

## James J. Brancho, Ph. D.

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### **Areas of Interest**

- Science writing & journalism. Renewable energy. Inorganic & materials chemistry. Higher education.

### **Employment and Teaching Experience**

Lecturer III, Sweetland Center for Writing at University of Michigan, Ann Arbor, MI 2017 –

- Developed and implemented rhetoric/composition courses with a focus on science writing
- Carried out 30-60 minute writing consultations on student work for any university purpose
- Promoted Sweetland services in University community
- Courses taught: WRITING 100 Transition to College Writing, WRITING 303 Coaching Science Writing, WRITING 400 Advanced Rhetoric and Research/Writing in the Sciences, WRITING 630 Advanced Graduate Writing

Graduate Student Instructor, University of Michigan, Ann Arbor, MI 2011–2017

- 8 total semesters' teaching experience as a graduate student instructor in chemistry
- 2 semesters as graduate student mentor – guide 1<sup>st</sup>-year GSIs through student feedback
- Courses taught: CHEM 130 General Chemistry, CHEM 211 Organic Chemistry I Lab (and Honors), CHEM 216 Organic Chemistry II Lab, CHEM 302 Inorganic Chemistry.

### **Education**

Ph. D., Chemistry, University of Michigan, Ann Arbor, MI 2017

Advisor: Professor Bart M. Bartlett

Thesis title: "Compositionally Complex Semiconductor Photocatalysts for Water Oxidation"

B.S., Chemistry, Duquesne University of the Holy Spirit, Pittsburgh, PA 2011

Senior thesis title: "The Serotonin Transporter and Its Ligands: A Ligand Parameterization and Free Energy Perturbation Study"

### **Research Experience**

University of Michigan, Ann Arbor, MI 2011-present

Graduate Student Research Assistant

Advisor: Professor Bart M. Bartlett (with 1-semester rotation with Professor Kevin J. Kubarych)

- Co-authored 2 journal articles, grant submissions, peer reviews, internal technical documents
- Served as lab safety officer for 2014-2017, managed safety training
- Characterized structure and morphology of a variety materials for solar energy conversion
- Mentored undergraduate researchers
- Served as OSEH contact for radiation safety and dosimetry

Duquesne University of the Holy Spirit, Pittsburgh, PA 2009-2011

Undergraduate Research Assistant

Advisor: Professor Jeffry D. Madura

- Improved models for computer-aided drug discovery

### **Scientific Communication and Multimedia Experience**

- Contributed science news and blogging pieces to Lateral Magazine, Michigan Science Writers
- Founded Tree Town Chemistry science blog (<http://treetownchem.blogspot.com>)
- Contributed to Rackham Graduate School Student Voices, 2014-2017

- Volunteer Editor/Curator at ScienceSeeker science blog aggregator, 2016-2017
- Social Media Co-coordinator for RELATE Science Communication Workshop at Univ. of Michigan
- Contributed to American Chemical Society's *Graduate & Postdoctoral Chemist* (Dec. 2014)
- Developed dynamic, student-tailored chemistry website through E<sup>2</sup>Coach teaching initiative

### **Professional Affiliations**

- National Association of Science Writers

### **Awards and Honors**

- National Science Foundation Graduate Research Fellowship Program Honorable Mention, 2012
- University of Michigan Vaughan Symposium Poster Presentation Award, 2013, 2014, 2015
- Carroll Creative Writing Scholarship winner, 2010

### **Academic Publications**

Brancho, J. J.; Proctor, A. D.; Panuganti, S.; Bartlett, B. M. "Urea-glass Preparation of Titanium Niobium Nitrides and Subsequent Oxidation to Photoactive Titanium Niobium Oxynitrides." *Dalton Transactions* **2017**, 46, 12081-12087.

Zhong, L.; Brancho, J. J.; Batterman, S.; Bartlett, B. M.; Godwin, C. "Experimental and Modeling Study of Visible Light Responsive Photocatalytic Oxidation (PCO) Materials for Toluene Degradation." *Applied Catalysis B: Environmental* **2017**, 216, 122-132.

Brancho, J. J.; Bartlett, B. M. "Challenges in co-alloyed Titanium Oxynitrides, a Promising Class of Photochemically Active Materials." *Chemistry of Materials* **2015**, 27(21), 7207.

