

## Professional Experience

<b>Penn State University, Fayette, The Eberly Campus</b> , Lemont Furnace, PA USA <b>University College, Division of Science</b> <i>Assistant Professor of Chemistry</i>	<b>2016– present</b>
<b>ITESM Campus Monterrey</b> , Monterrey, Nuevo León México <b>Department of Chemistry and Nanotechnology</b> <i>Visiting Professor, and Undergraduate Supervisor</i>	<b>2014– 2016</b>
<b>Biodesign Institute, Arizona State University</b> , Tempe, AZ USA <b>Center of Biosensors and Bioelectronics</b> <i>Post-Doctoral Associate, Lecturer, Graduate and Undergraduate Supervisor</i>	<b>2012– 2016</b>
<b>Yale University</b> , New Haven, CT USA <b>Department of Chemistry</b> <i>Post-Doctoral Associate</i>	<b>2009 – 2011</b>
<b>Oak Ridge National Laboratory</b> , Oak Ridge, TN USA <b>Center for Nano-phase Material Sciences and Computer Science and Physics Division</b> <i>Research Assistant</i>	<b>2005</b>
<b>University of Florida</b> , Gainesville, FL USA <b>Department of Chemistry and Quantum Theory Project</b> <i>Research and Teaching Assistant, and Undergraduate Research Supervisor</i>	<b>2004 – 2009</b>

## Education

<b>University of Florida</b> , Gainesville, FL USA <b>Ph.D. Chemistry</b> with a <b>Chemical Physics certificate</b> Thesis: “Theoretical Investigation on Molecular Wires: Electronic Spectra and Electron Transport”	<b>2004 – 2009</b>
<b>ITESM Campus Monterrey</b> , Monterrey, Nuevo León México <b>B.S. Chemical Sciences</b> Honors Thesis: “Electronic Spectra Prediction and Molecular Dynamics for the Nanostar Dendrimer” Award of Excellence. Graduated with highest honors. First in Chemical Sciences Class 2003	<b>1999 – 2003</b>

## Teaching

### Penn State University

CHEM110	<b>Chemical Principles I</b> , 100% responsibility. Primary Instructor.
CHEM111	<b>Experimental Chemistry I</b> , 100% responsibility. Primary Instructor.
CHEM112	<b>Chemical Principles II</b> , 100% responsibility. Primary Instructor.
CHEM113	<b>Experimental Chemistry II</b> , 100% responsibility. Primary Instructor.
CHEM130	<b>Introduction to General, Organic and Biochemistry</b> , 100% responsibility. Primary Instructor.
CHEM210	<b>Organic Chemistry I</b> , 100% responsibility. Primary Instructor.
CHEM212	<b>Organic Chemistry II</b> , 100% responsibility. Primary Instructor.
CHEM294	<b>Special Problems and Research</b> , 100% responsibility. Primary Instructor.

SC 205N **Identifying Bias and Falsehoods**, *interdomain course, 50% responsibility. Co-primary Instructor.*  
PHYS496 **Independent Studies and Research in Physics**, *100% responsibility. Primary Instructor.*  
PSU 8T **First Year Seminar**, *100% responsibility. Primary Instructor. (Scheduled for Fall21)*

#### ITESM

Q3017 **Molecular Structure and Computational Design**, *100% responsibility. Primary Instructor.*  
Q3029 **Scientific Research in chemistry and Nanotechnology**, *100% responsibility. Primary Instructor.*

#### Arizona State University

NAN 591 **Professional Seminar in Nanoscience and Nanotechnology**, *100% responsibility. Primary Instructor. Graduate level course*  
CHM541 **Advanced Thermodynamics**, *Guest Instructor. Graduate level course.*  
CHM545 **Quantum Chemistry**, *Guest Instructor. Graduate level course.*  
CHM546 **Molecular Spectroscopy and Group Theory**, *Guest Instructor. Graduate level course.*  
CHM571 **Structure, Bond, Symmetry in Materials**, *Guest Instructor. Graduate level course.*  
CHM441 **General Physical Chemistry**, *Guest Instructor.*  
CHM442 **General Physical Chemistry**, *Guest Instructor.*  
CHM463 **Biophysical Chemistry**, *Guest Instructor.*

