DARA L. RODRIGUEZ AYALA

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EDUCATION

Ph.D. in Organic Chemistry, University of Puerto Rico, San Juan. GPA: 3.83 2020–Present

Bachelor of Sciences in Chemistry, University of Puerto Rico, San Juan. GPA: 3.33 2015 - 2020

RESEARCH EXPERIENCE

Graduate Researcher at University of Puerto Rico, San Juan, PR Jan 2021–Present
Supramolecular approaches for wearable sensing applications

- The development of sensors of guanosine-based particles will encapsulate a protein for the detection of metabolites in sweat.
- Advisor: José M. Rivera, Ph.D.

Undergraduate Researcher at University of Puerto Rico, San Juan, PR Aug 2018 - May 2020
Synthesis of Gadolinium and Manganese Dmit(acac)$_2$ Metal Complexes as MRI Contrast Agents

- Dmit(acac)$_2$ Metal Complexes have the potential to become theragnostic agents, which is an agent that combines therapy and diagnose in one single compound.
- Advisor: Dalice Piñero, Ph.D.

Undergraduate Researcher at Brookhaven National Laboratory, Upton, NY June 2019 - Aug 2019
Characterization of substituted metal phthalocyanine nanowires to achieve lower detection limits in NO_x gas sensing

- Metal organic framework (MOF) nanowires composed from MnPc and FePc, without an interaction to a NO_x molecule, had insulating properties while the nanowires composed of CuPc showed an increase in their conductivity after the platinum deposition. This nanowires could serve as NO_x gas sensors.
- Advisors: Fernando Camino, Ph.D.; Dalice Piñero, Ph.D.

RESEARCH PRESENTATIONS

April 2019 XII Coloquio Nacional sobre las Mujeres
Poster Title: Dmit(acac)$_2$ Reaction with Rare Earth Metals as MRI Contrast Agents

May 2019 38th Puerto Rico Interdisciplinary Scientific Meeting/53rd ACS Junior Technical Meeting (PRISM/JTM)
Oral Presentation Title: Synthesis of novel ligands: Dmit(acac)$_2$ Complexes as MRI Contrast Agents: Reaction with Rare Earth Metals

August 2019 Summer Internship at Brookhaven National Laboratory
Oral Presentation Title: Characterization of substituted metal phthalocyanines nanowires to achieve lower detection limits in NO_x gas sensing

November 2019 Annual Biomedical Research Conference for Minority Students (ABRCMS)
Oral Presentation Title: Synthesis of Dmit(acac)$_2$ Metal Complexes as Magnetic Resonance Imaging Contrast Agents: Reaction with Rare Earth Metals

April 2022 40th Puerto Rico Interdisciplinary Scientific Meeting (PRISM) 55th ACS Junior Technical Meeting
Poster Presentation Title: Enhancement of paper-based biosensors for sweat with guanosine-based supramolecular particles

March 2022 CAWT Annual Meeting
Poster Presentation Title: Enhancement of paper-based biosensors for sweat with guanosine-based supramolecular particles

June 2022 Gordon Research Seminar in Bionalaytical Sensors
Poster Presentation Title: Enhancement of paper-based biosensors for sweat with guanosine-based supramolecular particles

June 2022 Gordon Research Conference in Bionalaytical Sensors
Poster Presentation Title: Enhancement of paper-based biosensors for sweat with guanosine-based supramolecular particles

PUBLICATIONS

Cordero Giménez, K.T.; Soto Díaz, V.Y.; González Espiet, J.C.; Lavín Flores, A.; Bas Concepción, J.; Rivera Cruz, K.E.; **Rodríguez Ayala, D.L.**; and Piñero Cruz, D.M. Crystal structure, Hirshfeld surface analysis and spectroscopic characterization of the di-enol tautomeric form of the compound 3,3′-[(2-sulfanylidene-1,3-dithiole-4,5-diyl)bis(sulfanediyl)]bis(pentane-2,4-dione). *Acta Crystallogr. Sect. E* **2020**, *76(9)*, 1427-1432, DOI: 10.1107/S2056989020010695.

AWARDS AND GRANTS

NSF-EPSCoR Center for the Advancement of Wearable Technologies (CAWT) Graduate Fellowship
University of Puerto Rico, San Juan. 2021. NSF Grant: OIA-1849243

Maximizing Access to Research Careers (MARC) Fellowship
University of Puerto Rico, San Juan. 2018. Grant Number: 5T34GM007821-39

Teacher Assistantship
University of Puerto Rico, San Juan. 2020

SKILLS

Inert Atmosphere reactions	Use of glovebox and Schlenk line for anaerobic reactions
Characterization techniques	Extensive use in Scanning Electron Microscope (SEM), Focused Ion Beam (FIB)
Organic/Inorganic synthesis	Synthesis of organic ligands for the coordination with rare earth metals
Other characterization techniques	Fourier-Transform Infrared (FTIR) Spectroscopy, UV-Vis Spectroscopy, 1D and 2D Nuclear Magnetic Resonance (NMR), Flow Cytometry, Tecan, Nanodrop, Dynamic Light Scattering (DLS)
Supramolecular synthesis	Multi-step, synethetic macromolecule organic synthesis

ORGANIZATIONS AND VOLUNTEERING ACTIVITIES

Asociacion Graduada de Quimica (AGQ)-ACS
Secretary position
University of Puerto Rico, San Juan. 2021-2022.

Asociacion Graduada de Quimica (AGQ)-ACS
President position
University of Puerto Rico, San Juan. 2022-current.

3er Simposio El Poder de la Mujer en la Ciencias: Metas de Desarrollo Sostenible
Moderator
University of Puerto Rico, San Juan. 2022

Bicicletada: Einstein, Tesla y sus amigos
Scientific demonstration facilitator
University of Puerto Rico, San Juan. 2022

CAWT Summer Camp
Scientific mentor
University of Puerto Rico, San Juan. 2022