

Perla Enid Cruz Tato

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Current Status

PhD. Candidate

Dept. of Chemistry, UPR – Río Piedras

Education

2014 - Present Ph.D Candidate in Chemistry
University of Puerto Rico - Río Piedras Campus
Expected graduation: May 2020

June 2014 Bachelor of Science in Industrial Chemistry,
University of Puerto Rico - Humacao Campus
Summa cum Laude

Current Research Interest: Electroconductive membranes and coatings with anti-fouling, catalytic and antimicrobial properties which can be employed under any water purification system, and also be implemented as antibacterial surface coatings for medical or sterile procedures.

Research Experience

2015 – Present Graduate Research Assistant (Mentor: Dr. Eduardo Nicolau)

Summer 2019 NASA Center Based Research Experience (Mentor: Michael Flynn)

Summer 2018 Visiting Graduate Student at UCLA (Mentor: Dr. David Jassby)

Spring 2018 NASA X-hab 2018 Academic Innovation Challenge (Mentor: Tra-My Justine Richardson)

Fall 2017 NASA Center Based Research Experience (Mentor: Michael Flynn)

Summer 2017 NASA Center Based Research Experience (Mentor: Michael Flynn)

Summer 2016 NASA Center Based Research Experience (Mentor: Michael Flynn)

2010 – 2014 Undergraduate Research Assistant (Mentor: Dr. Gabriel Barletta)

Summer 2013 REU: Molecular and Biochemical Analysis of Proteins at Purdue University (Mentor: Dr. Mark Hall)

Other Research and Professional Development Activities

2019 Course: Customer Discovery by I-Corps PR - Grupo Guayacán, Inc. (February – April)

2018 Short course: “Introduction to X-Ray Absorption Spectroscopy” (November 6-8) at Brookhaven National Laboratory, Upton, NY

 Workshop: 22nd Southern Regional Education Board Institute on Teaching and Mentoring at Arlington, VA (October 29 - November 1)

Biographical Sketch

Honors

- 2019 Graduate Research Initiative for Scientific Enhancement (RISE) Fellowship
- 2018 Federation of American Societies for Experimental Biology (FASEB) Diversity Resources Program travel award to Postdoctoral Preparation Institute.
Post-Hurricane Maria Aid for Researchers Grant Program by the Puerto Rico Science, Technology and Research Trust in partnership with the AAAS Caribbean Division, Ciencia Puerto Rico and other contributing sponsors to support the recovery efforts of students.
- 2016 Acknowledgement: Special recognition by the Puerto Rico Senate for being a young leader and awarded for the NASA ASTAR Fellow.
- 2015 NASA Advanced STEM Training and Research (ASTAR) Fellowship
Acknowledgment: Municipal Resolution. Special recognition by the Luquillo municipal legislature for being chosen as a NASA ASTAR Fellowship member.
Honor Scholarship from University of Puerto Rico - Río Piedras Campus
- 2014 Acknowledgement: Outstanding Chemistry Students in Puerto Rico
2nd Place Competition of Outstanding Chemistry Students in Puerto Rico
Acknowledgement: Academic Excellence at University of Puerto Rico-Humacao Campus
- 2013 Acknowledgement: Outstanding Chemistry Students in Puerto Rico
- 2010-2014 Undergraduate Research Initiative for Scientific Enhancement (RISE) Fellowship
Honor Scholarship from University of Puerto Rico – Humacao Campus

