CURRICULUM VITAE

Daniel Juarez-Robles

PERSONAL DATA

Birth date: ***January 3rd, 1984***
Birth place: ***Salamanca, Gto.***
Nationality: ***Mexican***
Age: ***31 years***
Civil Status: ***Single***
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EDUCATION

- **MS on Applied Math**, Research Center of Mathematics (CIMAT), Mexico, 2011 – 2013
- **MS on Mechanical Engineering**, University of Guanajuato, Mexico, 2009 – 2012
- **BS on Mechanical Engineering**, University of Guanajuato, Mexico, 2003 – 2009
- **BS on Mathematics,** University of Guanajuato, Mexico, 2001 – 2003, incomplete

WORKSHOPS

- Certificate in PROFORDEMS (High School Education Teaching Program). Teaching competences in high school level, 7th generation. September 2013 - June 2014 .
- "IV Math summer school UVEG - UASLP", San Luis Potosi, July, 2012.
- "Master CAM 3D", January, 2008.
- "Workshop of technical searching of innovative technology", October, 2007
- "Basic Matlab", March, 2006.
- "Master CAM" , December, 2005.
- "Starting culture formation and business plan", August – September, 2005.
- "Basic Computerized Numerical Control", August, 2005.
- "Basic Level of AUTOCAD", September, 2003.

INTERNSHIPS

- Academic internship at the Aerospace and Mechanical Engineering department of the University of Arizona (UofA) under the supervision of Dr. Peiwen (Perry) Li. In this internship, the physical and numerical experiments of the thesis' project "Experimentation with PEM Fuel Cells and its Characterization via Neural Networks" were conducted, Tucson, Arizona, July 2010 - January 2011.

AWARDS

- **Diploma, Best GPA, Graduate Program in Mechanical Engineering of the University of Guanajuato, November, 2010.**
- Awardee, academic scholarship "DINPO for Young Researchers Formation", Guanajuato, Gto., January 2009 – December 2011.
- **Diploma, Best GPA, Graduate Program in Mechanical Engineering of the University of Guanajuato, November, 2009.**
- **Graduated from the BS degree with the maximum honors, "*Suma Cum Laude*", February 2009.**
- **Diploma, Academic Excellency, Undergraduate Program in Mechanical Engineering of the University of Guanajuato, November, 2008.**
- Participation in the "Mexico – UA Summer Research Program 2008", in the department of "Aerospace and Mechanical Engineering" of the University of Arizona (UA), under the supervision of Dr. Peiwen Li . Topic "CFD Analysis of Flow Uniformity in a Flow Distributor with Multiple Bifurcations", Tucson, Arizona, June – August, 2008.
- Participation in the "4th State Summer Research Program", organized by CONCyTEG (by its acronym in Spanish, Consejo de Ciencia y Tecnología del Estado de Guanajuato), Guanajuato, Guanajuato, July, 2007.
- **Diploma, Best GPA, Undergraduate Program in Mechanical Engineering of the University of Guanajuato, November, 2006.**
- **Diploma, Best GPA, Undergraduate Program in Mechanical Engineering of the University of Guanajuato, November, 2005.**
- Participation in the Student International Cultural Exchange between University of Guanajuato and University of Texas A&M, 2004.
- Awardee, scholarship "Diego Bricio Hernández Castaños" by the Math Research Center, Guanajuato, Gto., September, 2001.
- Participation in the "XXIII National Contest of Basic Sciences" representing the state of Guanajuato in the math area at the "VII DGETI's Academicals Fest", Mexico City, D.F., July, 2001.
- 1st place in the State Contest of Basic Sciences on the area of Math, at the "Cultural and Academicals Fest 2001" at Dolores Hidalgo, C.I.N., April, 2001.
- 3rd place in the National Contest of the XIV Math Mexican Olympiads, representing the state of Guanajuato at Morelia Michoacán, November, 2000.
- 1st place in the state contest, Math Mexican Olympiads organized by the Mexican Academy of Sciences, Guanajuato, November, 2000.

