

# Dr. GEYDY LUZ GUTIÉRREZ URUETA

E-MAIL: [geydy.gutierrez@uaslp.mx](mailto:geydy.gutierrez@uaslp.mx)

<https://orcid.org/0000-0002-4314-8254>; SC 57219234395;

<https://investigadores.uaslp.mx/InvestigadorProfile/hVsAAA%3D%3D?ln=en>

## WORK EXPERIENCE

---

<b>2012- present</b>	<b>Professor. Research and teaching</b> <i>Universidad Autónoma de San Luis Potosí</i>	<i>San Luis Potosí, Mexico</i>
<b>2008- 2010</b>	<b>Assistant Professor. Research and teaching</b> <i>Universidad Carlos III de Madrid</i>	<i>Madrid, Spain</i>
<b>2001-2003</b>	<b>Production Engineer</b> <i>Petróleos de Venezuela, S.A (PDVSA)</i>	<i>Maracaibo, Venezuela</i>

## EDUCATION

---

<b>2010-2012</b>	<b>Postdoctoral Researcher</b> <i>Universidad Nacional Autónoma de México</i> Project: Development of components for absorption systems	<i>Morelos, Mexico</i>
<b>2005-2009</b>	<b>PhD in Mechanical Engineering and Industrial Organization. “Doctorus Europeus” mention</b> <i>Universidad Carlos III de Madrid</i> PhD Project: Thermo-Fluid Dynamic Evaluation of Components in Adiabatic Absorption Systems	<i>Madrid, Spain</i>
<b>2003-2005</b>	<b>Diploma of Advanced Studies</b> <i>Universidad Carlos III de Madrid</i> MSc project: Design and integration of components in refrigeration equipments	<i>Madrid, Spain</i>
<b>1994-2000</b>	<b>BSc Mechanical Engineering. Top Ten among 129 students.</b> <i>Universidad del Zulia</i> Final Project: Determination of viability of dehydration in a gas compression plant	<i>Maracaibo, Venezuela</i>

## RESEARCHING ACTIVITIES

---

	<b>International Stages</b>	
<b>07/2018</b>	Universidad Panamericana	<i>Guadalajara, Mexico</i>
<b>05/ 2015</b>	Universidad Politécnica de Madrid	<i>Madrid, Spain</i>
<b>07/ 2014</b>	Universidad Politécnica de Madrid	<i>Valencia, Spain</i>
<b>09-12/2005</b>	Universidad Politécnica de Valencia	<i>Madrid, Spain</i>
<b>06-09/2006</b>	Technische Universität Berlin	<i>Berlin, Germany</i>

