 22(4), 163-165 (1997).
14. Academic evaluation in universities. An alphabet soup, *Bulletin AsoVAC, Caracas*, (35), 22-25 (1997).
15. Viergutz and the greenhouse effect, *Letter, El Nacional*, Caracas, p. A/5, 18 January (1998).
16. The value of knowledge, *Opinion, El Nacional*, p. A/5, 15 March (1998).
17. Bibliometric analysis of the use of scientific literature at USB, *Carta Semanal*, 26(15), 16-17 (1998).
18. World Conference on Science. Science for the 21<sup>st</sup> Century, a new commitment, *Caribe Info OUI*, No. 4, pp. 3-4, October (1999).
19. The science of energy: a tiger in your tank, *Bulletin AsoVAC, Caracas*, (39), 30-33 (2000).
20. The role of science in establishing a national identity, 2<sup>nd</sup> *Symposium on Venezuela: Tradition in Modernity, the Faces of Identity*, C.E. Aleman and F. Fernandez (editors), Equinoccio, Caracas, 547-553 (2001).
21. Advance of science and higher education: a non-dissociable union, *Opinion, El Universal*, Caracas, 10 December (2001).
22. Scientists and the Venezuelan Crisis (with K. Jaffa, R. Di Polo, J. Cardier, R. Ríos, R. Utrera. M. Rodriguez, L. Briceño Zoppi, A.M. Rojas, A. Ponte and M. Bemporad), *Science*, 299, 1184 (2003).
23. Incorporation address at the Academy of Physical, Mathematical and Natural Sciences, *Bol. Acad. Cienc. Fis. Mat. Nat.* 64, 77-83 (2004).
24. ¿Who are the actors in the knowledge society?, in *Science and Technology in Latin America: a look from Venezuela*, J.M. Cadenas (Editor), CEA-UCV-Fundación Polar, Caracas, pp. 40-44 (2005).
25. Autonomy and Experimentality at Universidad Simon Bolívar, in A. Martucci (editor), *The University Reforms VI*, IESALC-UNESCO, Caracas (ISBN: 980-247-107-0), pp. 31-43 (2006).
26. The density of ideas, *Opinion, El Nacional*, Caracas, p. A/8, 3 June (2006).
27. Ideas and knowledge are in need of talent, *Analitica Premium*, special number on education, <http://www.analitica.com/premium/> 17 September (2006).
28. Student May 2007, *El Nacional*, Caracas, p. A/17, 13 June (2007).
29. Venezuelan students are campaigning for freedom, *Nature* 451, 395 (2008).
30. University Reform, Research and Technological Development, in *University Reform, a Challenge for New Times*, Universidad Metropolitana, Caracas (ISBN 978-980-247-154-6), pp. 121-138 (2009).
31. Response to the incorporation address of Dr. José Luis Paz as member of the Academy of Physical, Mathematical and Natural Sciences, *Bol. Acad. Cienc. Fis. Mat. Nat.* 69, 55-59 (2009).
32. Inclusion, pertinence and quality: a creative equation, in *Latin American University under Discussion*, UCV-IESALC-UNESCO, Caracas (ISBN 978-980-7175-08-1), pp. 349-368 (2010).
33. Science or revolution, *Opinion, El Nacional*, Caracas, p. A/7, 7 February (2011).
34. The relevance of science in the development of Venezuela, C. Bifano, J. Requena, I. de la Vega, C. Machado-Allison, Y. Freites, B. Scharifker, A. Machado-Allison, J.L. Paz, J. Mostany, in *Proposals to the Nation*, National Academies of Venezuela, Caracas (ISBN 978-980-336-022-1), pp. 203-240 (2011).
35. How to reconcile the policies for inclusion with quality formation? in *The Venezuelan University in the 21<sup>st</sup> Century*, UCAB, Caracas (ISBN: 978-980-244678-0), pp. 83-94 (2011).
36. Visibility and linkage, *Cuadernos Unimetanos* 6(28), 1-4 (2011).
37. The higher education we want, in *Education to transform the country*, L. Ugalde (Editor) et al., UCAB, Caracas (ISBN: 978-980-244-693-3), pp. 181-185 (2012).