EDUCATIONAL EXPERIENCE

- Lecturer, University of Guanajuato. 2009-2013.
  - Physics II (September – December 2013, January - April 2014, September – December 2014)
  - Numerical Methods (September – December 2013, January - April 2014, May – August 2014, September – December 2014)
  - Experiments design (September – December 2013, May – August 2014)
  - Preparatory course of Physics (Fall 2009, Spring 2010, Winter 2010,Spring 2011)
  - Preparatory course of Precalculus (Spring 2010, Spring 2011)
  - Preparatory course of Analytic Geometry (Spring 2011)
- Lecturer , Escuela de Bachilleres "18 de Marzo" highschool. 2003 - 2014.
  - Math,
  - Algebra,

- ❖ Analytic Geometry,
- ❖ Differential and Integral Calculus,
- ❖ Probability and Statistics,
- ❖ Applied Math

- Escuela de Bachilleres "18 de Marzo" highschool. High School thesis advisor to obtain the degree of Electronics Technician, July 2009 for the following students:
  - ❖ MINIMOTOR DE COMBUSTÍON INTERNA *L4*, Camacho Vázquez Héctor Manuel, Gutiérrez Ortega Gregorio, Aguilar Mendoza Daniel Ulysses.
  - ❖ CARRITO ARENERO, Rosales Razo Iván, Celaya López Ricardo, Oviedo Jiménez Ismael Alejandro.
  - ❖ TUNEL DE VIENTO, Martínez Robles Juana de Jesús.
  - ❖ ESTRUCTURA DE PUENTES PEATONALES, Gómez Guzmán Felipe Antonio, Ortega Mendoza Carlos Alfredo, Ortega Moreno María Guadalupe.
  - ❖ DISEÑO Y ANALISIS ESTRUCTURAL DE UNA TRIDILOSA, Aguilar Alvarado Josué Emmanuel.

- Escuela de Bachilleres "18 de Marzo" highschool. Sinodal at the High School thesis defense to obtain the degree of Electronics Technician, July 2011, July 2014.

- Escuela de Bachilleres"18 de Marzo" highschool, Academic Secretary, August 2013 – December 2014.

SKILLS

- Handling of technical drawing software, SolidWorks.
- Handling of technical drawing software, AUTOCAD.
- Handling of Mechanical Desktop software.
- Basic knowledge's of CNC systems language
- Handling of computer machining software, Master CAM.
- Handling of finite volume analysis software, FLUENT.
- Handling of computer modeling and meshing software, GAMBIT.
- Handling of mathematical analysis and programming software, Matlab.
- Handling of mathematical analysis and programming software, EES.
- Handling of Python language programming software.
- Handling of C language programming software.
- Handling of Microsoft Office software.

PUBLICATIONS

Sent for review:

- None.

Already published (Journals):

- 5. Liu Hong, Li Peiwen, Juarez-Robles D, Wang K and Hernandez-Guerrero A, "Experimental study and comparison of various designs of gas flow fields to PEM fuel cells and cell stack performance", Frontiers in Energy Resources, 2014.

- 4. Liu Hong, Peiwen Li, Jon Van Lew, Daniel Juarez, "Experimental study of the flow distribution uniformity in flow distributors having novel flow channel bifurcation structures", Experimental Thermal and Fluid Science, Vol. , Issue , November, 2011, pp. - .

- 3. Bladimir Ramos-Alvarado, Abel Hernandez-Guerrero, Daniel Juarez-Robles, Peiwen Li, "Numerical investigation of the performance of symmetric flow distributors as flow channels for PEM fuel cells", International Journal of Hydrogen Energy, Vol. , Issue , November, 2011, pp. - .

- 2. V.H. Rangel-Hernandez, C. Damian-Ascencio, D. Juarez-Robles, A. Gallegos-Muñoz, A. Zaleta-Aguilar, H. Plascencia-Mora, "Entropy generation analysis of a proton exchange membrane fuel cell (PEMFC) with a fermat spiral as a flow distributor ", Energy, Vol. 36, Issue 8, August, 2011, pp. 4864-4870.

- 1. Daniel Juarez-Robles, Abel Hernandez, Bladimir Ramos-Alvarado , Francisco Elizalde-Blancas, Cesar E. Damian-Ascencio, “Multiple Concentric Spirals for the Flow Field of a PEMFC”, Journal of Power Sources, Volume 196, Issue 19, 2011, pp. 8019-8030.