### Published articles

- |             |  |
|-------------|--|
| <b>2022</b> | ▪ Saucedo-Velázquez, J., Gutiérrez-Urueta, G., Wong-Loya, J.A., Molina-Rodea, R., Franco, W.R.G. Cooling Potential for Single and Advanced Absorption Cooling Systems in a Geothermal Field in Mexico. <i>Processes</i> , 10(3), 583   |
| <b>2021</b> | ▪ RobertJäckel, GeydyGutiérrez-Urueta, FidencioTapia. A review on Pitot tube icing in aeronautics: Research- design and characterization – future trends. <i>Flow Measurement and Instrumentation</i>  |
| <b>2020</b> | ▪ RobertJäckel, FidencioTapia, GeydyGutiérrez-Urueta, Cintia Monreal Jiménez. Design of an aeronautic pitot probe with a redundant heating system incorporating phase change materials. <i>Flow Measurement and Instrumentation</i>  |
|             | ▪ Juliana Isabel Saucedo Velázquez, Wilfrido Rivera Gómez Franco, Efraín Gómez-Arias, Geydy Gutiérrez Urueta. Evaluation of the cooling potential for a single effect absorption cooling system in the PR2 well of Cerritos Colorados geothermal field, Mexico. <i>Energy Exploration &amp; Exploitation</i> |
|             | ▪ José Rodrigo Avila Pérez, Geydy Luz Gutiérrez Urueta, Fidencio Tapia Rodríguez, Joseph Ademar Araoz. Modeling of a 1kW free piston Stirling engine: Opportunity for sustainable electricity production. <i>Ingeniería Investigación y Tecnología</i>   |
|             | ▪ A. Zacarías, J. Quiroz, G. Gutiérrez Urueta, M. Venegas, I. Carbajal, J Rubio. Comparison between adiabatic and nonadiabatic absorption chillers using ammonia–lithium nitrate and water–lithium bromide solutions. <i>Heat Transfer Research</i>  |
|             | ▪ C. Monreal Jiménez, F. Oviedo, G. Gutiérrez Urueta, R. Romero. Experimental research on vortex-induced vibrations of flexible circular cylinders at low Reynolds number: revealing atypical branches. <i>Ocean Engineering</i>   |
|             | ▪ Juliana Isabel Saucedo Velázquez, Geydy Gutiérrez Urueta. Energía geotérmica en México: aprovechamiento sustentable para climatización y refrigeración. <i>Universitarios potosinos</i>  |
| <b>2019</b> | ▪ R. Jäckel, G. Gutiérrez Urueta, F. Tapia Rodríguez, C. Monreal-Jimenez. Numerical and experimental characterization of an aeronautic Pitot probe. <i>The Aeronautical Journal</i>  |
| <b>2018</b> | ▪ R. Jäckel, G. Gutiérrez Urueta, F. Tapia Rodríguez, J. Braga Rodrigues Loureiro, C. Monreal Jiménez. Experimental study of ice formation on an aeronautical pitot probe. 3rd Thermal and Fluid Engineering Conference, TFEC2018, USA   |
|             | ▪ J. A. Quiroz, A. Zacarías, G. L. Gutiérrez, I. Carvajal. Comparison of an adiabatic and diabatic absorption system working with ammonia–lithium nitrate and water–lithium bromide as working fluids. 3rd Thermal and Fluid Engineering Conference, TFEC2018, USA   |
|             | ▪ C. Monreal, F. Oviedo, G. Gutiérrez Urueta, R. Romero, R. Jäckel. Experimental parameters identification of a flexible cylinder undergoing vortex-induced vibrations. 3rd Thermal and Fluid Engineering Conference, TFEC2018, USA  |
| <b>2017</b> | ▪ Gutiérrez-Urueta G., Huicochea A., Rivera W., Rodríguez Aumente P., Oviedo F. Experimental energy and exergy analysis of a novel water–LiBr absorption system. <i>Int. J. Exergy</i> .   |
|             | ▪ Gutiérrez-Urueta G., Peña R., Monreal C., Morales J., Oviedo F., Rodríguez-Aumente P. Single phase heat transfer in a compact heat exchanger for environmentally friendly. 2nd Thermal and Fluid Engineering Conference, TFEC2017, USA   |
| <b>2016</b> | ▪ L.A. Domínguez-I., J.A. Hernández-M., P. Soto, C. Jiménez, G. Gutiérrez-Urueta, W. Rivera. Experimental assessment of an absorption cooling system utilizing a falling film absorber and generator, <i>Applied Thermal Eng.</i> , 103, 1105-11   |
| <b>2014</b> | ▪ G. Gutiérrez-Urueta, A. Huicochea, P. Rodríguez-Aumente, W. Rivera. Energy and exergy analysis of an adiabatic water–LiBr  |