#### University of Florida

CHM2045 **General Chemistry 1**, *Teaching Assistant.*  
CHM2046 **General Chemistry 2**, *Teaching Assistant.*  
CHM2045 **One-Semester General Chemistry (Chemistry Honors)**, *100% responsibility. Teaching Assistant.*  
CHM3400 **Physical Chemistry for the Biosciences**, *Teaching Assistant.*  
PHY6156 **Computer Methods in Physics**, *Guest Instructor. Graduate level course.*

## Curriculum Development

#### Penn State University

CHEM50 **Remedial Chemistry.**  
SC 205N **Identifying Bias and Falsehoods.**  
BMB490 **Cellular Dynamics I. Cell Biology and Undergraduate Research.**  
BMB491 **Cellular Dynamics II. Cell Biology and Undergraduate Research.**  
CHEM101 **Introductory Chemistry.**  
CHEM106 **Introductory and General Chemistry.**  
CHEM3 **Molecular Science with Laboratory.**  
CHEM202 **Fundamentals of Organic Chemistry I.**  
CHEM110 **Chemical Principles I.**  
CHEM111 **Experimental Chemistry I.**  
CHEM112 **Chemical Principles II.**  
CHEM113 **Experimental Chemistry II.**  
CHEM130 **Introduction to General, Organic and Biochemistry.**  
CHEM1 **Molecular Science.**  
CHEM112H **Chemical Principles II (Honors).**  
CHEM110H **Chemical Principles I (Honors).**

#### ITESM

Q3017 **Molecular Structure and Computational Design.**

#### Arizona State University

NAN 591 **Professional Seminar in Nanoscience and Nanotechnology.**

## Honors and Awards

Faculty Excellence Award in Service, Penn State Fayette	2020
Dr. James Robinson Equal Opportunity Award, Penn State University	2019
Level 1, National System of Investigators, CONACYT.	2016
Fulbright-Hays Fellowship, Arizona State University	2015
SUN- Serving University Needs award, Arizona State University	2015
Peter Salamon Young Scientist Scholarship, Telluride Science Research Center	2012
Travel Fellowship, 2007 Pan-American Workshop on Molecular and Material Sciences	2007
Travel and Research Fellowship, Oak Ridge National Laboratory	2005
University of Florida Alumni Fellowship	2003
Award of Excellence ITESM Campus Monterrey	2003
Knowledge and Distributed Intelligence Fellowship, Quantum Theory Project	2002

## Professional Membership

American Association of University Professors	2020- present
Society for Advancement of Chicano/Hispanics and Native Americans in Science, SACNAS	2018- present
Pittsburgh Quantum Institute	2017- present
American Physical Society, APS	2011- present
American Chemical Society, ACS	2011- present