Already published (Conferences):

- 20. Perez-Raya I., Hernandez-Guerrero A., Elizalde-Blancas F., Juarez-Robles D., Almanza-Huerta L., 3D CFD ANALYSIS OF A NEW RADIAL CHANNEL FOR PEMFCS AND COMPARISON WITH A TRADITIONAL CHANNELED SYSTEM, Proceedings of IMECE 2010–38660, Vancouver, British Columbia, November, 2010.

- 19. Juárez-Robles Daniel, Hernández-Guerrero Abel, Ramos-Alvarado Bladimir, Rubio-Arana Cuauhtémoc, ANALISIS DE UNA PEMFC CON CAMPO DE FLUJO RADIAL, XVI Annual International Conference of the Mexican Society of Mechanical Engineers, Monterrey, Nuevo Leon, Mexico, 22-24th September, 2010.

- 18. Blanco Almanza J. A., Juárez Robles D., Belman Flores J. M., Rubio Maya C., MODELADO DE UN COMPRESOR ALTERNATIVO USANDO R134a COMO FLUIDO FRIGORÍGENO, XVI Annual International Conference of the Mexican Society of Mechanical Engineers, Monterrey, Nuevo Leon, Mexico, 22-24th September, 2010.

- 17. Daniel Juarez-Robles, Abel Hernandez-Guerrero, Bladimir Ramos-Alvarado, Cuauhtemoc Rubio-Arana, PERFORMANCE OF A PEMFC WITH A VARIABLE CROSS SECTION AREA FLOW FIELD, The Second International Conference on Nuclear and Renewable Energy Resources (NURER), Ankara, Turkey, 4-7th July 2010.

- 16. Daniel Juarez-Robles, Abel Hernandez-Guerrero, Victor H. Rangel-Hernandez, Cesar E. Damian Ascencio, MULTIPLE CONCENTRIC SPIRALS FOR THE FLOW FIELD OF THE PEMFC, PART 2: ENTROPY GENERATION ANALYSIS, 5th International Ege Energy Symposium and Exhibition (IEESE-5) – 281, Denizli, Turkey, 27-30th June 2010.

- 15. Daniel Juarez-Robles, Abel Hernandez-Guerrero, Victor H. Rangel-Hernandez, Bladimir Ramos-Alvarado, MULTIPLE CONCENTRIC SPIRALS FOR THE FLOW FIELD OF THE PEMFC, PART 1: PERFORMANCE COMPARISON, 5th International Ege Energy Symposium and Exhibition (IEESE-5) – 280, Denizli, Turkey, 27-30th June 2010.

- 14. I. Pérez-Raya, A. Hernández-Guerrero, F. Elizalde-Blancas, D. Juárez-Robles, A PARAMETRIC STUDY OF A PEMFC FLOW FIELD USING A CONSTRUCTAL RADIAL DESIGN, Proceedings of ECOS 2010 - 637, Lausanne, Switzerland, June 14-17th, 2010

- 13. Daniel Juarez-Robles, Abel Hernandez-Guerrero, Bladimir Ramos-Alvarado, MULTIPLE CONCENTRIC SPIRALS FOR THE FLOW FIELD OF THE PEMFC, ASME District E Early Career Technical Conference (ECTC), Tulsa, Oklahoma, USA, March 25-27th, 2010.

- 12. Sósimo Emmanuel Diaz Mendez, Abel Hernández Guerrero, José María Rodríguez Lelis, Daniel Juárez Robles, ÍNDICE DE IMPACTO AMBIENTAL CON BASE EN TRABAJO PERDIDO APLICADO A LA EVALUACIÓN DE CONTAMINACIÓN DE RÍOS, VII Congreso Internacional sobre Innovación y Desarrollo Tecnológico, IEEE, Cuernavaca, Morelos, México, 2009.

- 11. Cano-Andrade Sergio, Hernandez-Guerrero Abel, Juarez-Robles Daniel, Rubio-Arana Cuauhtemoc, EXPERIMENTAL STUDY FOR PEMFCS WITH CONVENTIONAL AND INNOVATIVE CHANNEL CONFIGURATIONS, Proceedings of ECOS 2009, Paraná, Brazil, 2009.

