

Leobardo Rodriguez Segura

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EDUCATION

University of Pennsylvania, Philadelphia, PA Aug 2024 – Present

Postdoctoral Fellow

Advisors: Professors Karen I. Goldberg and Dohyung Kim

Purdue University, West Lafayette, IN Aug 2019 – May 2024

Ph.D. Inorganic Chemistry

Advisor: Professor Tong Ren

Dissertation: Put a ring on it: the discovery and investigation of the non-innocence of TIM in Co^{III}(TIM) complexes

Mount St. Mary's University, Emmitsburg, MD Aug 2015 – Dec 2018

B. S. Chemistry, Summa Cum Laude, Honors Program

Minor in Philosophy

RESEARCH EXPERIENCE

Purdue University, West Lafayette, IN Fall 2019 – Spring 2024

- Synthesized Co^{III}(TIM) alkenyl complexes and explored their photoreactivity
- Successfully generated and studied the formation of aza-cobalt-cyclobutenes on Co^{III}(TIM)
- Synthesized and characterized a series of Co^{III}(TIM) mono- and bis-alkynyl complexes
- Able to perform and interpret: Mass Spectrometry (MS), UV-Vis, Infrared (FTIR), and Fluorescence Spectroscopy, Nuclear Magnetic Resonance (NMR), Density Functional Theory, Cyclic Voltammetry, Spectro-electrochemistry, X-ray Crystallography

SELECTED PUBLICATIONS

8. Rodriguez Segura, L; Ren, T. "Trans-influence of cyanide on the structural and electronic properties of a series of organocobalt^{III}(TIM) complexes." *New J. Chem.* **2024**, *48*, 13030-13037. DOI: 10.1039/D4NJ0236A.

7. Roos, J. J.; Gautam, P.; Marin, M. P.; Rodriguez Segura, L; Poore, A. T.; Tian, S.; Adeniyi, A. E.; Andrews, J. L.; Ren, T. "M(TEIM) complexes with M as Co and Fe: analogous of classic M(TIM)." *Polyhedron* **2024**, *261*, Art. No. 117101. DOI: 10.1016/j.poly.2024.117101.

6. Rodriguez Segura, L; McGuire, K. J.; Raghavan, A.; Roos, J. J.; Ren, T. "Synthesis and characterization of Co^{III}(TIM) complexes bearing alkenyl or 1-aza-2-cobalt-cyclopropane moieties." *Organometallics* **2024**, *43*, 1057-1067. DOI:10.1021/acs.organomet.4c00113.

5. Rodriguez Segura, L; Clendening, R. A.; Ren, T. "Further exploration of aza-cobalt-cyclobutenes on Co^{III}(TIM) complexes: reactivity and spectroelectrochemistry." *Organometallics* **2023**, *42*, 1717-1724. DOI:10.1021/acs.organomet.2c00557.

4. Rodriguez Segura, L; Cox, K. E.; Samayoa-Oviedo, H. Y.; Ren, T. "Further studies of Co^{III}(TIM) mono- and bis-alkynyl complexes." *Eur. J. Inorg. Chem.* **2023**, e202200641. DOI:10.1002/ejic.202200641.

3. Rodriguez Segura, L; Ren, T. "Formation of aza-cobalt-cyclobutene on Co^{III}(TIM) – the hidden non-innocence of TIM ligand." *Organometallics* **2022**, *41*, 1130-1133. DOI:10.1021/acs.organomet.2c00117.

2. Rodriguez Segura, L; Lee, S. A.; Mash, B. L.; Schuman, A. J.; Ren, T. "A series of mono- and bis-alkynyl Co(III) complexes supported by a tetra-imine macrocyclic ligand (TIM)" *Organometallics* **2021**, *40*, 3313-3322. DOI:10.1021/acs.organomet.1c00423.

1. Schuman, A. J.; Mills, M. M.; Rodriguez Segura, L; Milller-Clark, L. A.; Ren, T. "Chromium(III) bis-alkynyl complexes supported by C-substituted cyclam MPC" *J. Organomet. Chem.* **2021**, *954-955*, 122110. DOI:10.1016/j.jorganchem.2021.122110.

AWARDS AND HONORS

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|----------------------------------------------------------------------------------|--------------------|
| • Vagelos Institute for Energy Science and Technology Postdoctoral Fellowship | Aug 2024 - Present |
| • Ian P. Rothwell Award in Inorganic Chemistry | Spring 2023 |
| • 2019 ACS Maryland Student Award, Mount St. Mary's University | Spring 2019 |
| • 2019 American Institute of Chemists Student Award, Mount St. Mary's University | Spring 2019 |
| • Gadamer Liberal Arts Scholarship, Mount St. Mary's University | Spring 2018 |

RESEARCH PRESENTATIONS

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| PINDU Inorganic Meeting, Purdue University
<i>Presentation: The ligand non-innocence in Co^{III}(TIM) organometallics</i> | Oct 2024 |
| Organometallic Chemistry Gordon Research Conference, Salve Regina University
<i>Poster: Co^{III}(TIM) complexes bearing aza-cobalt-cyclic groups: investigating the non-innocence of TIM</i> | July 2023 |
| National ACS Meeting, Indianapolis, Indiana
<i>Poster: Co^{III}(TIM) complexes bearing aza-cobalt-cyclobutenes: revealing the hidden non-innocence of TIM</i> | Mar 2023 |
| PINDU Inorganic Meeting, Indiana University
<i>Poster: Novel mono- and bis-alkynyl Co(III) complexes supported by a tetra-imine macrocyclic ligand (TIM)</i> | Oct 2021 |

TEACHING EXPERIENCE

Purdue University, West Lafayette

Tutor, CHM: 11100, 11500, 11600 Aug 2022 – May 2024

- Course Topic: General Chemistry
- Met with Purdue Krannert, Integrated Business & Engineering (IBE) students for weekly hour-long independent sessions
- Developed third-party source material for students

Teaching Assistant, CHM: 11500, 11600 Aug 2019 – Dec 2020

- Course Topic: General Chemistry
- Conducted recitation and taught laboratory classes for two sections of twenty-four students each
- Held office hours, graded lab reports, and proctored exams