## Selective Activities and Service

<b>University Faculty Senate</b> , <i>Senator, Penn State University</i>	2020 - present
<b>Undergraduate Research Committee</b> , <i>Chairperson and co-founder, Penn State Fayette</i>	2019 - present
<b>Campus Honors Program</b> , <i>Co-coordinator, Penn State Fayette</i>	2019 - present
<b>Inclusion, Diversity and Equity Alliance</b> , <i>Co-founder and member</i>	2019 - present
<b>Academic and Curricular Affairs Committee</b> , <i>Co-chairperson, Penn State Fayette</i>	2018 - 2019
<b>Executive Committee</b> , <i>Member, Penn State Fayette</i>	2018 - present
<b>Somerset County PA Court</b> , <i>Spanish-English interpreter</i>	2018 - present
<b>Fayette County PA Court</b> , <i>Spanish-English interpreter</i>	2018 - present
<b>Penn State Fayette Dialogue Group</b> , <i>Co-founder and group leader</i>	2018 - present
<b>STEM Summer Camp</b> , <i>Organizer and presenter, Penn State Fayette</i>	2017 - present
<b>STEAM Day. Women in Science</b> , <i>Organizer and presenter, Penn State Fayette</i>	2017 - present
<b>Coalition for Equity</b> , <i>Member, Penn State Fayette</i>	2017 - 2019
<b>Penn State University, Fayette, Cross Country Team</b> , <i>Volunteer Assistant Coach</i>	2016 - present
<b>Intel International Science and Engineering Fair (ISEF)</b> , <i>Project judge and mentor</i>	2013 - present
<b>City of Phoenix</b> , <i>Community outreach and science mentor</i>	2012 - 2016
<b>Journal Reviewer</b> , <i>J. Phys. Chem.; Nano Lett; ACS Sensors</i>	2011 - present
<b>Journal Reviewer</b> , <i>Chem. Science; Nanoscale; Applied Physics Letters.</i>	2011 - present
<b>Independent Media/ Community Organizations</b> , <i>English / Spanish translation</i>	2011 - present
<b>City of New Haven Science Fair</b> , <i>Community outreach and project judge</i>	2011
<b>Quantum Theory Project (QTP) Sanibel Symposium</b> , <i>Staff member, University of Florida</i>	2004 - 2009

## Invited Talks

**Estudios Teóricos y Computacionales del Transporte de Electrons a Nivel molecular: Uso de Sistemas Orgánicos y Biomoleculares para su uso en Circuitos Electrónicos.** Institute of Physics. UNAM. Cuernavaca, Morelos, Mexico, October 2020.

**Electron Transport in Single Molecules: Molecular Circuits based on Organic and Biochemical Molecules.** Transport at the Nanoscale 2020. Cuernavaca, Morelos, Mexico. October 2020.

**Electron Transport Regimes in DNA Molecules.** Chiral Quantum Materials and Devices. ASU, UC-Davis, UCLA. Tempe, AZ, USA. May 2020.

**Quantum Transport Through Molecular Junctions: Effects of Quantum Interference on Directional Charge Transport.** Nanoscience Seminar, Department of Physics, ASU. Tempe, AZ, USA. March 2019.

**Quantum Transport Through Molecular Junctions: Effects of Quantum Interference on Directional Charge Transport.** XVII Annual Meeting of Theoretical Physical Chemistry. REMFQT. Monterrey, Nuevo Leon, Mexico. November 2018.

**The Role of Quantum Interference in Molecular Rectification.** Transport at the Nanoscale 2018. Cuernavaca, Morelos, Mexico. November 2018.

**Using Computational Chemistry to Design Electronic Components.** 2018 SACNAS. San Antonio, Texas, USA. October 12<sup>th</sup>, 2018.

**Molecular Rectification Enhancement and Charge Transport Control based on Conformational and Chemical Modifications.** Transport at the Nanoscale 2017. Cuernavaca, Morelos, Mexico. September 2017.

**Charge Transport Through Nanostructures Based on DNA.** Department of Chemistry and Nanotechnology. ITESM Campus Monterrey. Monterrey, Nuevo León, México. February 2017.

**Chemistry, Theory and Molecular Design. Applications in Current Challenges.** Department of Chemistry and Nanotechnology. ITESM Campus Monterrey. Monterrey, Nuevo León, México. August 2014.

**Theoretical Investigations in Molecular Wires.** Escuela Superior de Físicas y Matemáticas. Instituto Politécnico Nacional. México D.F., México. Julio 2014.

**Charge Transport through Biomolecules and Design of Biosensors.** Nucleum 2014. Monterrey, Nuevo León, México. March 2014

**Computational Chemistry: New Perspectives.** Department of Chemistry and Nanotechnology. ITESM Campus Monterrey. Monterrey, Nuevo León, México. April 2012.

**Energy, Emissions and Computational Chemistry: Modeling Molecular Devices for New Photovoltaic Technologies.** Department of Chemistry. Northwestern University, Evanston, Illinois, USA. November 2011.