Presentations at Local Meetings

- P. Cruz-Tato**, C. Lasalde- Ramírez, M. Flynn and E. Nicolau, “Design and Fabrication of a Conductive Membrane with Antifouling Properties for Wastewater Reclamation”, 38th PR Interdisciplinary Scientific Meeting 53rd ACS Junior Technical Meeting in Mayagüez, PR, May 4, 2019 (Poster Presentation)
- P. Cruz-Tato**, Elevator Pitch, 7th Lilly Academy Technical Forum, San Juan PR, April 12, 2019 (Oral Presentation)
- P. Cruz-Tato**, N. Rivera-Fuentes, M. Flynn and E. Nicolau, “Anti-fouling electroconductive forward osmosis membranes: electrochemical and chemical properties”, 7th Lilly Academy Technical Forum, San Juan PR, April 12, 2019 (Poster Presentation)
- P. Cruz-Tato**, N. Rivera-Fuentes, M. Flynn and E. Nicolau, “Polyaniline-based electroconductive forward osmosis membranes: An anti-fouling approach”, 41st ACS Senior Technical Meeting, Guayanilla, PR, November 10, 2018 (Oral Presentation)

- P. Cruz-Tato**, L. Santiago, K. Vega, E. Ortíz-Quiles, L. Betancourt, V. Ortíz, M. Flynn and E. Nicolau, “Metalized nanocellulose composites as a feasible material for membrane supports: Design and applications for water treatment”, 6th Lilly Academy Technical Forum, San Juan, PR, March 24, 2017 (Poster Presentation)
- P. Cruz-Tato** and E. Nicolau, “Metalized nanocellulose-based composites as precursor materials for thin-film forward osmosis membranes”, 40th Anniversary of ACS Senior Technical Meeting, Guánica, PR, October 29, 2016 (Oral Presentation)
- P. Cruz-Tato**, L. Santiago, K. Vega, E. Ortíz-Quiles, L. Betancourt, V. Ortíz, M. Flynn and E. Nicolau, “Metalized nanocellulose-based composites as reactive layers for thin-film forward osmosis membranes: Physical characterization studies and water reclamation performance”, 5th Lilly Academy Technical Forum, San Juan, PR, May 6, 2016 (Poster Presentation)

Presentations at National Meetings

- P. Cruz-Tato**, N. Rivera-Fuentes, M. Flynn and E. Nicolau, “Polyaniline-based electroconductive forward osmosis membranes: An anti-fouling approach”, Gordon Research Conference: Membrane Materials and Processes, New London, NH, Aug 11-17, 2018 (Poster Presentation)
- P. Cruz-Tato**, N. Rivera-Fuentes, M. Flynn and E. Nicolau, “Towards the Development of Reactive Membranes with Antifouling Properties for Water Reclamation”, 4th Ford Fellowship Conference, Washington, D.C., May 3-6, 2018 (Poster Presentation)
- P. Cruz-Tato**, E. Ortiz-Quiles, K. Vega, L. Santiago, M. Flynn, L. Díaz-Vázquez and E. Nicolau, “Metalized nanocellulose composites as a feasible material for membrane supports: Design and applications for water treatment”, 253rd American Chemical Society National Meeting, San Francisco, CA April 2-6, 2017 (Oral Presentation)
- P. Cruz-Tato**, K. Vega, L. Santiago, V. Ortíz, D. Bracho, L. Betancourt, C. González, E. Ortíz-Quiles, M. Flynn and E. Nicolau, “Metalized nanocellulose-based composites as reactive layers for thin-film forward osmosis membranes”, 252nd American Chemical Society National Meeting, Philadelphia, PA, August 21-25, 2016 (Oral and Poster Presentation)

Publications

- P. Cruz-Tato**, N. Rivera-Fuentes, M. Flynn and E. Nicolau “Anti-fouling electroconductive forward osmosis membranes: electrochemical and chemical properties” ACS Applied Polymer Materials 2019, 1 (5), 1061-1070 DOI: 10.1021/acsapm.9b00087
- P. Cruz-Tato**, E. Ortiz-Quiles, K. Vega-Figueroa, L. Santiago-Martoral, M. Flynn, L. Díaz-Vázquez and E. Nicolau “Metalized Nanocellulose Composites as a Feasible Material for Membrane Supports: Design and Applications for Water Treatment” Environmental Science & Technology 2017, 51 (8), 4585-4595 DOI: 10.1021/acs.est.6b05955