- 10. Ramos-Alvarado Bladimir, Hernández-Guerrero Abel, Juarez-Robles Daniel, Rubio-Arana J. C., ANALYSIS OF FLOW DISTRIBUTION IN A SYMMETRIC BIPOLAR PLATE FOR PEMFC, Proceedings of ECOS 2009, Paraná, Brazil, 2009.

- 9. Bladimir Ramos-Alvarado, Abel Hernandez-Guerrero, Daniel Juarez-Robles, Peiwen Li, J. C. Rubio-Arana, PARAMETRIC STUDY OF A SYMMETRIC FLOW DISTRIBUTOR, IMECE2009-11149, Proceedings of IMECE 2009, Lake Buena Vista, Florida, USA, 2009.

- 8. Isaac Perez-Raya, Abel Hernandez-Guerrero, Daniel Juarez-Robles, M. Ernesto Gutierrez-Rivera, J. C. Rubio-Arana, NEW RADIAL-BASED FLOW CONFIGURATIONS FOR PEMFC’S, IMECE2009-12202, Proceedings of IMECE 2009, Lake Buena Vista, Florida, USA, 2009.

- 7. Bladimir Ramos-Alvarado, Abel Hernandez-Guerrero, Daniel Juarez-Robles, Cuauhtemoc Rubio-Arana, CFD ANALYSIS OF A CONSTRUCTAL FLOW DISTRIBUTOR AS A BIPOLAR PLATE FOR PEMFC’s, IMECE2009-11113, Proceedings of IMECE 2009, Lake Buena Vista, Florida, USA, 2009.

- 6. Juárez Robles D., Peiwen Li, Hernández Guerrero A., Ramos Alvarado B., DISTRIBUIDOR DE FLUJO CON MULTIPLES BIFURCACIONES, XV Annual International Conference of the Mexican Society of Mechanical Engineers, Obregon City, Sonora, Mexico, September 2009.

- 5. Juárez-Robles D., Hernández–Guerrero A., Damián–Ascencio C. E., Rubio–Arana J.C., EFECTO DEL VOLTAJE EN UNA PEMFC CON CAMPO DE FLUJO EN FORMA DE LA ESPIRAL DE FERMAT, XV Annual International Conference of the Mexican Society of Mechanical Engineers, Obregon City, Sonora, Mexico, September 2009.

- 4. Ramos Alvarado Bladimir, Hernández Guerrero Abel, Juárez Robles Daniel, Rubio Arana J.C., ANÁLISIS PARAMÉTRICO DE UN DISTRIBUIDOR SIMÉTRICO COMO COLECTOR DIFUSOR DE UNA PEMFC, XV Annual International Conference of the Mexican Society of Mechanical Engineers, Obregon City, Sonora, Mexico, September 2009.

- 3. Pérez–Raya I. B., Hernández–Guerrero A., Juárez-Robles D., Rubio–Arana J.C., ESTUDIO DE 3 CONFIGURACIONES RADIALES PARA LOS CAMPOS DE FLUJO DE UNA CELDA DE COMBUSTIBLE TIPO PEM, XV Annual International Conference of the Mexican Society of Mechanical Engineers, Obregon City, Sonora, Mexico, September 2009.

- 2. Juárez-Robles, D., Hernández-Guerrero A., Damián-Ascencio C. E., Rubio-Arana, C., "Three Dimensional Analysis of a PEM Fuel Cell with the Shape of a Fermat Spiral for the Flow Channel Configuration", Proceedings of ASME IMECE2008-68101, 2008.

- 1. Daniel Juárez Robles, Abel Hernández Guerrero, "Análisis de una Nueva Geometría para los Canales de Flujo de una Celda de Combustible Tipo PEMFC", Memorias del 4to. Verano Estatal de Investigación del CONCyTEG, Guanajuato, Gto., August 2007.

Academic Material, University of Guanajuato

- 1. Luz A. Aguilera Cortés, Miguel Torres Cisneros, Maximino Antonio González Palacios, Daniel Juárez Robles, "Manual de Prácticas de Laboratorio de Cómputo para el Curso Cálculo I", Identification key: M.CI.L.(1) I 10-08, October, 2008.