38. Science, technology and innovation as a cross-cutting issue of society in the 21st century, G. Cunto de San Blas, M. Aguilera, C. Bifano, I. Bonalde, K. Jaffe, S. Levi, J.R. Lopez Padrino, C. Ludeña, C. Machado Allison, R. Marín, V. Mujica, J. Requena, R. Ríos, B. Scharifker, F. Tapia, J. Urbina, H. Vanegas, in *Coordinates for a country: Políticas in communication, culture, telecommunications and science, technology and innovation*, M. Bisbal and M.J. Gonzalez (editors), UCAB, Caracas (ISBN: 978-980-244-716-9), pp. 77-92 (2012).
39. Venezuelan universities, between constraints and desires to excel: a necessary discussion, C. Bifano, I. Bonalde, I. de la Vega, A. Machado Allison, J. Mostany, J.L. Paz, V. Rodriguez Lemoine, G. San Blas, B. Scharifker, in *Reflections and Proposals for Higher Education*, National Academies of Venezuela, Caracas (ISBN: 978-9890-6195-26-4), pp. 133-202 (2012).
40. Transforming universities, *Final debate*, supplement of weekly 6<sup>th</sup> Power, Caracas, No. 9, p. 6, June (2013).
41. The role of research in Venezuelan universities, in C. Bifano (Editor), *From the real university to the possible university*, Academy of Physical, Mathematical and Natural Sciences of Venezuela, Caracas (ISBN: 978-980-6195-31-8), pp. 11-26 (2013).
42. Technological energy perspectives and research and development opportunities. Consequences for Venezuela, M. Goldwasser, B. Scharifker, C. Quintini, D. Rojas, E. Buroz, J. Mostany, J.M. Aller, L. Lopez, R. Lairret, in *Reflections and Proposals on Energy*, National Academies of Venezuela, Caracas, pp. 71-288 (2014).
43. The way towards sustainable development, *Productos*, 363, 115, August (2014).
44. A government alienated from its obligations on Science, Technology and Innovation, J. Requena, C. Caputo, B. Scharifker, in *On Corruption, Ethics and Development in Venezuela*, National Academies of Venezuela, Caracas, pp. 225-274 (2015).
45. Science struggles on in my ravaged country, *Nature* 545, 135 (2017).
46. Reason in the time of post-truth, *El Nacional*, Anniversary Edition 74, section on science and everyday life, p. 2, September 3 (2017).
47. “Kristallnacht” seen from the perspective that offers the present time, *Papel literario, El Nacional*, November 15 (2017). Reflecting about the future, *Verbigracia, El Universal*, Caracas, December 7 (2017).

## SCIENTIFIC PUBLICATIONS

### REFEREED JOURNALS AND BOOK CHAPTERS

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39. Collective effects and self-organization in the electrochemical formation of phases, *Invited lecture*. 2<sup>nd</sup> Interdisciplinary Workshop on Complex Systems, Valley of Pedro Gonzalez, Margarita, Venezuela, 2000.
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47. Pertinence of university research: the ways of knowledge, *Invited lecture*, International Meeting of University Rectors, Medellín, Colombia, 2003.
48. Studies on the electrocrystallisation of metals, nature of the deposits and some pending questions, *Invited lecture*, Electrochemistry and Materials Week, Mexico D.F., Mexico, 2003.
49. Current topics of interest in Electrochemistry: 1. Electrochemical phase formation, 2. Synthesis and properties of conducting polymer films, 3. Anodic oxidation of organic compounds, 4. A prospective view of energy conversion, *Series of invited lectures*, Universidad Autónoma del Estado de Hidalgo, Pachuca, Mexico, 2004.

