

**XI PUERTO RICO ENERGY CENTER (PREC) SYMPOSIUM**  
**UNIVERSIDAD ANA G. MENDEZ**  
**SEPTEMBER 16, 2021**

<b>9:00 AM – 9:15 AM</b>	<b>Welcome Remarks</b>	Zoom Meeting Room 1 Universidad Ana G. Mendez.
	<b>Welcome Remarks</b>	➤ Dr. Amaury Malavé Puerto Rico Energy Center Director Mechanical Department Universidad Ana G. Mendez.
<b>9:15 AM – 10:00 AM</b>	<b>PLENARY CONFERENCE</b>	➤ Louis Martin Dean of Engineering North Carolina State University
<b>10:00 AM – 11:15AM</b>	<b>Concurrent Scientific Sessions</b>	Zoom Meeting Rooms 1, 2, 3
<b>11:15 AM – 11:30 PM</b>	<b>BREAK</b>	
<b>11:30 PM – 12:30 PM</b>	<b>Concurrent Scientific Sessions</b>	Zoom Meeting Rooms 1, 2, 3
<b>12:30 PM – 2:00 PM</b>	<b>LUNCH KEY NOTE SPEAKER</b> Zoom Meeting Room 1	➤ Kenneth Mark Bryden Ames Laboratory US Department of Engineering, Iowa State University
<b>2:00 PM – 3:15 PM</b>	<b>Concurrent Scientific Sessions</b>	Zoom Meeting Rooms 1, 2, 3
<b>3:15 PM – 4:00 PM</b>	<b>PLENARY CONFERENCE</b> Zoom Meeting Room 1	Mathew Lave Renewable and Distributed Systems Integration Group Sandia National Laboratory
<b>4:00 PM – 5:15 PM</b>	<b>Concurrent Scientific Sessions</b>	Zoom Meeting Room 2

# Room 1 Concurrent Sessions

**Zoom Room 1**

**Moderator: Amaury Malave**

<u>Time</u>	<u>Speaker and Affiliation</u>	<u>Title</u>
10:00AM-10:15AM	Yuly Garcia - UPRM	<i>Simulation models for off-grid microgrid systems considering resilient operation</i>
10:15AM-10:30AM	Omar Rodriguez – UPRM	<i>Simulation of isolated microgrids considering security-constraints and N-1 analysis</i>
10:30AM-10:45AM	Kelvin Vicente Ramos – UAGM	<i>Onion-like Carbon, Iron, Cobalt, Nitrogen XAS Data Analysis</i>
10:45AM -11:00AM	Hiram López Asatacio. – UAGM	<i>Synthesis of N-OLC/FeCo Catalyst for Oxygen Reduction Reaction</i>
11:00AM -11:15AM	Sol Alverio – UAGM	<i>Wind energy resources assessment in the northwest coast in Puerto Rico</i>
11:15AM -11:30AM	<b>BREAK</b>	
11:30AM -11:45AM	Benjamin Santiago Abreu – UPRM	<i>Simulation models to optimize off-grid microgrids design and operation</i>
11:45AM -12:00PM	Idalina Claudio – UAGM	<i>Exploring the use of neural networks for estimating energy consumption</i>
12:00PM -12:15AM	Julio Ocana Ortiz – UAGM	<i>Microalgae as bioenergy factories: modeling and designing an anerobic biodigester for biogas production</i>
12:15AM -12:30AM	Yarelis Rivera – U Interamericana PR	<i>Innovations in biogas production in microalgae biofuel process: A review.</i>
12:15PM - 1:30PM	<b>LUNCH</b>	<b>Lunch Keynote Speaker</b>

# Room 1 Concurrent Sessions

## Zoom Room 1

Moderator: Amaury Malave

<u>Time</u>	<u>Speaker and Afiliator</u>	<u>Title</u>
2:00PM - 2:15PM	Angélica Del Valle Pérez – UAGM	<i>Synthesis of doped onion-like carbon nanoparticles as a support for non-precious metal electrocatalyst</i>
2:15PM - 2:30PM	Joyce Marie – UAGM	<i>Phosphorus doped carbon nano onions electrocatalytic oxygen reduction reaction</i>
2:30PM - 2:45PM	Yolimar Vazquez – UAGM	<i>Microalgae as bioenergy factories: coupling production of oil and biogas from microalgae</i>
2:45PM - 3:00PM	Valeria Dones – UAGM	<i>Design and component testing of a small-scale wind turbine</i>
3:00PM - 3:15PM	Guillermo López – UPRM	<i>Design of photovoltaic systems, which includes irradiance calculation, load calculation, storage system calculation, AC conversion and simulation</i>