**Energy Research: Current Challenges in Computational Chemistry.** Department of Chemistry. University of Illinois at Urbana- Champaign, Urbana, Illinois, USA. October 2011.

**Energy, Emissions and Computational Chemistry: Modeling Biomimetic Catalysts.** Johnson Matthey Inc., Malvern Pennsylvania, USA. August 2011.

**Chemistry and Electronics: Tuning the Electron Transport Properties of a Potential Molecular Electronic Device.** Center of Nonlinear Studies Seminar. Los Alamos National Laboratory, Los Alamos, New Mexico, USA. February 2009.

**Optimizing Transport Properties of a Potential Molecular Electronic Device.** 2007 Pan-American Workshop on Molecular and Material Sciences. Physics Institute UNAM. Cuernavaca, Morelos, México. October 2007.

## Publications

- Jesus Valdiviezo, Anastazia Polakovsky, Paulina Rocha, and [Julio L. Palma](#)\*. Non-Exponential Length Dependence of Molecular Conductance Acene-Based Molecular Wires. *ACS Sensors*. 2021, 6, 2 pp. 477-484.
- Anastazia Polakovsky, Janai Showman, Jesus Valdiviezo, and [Julio L. Palma](#)\*. Quantum Interference Enhances Rectification Behavior in Molecular Devices. *Physical Chemistry Chemical Physics*. 2021, 23 pp.1550-1557.
- Marely E. Tejada-Ferrari, Chelsea L Brown, Gabriela C.C.C. Coutinho, Ghabriel A. Gomes de Sá, [Julio L. Palma](#), Manuel J. Llansola-Portoles, Gerdenis Kodis, Vladimiro Mujica, Junming Ho, Devens Gust, Thomas A. Moore, Ana L. Moore. Electronic Structure and Triplet-Triplet Energy Transfer in Artificial Photosynthetic Antennas. *Photochemistry and Photobiology*. 2019, 1 pp. 211-219.
- Jesus Valdiviezo, and [Julio L. Palma](#)\*. Molecular Rectification Enhancement Based on Conformational and Chemical Modifications. *J. Phys. Chem. C*. 2018, 122 pp. 2053-2063.
- Limin Xiang, [Julio L. Palma](#), Yuequi Li, Vladimiro Mujica, Mark A. Ratner, and Nongjian Tao. Gate-controlled conductance switching in DNA. *Nature Communications*. 2017, 8 pp. 1-10.
- Shobeir Mazinani, Reza Vatan Meidanshahi, [Julio L. Palma](#), Pilarisetty Tarakeshwar, Thorsten Hansen, Mark A. Ratner, and Vladimiro Mujica. Polarizability as a Molecular Descriptor for Conductance in Organic Molecular Circuits. *J. Phys. Chem. C*. 2016, 120 pp. 26054-26060.
- Albert C Aragonès, Ernesto Medina, Miriam Ferrer-Huerta, Nuria Gimeno, Meritxell Teixidó, [Julio L. Palma](#), Nongjian Tao, Jesus M Ugalde, Ernest Giralt, Ismael Díez-Pérez, and Vladimiro Mujica. Measuring the Spin-Polarizability Power of a Single Chiral Molecule. *Small*. 2016, 13 pp. 1602519-1602524.
- Micah Wimmer, [Julio L. Palma](#), Pilarisetty Tarakeshwar, and Vladimiro Mujica. Single-Molecule Conductance through Hydrogen Bonds: The Role of Resonances. Polarizability as a Molecular Descriptor for Conductance in Organic Molecular Circuits. *J. Phys. Chem. Lett.* 2016, 7 pp. 2977-2980.
- Yuequi Li, Limin Xiang, [Julio L. Palma](#), Yoshihiro Asai, and Nongjian Tao. Thermoelectric effect in Single DNA molecules. *Nature Communications*. 2016, 7 pp. 1-8.
- Limin Xiang, Thomas Hines, [Julio L. Palma](#), Xuefeng Lu, Vladimiro Mujica, Mark A. Ratner, Gang Zhou, and Nongjian Tao. Non-exponential length dependence of conductance in iodide-terminated oligothiophene single-molecule tunneling junctions. *J. Am. Chem. Soc.* 2016, 138, pp 679-687.
- Christopher Bruot, Limin Xiang, [Julio L. Palma](#), Yuequi Li, and Nongjian Tao. Tuning the Electromechanical Properties of Single DNA Junctions. *J. Am. Chem. Soc.* 2015, 137, pp 13933-13937.
- Christopher Bruot, [Julio L. Palma](#), Limin Xiang, Vladimiro Mujica, Mark A. Ratner, and Nongjian Tao. Piezoresistivity in Single DNA molecules. *Nature Communications*. 2015, 6 pp. 221-226.
- Limin Xiang, [Julio L. Palma](#), Christopher Bruot, Vladimiro Mujica, Mark A. Ratner, and Nongjian Tao. Intermediate Tunneling-hopping Regime in DNA charger Transport. *Nature Chemistry*. 2015, 7 pp. 221-226.
- Christopher Bruot, Limin Xiang, [Julio L. Palma](#), and Nongjian Tao. Effects on Mechanical Stretching on DNA Conductance. *ACS Nano*, 2015, 9, pp 88-94.
- Pilarisetty Tarakeshwar, [Julio L. Palma](#), Gregory P. Holland, Petra Fromme, Jeffery L. Yager, and Vladimiro Mujica. Probing the Nature of Charge Transfer at Nano-Bio Interfaces: Peptides on Metal Oxide Nanoparticles. *J. Phys. Chem. Lett.* 2014, 5, pp 3555-3559.