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56. The challenge of education, *Invited conference*, Baruta City Council, Venezuela, 2008.
57. Multiple nucleation and diffusion-controlled growth: Theoretical models and experimental findings, *Invited lecture*, Institute for Advance Studies, University of Bristol, UK, 2009.
58. On current issues about science and universities in Venezuela, *Invited talk*, Laurie M. Peter 65<sup>th</sup> birthday Emeritus Professor Celebration, University of Bath, UK, 2009.
59. Current problems in the study of nucleation and diffusion-controlled growth of new phases on electrodes, *Keynote lecture*, Electrochem09, Manchester, UK, 2009.
60. Research, development and innovation in universities, *Central conference*, 1<sup>st</sup> Meeting of Researchers at the University of Carabobo, Valencia, Venezuela, 2009.
61. Knowledge development and the building of the future, *Inaugural lecture*, Doctorate in Materials Science, Universidad de Oriente, Cumana, Venezuela, 2010.
62. Importance, pertinence and future of graduate studies in the area of the basic sciences, *Invited conference*, Ordinary Session No. 66 of the National Council of Universities Authorities for Graduate Study, Camurí, Venezuela, 2010.
63. University and science, *Invited lecture*, Cycle of talks on Policy in Science and Technology in Venezuela, Social Responsibility and Academic Networks, Caracas, Venezuela, 2010.
64. Aspects of the science and nanotechnology of phases on electrodes, *Plenary lecture*, 23<sup>rd</sup> National Meeting on Electrochemistry, Maracaibo, Venezuela, 2010.
65. Public policies in science, *Invited lecture*, International Symposium on Production of Knowledge in Academia: Possibilities and Obstacles, Caracas, Venezuela, 2010.
66. Studies concerning the formation and function of nanostructures on electrodes, *Keynote lecture*, 25th Congress of the Mexican Society of Electrochemistry and 3rd Meeting of the Mexican Section of the Electrochemical Society, Zacatecas, Mexico, 2010.
67. What science and with whom in the Land of Grace?, *Invited talk*, TED<sup>x</sup>TierraDeGracia, Caracas, 2010.
68. How to reconcile the policies for inclusion with quality formation? *Invited lecture*, National Meeting of Universities, the Venezuelan University in the 21<sup>st</sup> Century, Caracas, Venezuela, 2011.
69. Admission to universities, formation with quality, *Invited lecture*, International Seminar: Integral formation with social relevance, policies for admission, advancement and graduation in the University transformation agenda, Maracaibo, Venezuela, 2011.
70. The development of knowledge society, *Invited talk*, Symposium “Production of knowledge and public policies for science, technology and innovation”, LXI AsoVAC Annual Convention, Maracay, Venezuela, 2011.

71. The impact of knowledge on Venezuelan social development, *Closing lecture*, 4th Meeting on Research and Graduate Studies “Impact of scientific and technological research on society”, Barquisimeto, Venezuela, 2011.
72. Science Academies and integration in Latin America and the Caribbean, *Invited lecture*, International Seminar on Science and Integration in Latin America, 2<sup>nd</sup> Latin American and Caribbean week at the Institute of Latin American Studies, Caracas, Venezuela, 2011.
73. Venezuelan Universities: current status and necessary changes, *Invited lecture*, Universidad Centroccidental Lisandro Alvarado, Barquisimeto, Venezuela, 2012.
74. Venezuelan Universities: current status and necessary changes, Discussion on “Education to transform the country”, Rafael Urdaneta University, Maracaibo, 2012.
75. A University for Utopia, *Invited lecture*, University of Guayana, Puerto Ordaz, Venezuela, 2012.
76. Vision on education, *Invited lecture*, Venezuelan College of Engineering, Caracas, 2012.
77. Thinking the university, sight and perspectives, *Invited talk*, 3<sup>rd</sup> Latin American and Caribbean Week, Simon Bolívar University, Caracas, 2012.
78. Minimal stories: electrochemical phase formation and chemical reactions on nanostructured surfaces, *Invited lecture*, Symposium on “Science Frontiers”, 62<sup>nd</sup> Annual Convention of the Venezuelan Association for the Advancement of Science, Caracas, 2012.
79. The University in Utopia, *Invited talk*, TED<sup>X</sup>USB, Caracas, 2013.
80. Commitment and challenges for university teachers in the 21st Century, *B. Kliksberg Open Chair*, National University of Táchira, San Cristóbal, Venezuela, 2013.
81. Rethinking research in Venezuelan universities, *Plenary Conference*, 8th National Congress and 2<sup>nd</sup> International Research Congress, University of Carabobo, Valencia, Venezuela, 2013.
82. The challenge to universities in building capacities for peace, *Opening conference*, 64<sup>th</sup> Annual Conention of the Venezuelan Association for the Advancement of Science, Caracas, 2014.
83. The challenge of universities and research institutes, *Invited talk*, Symposium on “How to restore the intellectual capital of the country”, 64<sup>th</sup> Annual Conention of the Venezuelan Association for the Advancement of Science, Caracas, 2014.
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