## Room 2 Concurrent Sessions

**Zoom Room 2**

**Moderator: Luis Traverso**

<u>Time</u>	<u>Speaker and Affiliation</u>	<u>Title</u>
10:00AM-10:15AM	Briana Cardenas – UTEP	<i>Tools and techniques for efficient energy use in vertical farming</i>
10:15AM-10:30AM	Stiphany Blanco Laureano – UAGM	<i>Sulfate-reducing bacteria thrive in microbial mats at contrasting stages of development</i>
10:30AM-10:45AM	Félix López – UAGM	<i>Dynamic of sulfate reducing bacteria in response to hurricane Maria along the elevation gradient at El Yunque Rain Forest in Puerto Rico</i>
10:45AM -11:00AM	Paola N. Velázquez Martínez – UAGM	<i>Sulfate-reducing bacteria along the El Yunque National Forest, PR.</i>
11:00AM -11:15AM	Jeymily Ares – UAGM	<i>Fundamental kinetics for bacterial degradation of phthalates among diverse isolates from Puerto Rico</i>
11:15AM -11:30AM	<b>BREAK</b>	
11:30AM -11:45AM	Kenneth Torres – UAGM	<i>The sargassum impact on bacterial growth associated with iron, nitrate's and sulfate's.</i>
11:45AM -12:00PM	Carlos Medina Pérez – UAGM	<i>Dissimilatory sulfite reductase genes (dsrAB) disclosed diversity of sulfate-reducing bacteria among sediments in Puerto Rico</i>
12:00PM -12:15AM	José Pérez Jiménez – UAGM	<i>Biocatalytic diversity for bacterial arsenate respiration</i>
12:15AM -12:30AM	Karleen González Rosario – UAGM	<i>Dynamics of microbial groups in response to simulated hurricane at El Yunque Rain Forest in Puerto Rico</i>
12:15PM - 1:30PM	<b>LUNCH</b>	<b>Lunch Key Note Speaker</b>

## Room 2 Concurrent Sessions

### Zoom Room 2

Moderator: Ian Gutierrez

<u>Time</u>	<u>Speaker and Affiliation</u>	<u>Title</u>
2:00PM - 2:15PM	Adriana Tolentino – UAGM	<i>Biodegradation of halogens environmentally</i>
2:15PM - 2:30PM	Luz V. Arroyo Cruz – UAGM	<i>A story of resilience: Seasonal variation in mycoplasma species among different dairy farms soils</i>
2:30PM - 2:45PM	Diego Noguerras Rivera – UAGM	<i>Deployment of a deep learning algorithm for fault detection in a gas turbine</i>
2:45PM - 3:00PM	Luz Torres Molina – UAGM Diego Matias UAGM	<i>Puerto Rico rivers hydrokinetic energy assessment</i>
3:00PM - 3:15PM	Alanis Colón González – UPRM	<i>Renewable energy systems design using Aurora Solar and REopt</i>
3:15PM - 4:00PM		<b>Afternoon Key Note Speaker</b>
4:00PM - 4:15PM	Alejandro García – UPRM	<i>Metal piping life prediction analysis of corrosion and thermal / pressure cycling under sCO<sub>2</sub> conditions seen in power plant natural circulation loops</i>
4:15PM - 4:30PM	Joannes Díaz – UAGM	<i>Paper-based microfluidics development in wearable devices</i>
4:30PM - 4:45PM	Antonio Espinosa – UAGM	<i>Developing wearables for neuropeptides detection in sweat using flexible substrates</i>
4:45PM - 5:00PM	Edgar Vázquez – UAGM	<i>Development of flexible silver inkjet electrodes for the detection of neuropeptide y in human sweat</i>
5:00PM - 5:15PM	Marielly Rodríguez Gauthier – UPRM	<i>Robotics Outreach Program</i>

# Room 3 Concurrent Sessions

**Zoom Room 3**

**Moderator: Lisandro Cunci**

<u>Time</u>	<u>Speaker and Affiliation</u>	<u>Title</u>
10:00AM-10:15AM	William Ríos - UPRM	<i>Improving the efficiency of supercritical CO2 recompression closed Brayton cycle (RCBC)</i>
10:15AM-10:30AM	Jesús Maldonado – UPRM	<i>Risk and resilience metrics for infrastructure systems</i>
10:30AM-10:45AM	Nicolas Herrera – UTEP	<i>The development of a high temperate by-pass valve for a solid oxide fuel cell system with a gas turbine.</i>
10:45AM -11:00AM	Melody Cosme Morales. – UPRM	<i>Low-cost efficient wireless intelligent sensors (LEWIS) for outdoor applications in an energy resilience environment</i>
11:00AM -11:15AM	Styven Ramos Cora – UAGM	<i>Deployment of a deep learning algorithm for fault detection in a gas turbine</i>
11:15AM -11:30AM	<b>BREAK</b>	
11:30AM -11:45AM	Alfred Chaidez– UTEP	<i>Energy portfolio of power systems during winter storms</i>
11:45AM -12:00PM	Francisco Matos – UAGM	<i>Development of power electronics interface for SOFC-GT hybrid system</i>
12:00PM -12:15AM	Hermes Calderón – UAGM	<i>On the analysis of fatigue crack growth resistance of aluminum matrix composites</i>
12:15AM -12:30AM	Gil Medina – UPRM	<i>Using COMSOL Multiphysics to simulate laser heating of various materials to guide laser material processing experiment</i>
12:15PM - 1:30PM	<b>LUNCH</b>	<b>Lunch Key Note Speaker</b>

## Room 3 Concurrent Sessions

**Zoom Room 3**

**Moderator: Lisandro Cunci**

<u>Time</u>	<u>Speaker and Affiliation</u>	<u>Title</u>
2:00PM - 2:15PM	Dayna Ortiz – UAGM	<i>Optimization of ionizing radiation sensors by growing single-walled carbon nanotubes (SWNTs) on thermally-treated silicon substrates</i>
2:15PM - 2:30PM	Yashira Escalera – UPRM	<i>Development of catalytic for oxygen reduction</i>
2:30PM - 2:45PM	Marlene Alvarado– UAGM	<i>Isolation of putative-lignin deconstructing bacteria</i>
2:45PM - 3:00PM	Franzine Rodríguez – UPRM	<i>Capping agent effect on catalytic performance for ammonia oxidation of platinum</i>
3:00PM - 3:15PM	Lyza Martínez – UAGM	<i>AFM and electrochemical measurements of neurotransmitters using NPY-specific aptamer-modified electrodes</i>