- Inés Urdaneta, Arne Keller, Osman Atabek, [Julio L. Palma](#), Daniel Finkelstein-Shapiro, Pilarisetty Tarakeshwar, Vladimiro Mujica, and Mónica Calatayud. Dopamine Adsorption on TiO<sub>2</sub>. *J. Phys. Chem. C*. 2014, 118, pp 20688-20693.
- Pilarisetty Tarakeshwar, [Julio L. Palma](#), Daniel Finkelstein-Shapiro, Arne Keller, Inés Urdaneta, Mónica Calatayud, Osman Atabek, and Vladimiro Mujica. SERS as a probe of charge-transfer pathways in hybrid dye/molecule-metal oxide complexes. *J. Phys. Chem. C*. 2014, 118, pp 3774-3782.
- Wendu Ding, Christian F. A. Negre, [Julio L. Palma](#), Alec C. Durrell, Laura J. Allen, Karin J. Young, Rebecca L. Milot, Charles A. Schmuttenmaer, Gary W. Brudvig, Robert H. Crabtree, Victor S. Batista. Linker Rectifiers for Covalent Attachment of Transition-Metal Catalysts to Metal-Oxide Surfaces. *ChemPhysChem*. 2014, 15, pp 1138-1147.
- Louise M. Guard, [Julio L. Palma](#), William P. Stratton, Laura J. Allen, Gary W. Brudvig, Robert H. Crabtree, Victor S. Batista, and Nilay Hazari. Synthesis and computational studies of Mg complexes supported by 2,2':6,2'-terpyridine ligands. *Dalton Trans*. 2012, 41, pp 8098-8110.
- [Julio L. Palma](#), Evrim Atas, Lindsay Hardison, Todd B. Marder, Jonathan C. Collings, Andrew Beeby, Joseph S. Melinger, Valeria D. Kleiman, Jeffrey L. Krause and Adrian E. Roitberg. Electronic Spectra of the Nanostar Dendrimer: Theory and Experiment. *J. Phys. Chem. C*. 2010, 114, pp 20702-20712.
- [Julio L. Palma](#), Chao Cao, X. -G. Zhang, Predrag S. Krstić, Jeffrey L. Krause and Hai-Ping Cheng. Manipulating I-V Characteristics of a Molecular Switch with Chemical Modifications. *J. Phys. Chem. C*. 2010, 114, pp 1655-1662.