Breault, T. M.; Brancho, J. J.; Guo, P.; Bartlett, B. M. "Visible Light Water Oxidation Using a Co-Catalyst Loaded Anatase-Structured  $Ti_{1-(5x/4)}Nb_xO_{2-y-\delta}N_y$  Compound." *Inorganic Chemistry* **2013**, 52(16), 9363-9368.

Brancho, J. J. The Serotonin Transporter and its Ligands: A Ligand Parameterization and Free Energy Perturbation Study. Honors Undergraduate Thesis, Duquesne University, Pittsburgh, PA, 2011.

### **Academic Presentations**

Brancho, J. J.; Bartlett, B. M. "Compositionally Complex Titania Catalysts for Solar-Driven Photochemistry." **Karle Symposium** (Aug 2016, Ann Arbor, MI). Poster Presentation.

Brancho, J. J.; Bartlett, B. M. "Compositionally Complex Titania Catalysts for Solar-Driven Photochemistry." **Electrochemical Society, Detroit Chapter** (Jul 2016, Ypsilanti, MI). Poster Presentation.

Brancho, J. J.; Bartlett, B. M. "Tiny TiN: Solution Ammonolysis Reactions toward Nanoparticulate Titanium Nitride and Titanium Niobium Nitride Alloys." **251st ACS National Meeting** (Mar 2016, San Diego, CA). Oral Presentation.

Brancho, J. J.; Bartlett, B. M. "Tiny TiN: Solution Ammonolysis Reactions toward Nanoparticulate Titanium Nitride and Titanium Niobium Nitride Alloys." **Karle Symposium** (Aug 2015, Ann Arbor, MI). Poster Presentation.

Brancho, J. J.; Lhermitte, C. R.; Bartlett, B. M. "Cu<sub>1-x</sub>Ni<sub>x</sub>WO<sub>4</sub> as a Selectivity-Enhancing Catalytic Overlayer for WO<sub>3</sub> in Photoelectrochemical Water Oxidation". **nanoGe International Conference on New Advances in Materials Research for Solar Fuels Production** (August 2014, Montreal, QC, Canada). Poster Presentation.

Brancho, J. J.; Lhermitte, C. R.; Bartlett, B. M. "Cu<sub>1-x</sub>Ni<sub>x</sub>WO<sub>4</sub> as a Selectivity-Enhancing Catalytic Overlayer for WO<sub>3</sub> in Photoelectrochemical Water Oxidation". **nanoGe International Conference**

**on New Advances in Materials Research for Solar Fuels Production** (June 2014, Montreal, QC, Canada). Poster Presentation.

Brancho, J. J.; Bartlett, B. M. "CuWO<sub>4</sub>/WO<sub>3</sub> heterojunctions as stable photoanodes for solar water oxidation." **246th ACS National Meeting** (Sept 2013, Indianapolis, IN, USA). Oral Presentation.

Brancho, J. J.; Bartlett, B. M. "Synthesis of CuWO<sub>4</sub>/WO<sub>3</sub> Heterojunction Photoanodes for Water Oxidation." **Vaughan Symposium** (Aug 2013, Ann Arbor, MI). Poster Presentation.

Brancho, J. J.; Bartlett, B. M. "Synthesis of CuWO<sub>4</sub>/WO<sub>3</sub> Heterojunction Photoanodes for Water Oxidation." **20<sup>th</sup> International Symposium on the Photochemistry and Photophysics of Coordination Compounds** (Jul 2013, Traverse City, MI). Poster Presentation.

Brancho, J. J.; Bartlett, B. M. "Synthesis and Electrochemical Characterization of Manganese and Nickel Tungstates." **Vaughan Symposium** (Aug 2012, Ann Arbor, MI). Poster Presentation.

Brancho, J. J.; Manepalli, S.; Immadisetty, K.; Madura, J. D. "Effects of Serotonin Transporter Mutations E439A and E494T on the Free Energy of Binding Psychoactive Molecules." **241<sup>st</sup> ACS National Meeting** (Mar 2011, Anaheim, CA). Poster Presentation.

Brancho, J. J.; Immadisetty, K.; Gibbons, J.; Madura, J. D. "Binding Free Energy of Cocaine and Citalopram to the Serotonin Transporter Using Molecular Dynamics." **240<sup>th</sup> ACS National Meeting** (Aug 2010, Boston, MA). Poster Presentation.

Brancho, J. J.; Madura, J. D. "Simulation of Monoamine Transporter Ligands' Crystal Structures Using CHARMM." **239<sup>th</sup> ACS National Meeting** (Mar 2010, San Francisco, CA). Poster Presentation.