- absorption system. *J. Renewable Sustainable Energy* 6
- J.A. Hernández-Magallanes, L.A. Domínguez-Inzunza, G. Gutiérrez-Urueta, P. Soto, C. Jiménez, W. Rivera. Experimental assessment of an absorption cooling system operating with the ammonia/lithium nitrate mixture. *Energy* 78
  - C. Monreal, F. Oviedo, G. Gutiérrez-Urueta, R. Romero, G. Mejía. Parametric identification on a circular flexible beam under vortex induced vibrations. In: XX Congreso de la división de Dinámica de Fluidos de la Sociedad Mexicana de Física Teórica, Tuxtla Gutiérrez, Chiapas, México, 18-20 Nov. 2014.
  - G. Gutiérrez-Urueta, A. Huicochea, P. Rodríguez-Aumente, W. Rivera. Energy and exergy analysis of water-LiBr absorption systems with adiabatic absorbers for heating and cooling. *Energy Procedia*, 331 xxx-xxx
  - A. Huicochea, R.J. Romero, W. Rivera, G. Gutiérrez-Urueta J. Siqueiros, I. Pilatowsky. A novel cogeneration system: A proton exchange membrane fuel cell coupled to a heat transformer. *Applied Thermal Engineering*, 50, 1530-1535
  - G. Gutiérrez, P. Rodríguez, M. Venegas, F. Ziegler, M.C. Rodríguez, Experimental performances of a libr-water absorption facility equipped with adiabatic absorber. *Int. J. Refrigeration*, 34 (8), 1749-1759.
  - G. Gutiérrez, P. Rodríguez, A. Lecuona, F. Ziegler, M.C. Rodríguez, Extension of the characteristic equation to adiabatic absorbers. *Int. J. Refrigeration*, 35, 709-718.
  - G. Gutiérrez, P. Rodríguez, M.C. Rodríguez, A. Lecuona. Influence of solution heat exchanger efficiency on the performance of a simple effect H<sub>2</sub>O-LiBr adiabatic absorption system. *Int. Journal of Air Conditioning and Refrigeration*, 19 (2), 107-112.
  - M.C. Rodríguez-Hidalgo, P.A. Rodríguez-Aumente, A. Lecuona, G.L. Gutiérrez-Urueta, R. Ventas. Flat plate thermal solar collector efficiency: Transient behavior under working conditions part I: Model application and experimental validation. *Applied Thermal Engineering*, 31 (14-15), 2385-2493.
  - M.C. Rodríguez-Hidalgo, P.A. Rodríguez-Aumente, A. Lecuona, G.L. Gutiérrez-Urueta, R. Ventas. Flat plate thermal solar collector efficiency: Transient behavior under working conditions part II: Model application and design contributions. *Applied Thermal Engineering*, 31 (14-15), 2394-2404..
  - A. Huicochea, R.J. Romero, W. Rivera, G. Gutiérrez-Urueta J. Siqueiros, I. Pilatowsky. A novel cogeneration system consisting of a proton exchange membrane fuel cell coupled to a heat transformer for electricity, heat and distillation purposes. 2<sup>nd</sup> European Conference on Polygeneration – 30<sup>th</sup> March-1<sup>st</sup> April, 2011– Tarragona, Spain.
  - A. Huicochea, W. Rivera, G. Gutiérrez-Urueta, J.C. Bruno, A. Coronas. Thermodynamic analysis of a trigeneration system consisting of a micro gas turbine and a double effect absorption chiller. *Applied Thermal Engineering*, 31 (16), 3347-3353.
  - M. Venegas, M.C. Rodríguez, R. Salgado, A. Lecuona, P. Rodríguez, G. Gutiérrez, Experimental diagnosis of the influence of operational variables on the performance of a solar absorption cooling system, *Applied Energy* 88, pp. 1447-1454
  - G. Gutiérrez, P. Rodríguez, M.C. Rodríguez, J. Nogueira. Single phase heat transfer study of lithium bromide in a brazed plate heat exchanger. 9<sup>th</sup> Gustav Loretzen Conference on natural working fluids, Sydney, Australia, 12-14 April.
  - G. Gutiérrez (a), P. Rodríguez, M.C. Rodríguez, A. Lecuona. Influence of solution heat exchanger efficiency on the performance of a simple effect H<sub>2</sub>O. 9<sup>th</sup> Gustav Loretzen Conference on natural working fluids, Sydney, Australia, 12-14 April.