ATTENDANCE TO NATIONAL AND INTERNATIONAL CONGRESSES AND CONFERENCES

- Attendance to the Mathematical Congress of the Americas 2013, Guanajuato, Mexico, August 2013.

- Attendance to 45th National Congress of the Mexican Society of Math, Autonomous University of Queretaro, Queretaro, Mexico, October 2012.

- Attendance and participation as speaker in the VII International Congress of Innovation and Technological Development, IEEE, Cuernavaca, Morelos, Mexico, October 2009.

- Assistance and participation as speaker in the XV National Congress of the Mexican Society of Mechanical Engineers (SOMIM), Obregon city, Sonora, Mexico, September 2009.

- Participation in the International Simposium: Green technologies for the production and the susteinable use of energy. Celaya, Gto., March 2009, exposing the following works:
  - CFD Analysis of flow uniformity in a flow distributor with multiple bifurcations
  - Effect of the humidity in the performance of a PEMFC with the shape of Fermat spiral.
  - Effect on the performance of a PEMFC with the shape of Fermat when the inlets and the outlets are reversed.
  - Analysis of the performance of a PEMFC with the shape of the Fermat spiral.

TECHNICAL REVIEWS

- Reviewer for the "ASME Journal of Fuel Cell Science and Technology" of the following papers:
  - FC-11-1158, A central composite face-centered (CCF) design for parameters estimation of PEMFC electrochemical model, 2013
  - FC-11-1110, Effect of cathode-side current collector design on the performance of passive-feed micro DMFC, 2012
  - FC-11-1087, Polymer electrolyte fuel cell stack modelling with temporal-spatial and EIS experimental validations, 2011
  - FC-11-1003, PEM Fuel Cell Design and Modeling: a comparison between CAD-centric and CAE-centric approach, 2011
  - FC-10-1131, A proposed novel empirical model current versus voltage for PEM hydrogen fuel cell, 2011
  - FC-10-1090, Effect of gas channel geometry on performance of PEM fuel cells, 2010.
  - FC-10-1122, Centrally distributed symmetric flow field design for proton exchange membrane fuel cells, 2010.
- Reviewer for the "Proceedings of Fuel Cell 2008, Sixth International Fuel Cell Science, Engineering and Technology Conference" of the following papers:
  - FuelCell2008-65168, Feeding gas strategies (co- and counter-flow) comparison through a PEM fuel cell pseudo 2D diphasic water model, 2008.
  - FuelCell2008-65183, Criteria for characterizing the performances of fuel cell humidifiers: theoretical approach and experimental results, 2008.
- Reviewer for the "ASME, International Mechanical Engineering Congress & Exposition (IMECE)" of the following papers:
  - IMECE2013-63579, Preparation of elastic bipolar plate for polymer electrolyte fuel cells, 2013.

THESIS ADVISOR

- BS
  - Daniel Alejando Angmen- Bernabel, "Design and building of a protonic exchange fuel cell", co – advisory with Abel Hernandez – Guerrero Ph.D. August 2014.

LANGUAGES

- Spanish (Native Language)
- English, (IBT score 88, March 2nd, 2013)
- French (Basic knowledge)

PROFESSIONAL INTEREST

- Applied math
- Proton Exchange Membrane Fuel Cells (PEMFC)
- Heat Transfer and Fluid Mechanics
- Numerical Methods
- Programming
- Optimization of Processes
- Education

REFERENCES

- Francisco Javier Solís Lozano Ph.D, Professor and researcher level "B", Faculty of Basic Math from CIMAT, Mexico, solis@cimat.mx, Tel.: +52 (473) 7327155 Ext. 49557, Fax: 5749.
- Abel Hernandez Guerrero, Ph.D., Professor, Faculty of Mechanical Electrical and Electronics, University of Guanajuato, MEXICO, abel@ugto.mx, Tel.: +52 (464) 6479940 Ext: 2382, Fax: 2311.
- Dr. Peiwen (Perry) Li, Associate Professor, AME N725, Aerospace and Mechanical Engineering Department, The University of Arizona, peiwen@email.arizona.edu,Tel.: (520) 626-7789, Fax: (520) 621-8191.