  - G. Gutiérrez, I. Sanchez, P. Rodríguez, M. Garcia. Statistical study of experimental results for an adiabatic absorption system. 9<sup>th</sup> Gustav Loretzen Conference on natural working fluids, Sydney, Australia, 12-14 April.
  - L. Legrand, MC Rodríguez Hidalgo, GL Gutiérrez Urueta, R Ventas. Innovation using TIC's for practical teaching improvement engineering. International conference of education, research and innovation, Madrid, 15-17 Nov., 2010
  - Gutiérrez G., Rodríguez P., Lecuona A., Venegas M., Nogueira J. Experimental results of an adiabatic single effect absorption facility. Eurosun 2008, Lisbon, October.
  - M. Izquierdo, R. Lizarte, J.D. Marcos, G. Gutiérrez. Air conditioning using an air-cooled single effect lithium bromide absorption chiller: Results of a trial conducted in Madrid in August 2005. *Applied Thermal Engineering*, 28 (8-9), 1074-1081
  - Gutiérrez G., Rodríguez P., Venegas M., Nogueira J. Performance analysis of an adiabatic absorption test rig fed with a low temperature heat source. 2<sup>nd</sup> Internacional Conference Solar Air-Conditioning, Tarragona, Spain, October.
  - Gutiérrez G., Zacarías A., Venegas M., Rodríguez P. Cooling power evaluation of a water lithium bromide absorption test rig. In Proc. ECOS 2007, Padova, Italia, June 25 -28, VI. 2, p. 1183-1190.
  - Venegas M., Gutiérrez G. Roa J. Palacios E, Rodriguez P. Thermodynamic characterization of single components in a Libr-H<sub>2</sub>O absorption test rig. 61<sup>th</sup> ATI National Congress, Perugia, Italia, September, p. 111 – 117.
  - Gutiérrez G., Venegas M., Rodríguez P., Izquierdo M., Lecuona A. Experimental characterization of a single stage LiBr-H<sub>2</sub>O absorption test rig. In Proc. ECOS 2006, Crete, Greece, July 12-14, Vol. 3, p. 1331-1336.
  - Gutiérrez G. Minicentrales hidráulicas (mini-hydro power). *EcoSostenible*. 11. 8-13
  - Gutiérrez G. Efecto de los purines sobre el medio ambiente y su tratamiento (Effect of manure on the environment and its treatment). *EcoSostenible*. 12. 9-14
  - Gutiérrez G; Legrand M. Oxi-combustión de carbón ( Oxy-coal combustion). *EcoSostenible*. 13. 10-15
  - Gutiérrez G; Legrand M. Aspectos básicos de la captura y almacenamiento de CO<sub>2</sub> (Basics CO<sub>2</sub> capture and storage). *EcoSostenible* 14. 8-14.
  - Sánchez S., Gutiérrez G. Empleo de la biomasa como fuente de energía para sistemas de calefacción. (Use of biomass as energy source for heating). *EcoSostenible*. 15.
  - Gutiérrez G; Rodríguez M. Energía solar térmica de alta temperatura (Solar thermal high temperatura). *EcoSostenible*. 16.
  - Alfaro J; Gutiérrez G. Reducción. (Reduction of pollutants in combustion chambers). *EcoSostenible*. 17. 10-16
  - Gutiérrez G. Energía solar térmica para agua caliente sanitaria (ACS) (Solar thermal for hot water). *EcoSostenible*.
  - Gutiérrez G. La Biomasa (Biomass). *EcoSostenible*. 3, 2005 8-12.
  - Gutiérrez G. Sistemas de climatización por absorción (Absorption air conditioning systems). *EcoSostenible*. 4. 9-14
  - Gutiérrez G. Los refrigerantes y el Medioambiente (refrigerants and the Environment). *EcoSostenible*. 5. 9-13
  - Gutiérrez G; Palacios E. La energía Geotérmica (geothermal energy). *EcoSostenible*. 6-7. 9-15
  - Gutiérrez G. La cogeneración (co-generation). *EcoSostenible*. 8, 2005. 9-14
  - Gutiérrez G; Venegas M. La energía solar fotovoltaica (Photovoltaic solar energy). *EcoSostenible*. 9, 9-16
  - Gutiérrez G; Palacios E. La co-combustión (co-firing). *EcoSostenible*. 10. 9-14

## Thesis

- Análisis Teórico y experimental del desempeño de hélices coaxiales. Adrián Silva Saldierna. Master's Thesis. UASLP.
- Maximum oscillations and hydrodynamic response of flexible circular cylinders undergoing vortex-induced vibrations. Cintia Monreal Jiménez. Doctoral thesis.
- Design methodology for a free piston Stirling engine for electric power generation. José Rodrigo Ávila Pérez. Master's Thesis. UASLP.
- Design of an aeronautic Pitot probe with a redundant heating system incorporating Phase Change Materials. Robert Jäckel. Master's Thesis. UASLP.
- Cálculo de la carga térmica para climatización en un edificio de San Luis Potosí. Juan Campean. UASLP

- 2008
- 2007
- Cálculo de una instalación para agua caliente sanitaria usando energía solar en un hotel de San Luis Potosí. Elías Martínez Reyna. UASLP.
- Análisis de desempeño de una instalación experimental de absorción LiBr-H<sub>2</sub>O de simple efecto. Miguel García Gullón. Escuela Politécnica Superior. Universidad Carlos III de Madrid, Spain
- Transferencia de calor monofásica de bromuro de litio – agua en un intercambiador de calor de placas. Manuel Seisdedos Santos. Escuela Politécnica Superior. Universidad Carlos III de Madrid, Spain

### Projects financed in public calls

- 2020
- 2013
- 2010
- 2009
- 2008
- 2006
- 2004
- Producción de electricidad sustentable: Diseño y construcción de un motor stirling activado con energías renovables. C20-FAI-10-25.25
- Estudio de la factibilidad del uso de energía solar para aplicaciones de deshidratación de alimentos y refrigeración en San Luis Potosí. C13-FAI-03-34.34
- Estudio de componentes de sistemas de climatización respetuosos con el medio ambiente. PROMEP/103.5/13/6575
- Collaborator:
- Absorción física de vapor de amoniaco en el aire de recintos de gran tamaño por gotas de agua.
- Diseño y operación optimizados de las instalaciones de energía solar térmica de propósito múltiple: agua caliente sanitaria, climatización y calefacción.
- Mejora en la medida PIV de campos fluidos de quemadores Isb por reducción de errores producidos por efecto de termopiscrométricos en los sensores ccd (PIVEROT) .
- Técnicas innovadoras para producción eficiente de frío con energía solar y máquinas de absorción CCG06-UC3M .
- LEGATEC sostenible. Tare 2. - "Análisis energético". Estudio conceptual de viabilidad técnica y económica de la instalación de district heating and cooling en la zona de usos comunes del parque científico de leganes tecnológico .
- Desarrollo de climatizadores de vehículos basados en sistemas de absorción, para la reducción del impacto ambiental mediante el aprovechamiento de energías térmicas residuales. DPI2003-01567 .
- CP05-climatizacion solar con colectores solares planos de vacio .
- MINICOM: desarrollo de un compresor térmico de absorción miniaturizado. Fase I. FIT-020100-2003-23 (2004).

### Summary of national and international assessments

- Selection of candidates to pursue Postgraduate studies. CONACYT-SENER Sustainability Energy
- Scholarship program for high-level postgraduate studies abroad, 2017.
- Evaluation of proposals of the 2019 Frontier Science call.
- Evaluation of applications for hiring a New Full-Time Professor of the EF-UASLP
- Reviewer of the following indexed international journals: Energy, J. Refrigeration, Applied Thermal Engineering, Energy Conversion and Management, Building and Environment, I. J. sustainable energy.
- Reviewer of the following non-indexed international journals: International Journal of Energy for a Clean Environment, International Journal of Ambient Energy
- Regular reviewer of conferences of the American Society of Thermal and Fluids Engineers (ASTFE)
- Ecuador National Polytechnic School (EPN): evaluation of the research project proposal of the National Polytechnic School - Call 2020/ PIIF-05\_
- Revision of the chapter for the book \* Education for the sustainable development of communities \* of the International Congress of Environmental Education for Sustainable Development 2020 (CIEDADES 2020).
- Evaluation of projects in English of the Faculty of Sciences of the UASLP

### FELLOWS/AWARDS

- 2023
- 2022
- 2010
- 2004
- 2003
- 2000
- 2000
- 1995
- 1993
- "Perfil deseable" PRODEP
- Member of "Sistema Nacional de Investigadores" SNI, LEVEL 1
- PostDoctoral Fellow, Universidad Nacional Autónoma de México
- Fellow holder for research. Ministry of Education of Spain
- Doctoral Fellow. Universidad Carlos III de Madrid
- Highest Academic Average of the XXXIII Mechanical Engineers promotion "José Luis Abia"
- 11 Diplomas of Honor Awarded by the University of Zulia for outstanding rating
- Grant holder. Petróleos de Venezuela (PDVSA)
- Merit Medal of Honor awarded to the best average among 590 students