

Hazem Amarne, Ph.D.

CV

Hazem Amarne

The University of Jordan
Department of Chemistry
Amman 11942 - Jordan
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EDUCATION

- 9/2012-12/2014** **Post-Doctoral Fellow** University of Windsor, Windsor-Ontario, Canada.
Focus: Supramolecular chemistry: synthesis and characterization of Metal-Organic Rotaxane Frameworks (MORFs).
Development of new organoboron-based Metal-Organic Frameworks (MOFs).
- 9/2011-8/2012** **Post-Doctoral Fellow** University of Windsor, Windsor-Ontario, Canada.
Focus: Electrochemical devices Fabrication and evaluation of light-emitting electrochemical cells based on Ir and Ru complexes.
- 2007-2011** **Ph.D. Student**, Queen's University, Kingston, ON, Canada
Thesis title "Photochromic N,C-Chelate Four-Coordinate Organoboron Compounds"
- 2004-2006** **M.Sc. Student**, McMaster University, Hamilton, ON, Canada
Thesis title "Synthesis and Applications of Siloxane Boronic Acids and Siloxane Boronates"
- 1997-2000** **M.Sc. Student**, Jordan University of Science & Technology, Irbid, Jordan
Thesis title "Synthesis, Characterization, and Pyrolysis of Alkaline Earth Polycarbosilazane Macromolecular Complexes"
- 1991-1995** **B.Sc. Student**, Jordan University of Science & Technology, Irbid, Jordan

PROFESSIONAL EXPERIENCE

- 7/2019-** **Assistant Professor** at The University of Jordan- Amman - Jordan
Courses Taught: general chemistry (I), general chemistry (II), inorganic chemistry (I), (), inorganic chemistry (II), and general chemistry labs.
- 9/2017-6/2019** **Full Time Lecturer** at The University of Jordan- Amman - Jordan
Courses Taught: general chemistry (I), general chemistry (II), inorganic chemistry (I), (), inorganic chemistry (II), and general chemistry labs.
- 9/2015-8/2017** **Full Time Lecturer** at Hashemite University- Zarqa - Jordan
Courses Taught: General chemistry, basics of general chemistry, inorganic chemistry (I), inorganic chemistry (II), and experimental inorganic chemistry.

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- 2002-2004** **Research and Development Chemist** International Pharmaceutical Research Center (www.iprc.com.jo) Amman-Jordan.
- Development and validation of new analytical methods to quantify trace amounts of different drugs in human plasma using LC-MS (Waters and Thermo Finnigan). In addition, GLP were conducted and regular calibration and maintenance of all instruments were performed. Also, duties included preparation for lab inspections by FDA.
- 2000-2001** **Research and Development Manager** ASTRACHEM, manufacturers of agrochemical formulations and fertilizers- Dammam-Saudi Arabia.
- Analysis and formulation of new agrochemicals and fertilizers formulations in addition to applying GLP and writing SOP manuals.

RESEARCH EXPERIENCE

Current Research Interests University of Jordan, Amman, Jordan.

1. Synthesis and applications of new organometallic compounds, focusing on main group elements.
2. Synthesis of luminescent metal complexes (main group metals, transition metals, and lanthanides).
3. Synthesis and applications (luminescence, catalysis, and medicinal properties) of new MOFs, COFs, and HOFs.

Postdoctoral Fellow University of Windsor, Windsor-Ontario, Canada.

Focus: Supramolecular chemistry: synthesis and characterization of Metal-Organic Rotaxane Frameworks (MORFs).

Development of new organoboron-based Metal-Organic Frameworks (MOFs).

Electrochemical devices Fabrication and evaluation of light-emitting electrochemical cells based on Ir and Ru complexes

Graduate Research Assistant Queen's University, Kingston-Ontario, Canada

Focus: Synthetic organic/main group chemistry, study of photochromic properties.

- Synthesis and manipulation of air-sensitive compounds using glove-box and Schlenk techniques.
- Synthesis and characterization of N,C-chelate organoboron compounds, including heterocyclic (pyrrole, furan, and thiophene)-based organoboron compounds and their corresponding ligands.
- Synthesis and characterization of organobismuth and organosilicon compounds.
- Study of photochemical and photophysical properties, including quantum yield measurements (Fluorescence and Actinometry).
- Performing and analyzing DFT and TD-DFT calculations.
- Performing multinuclear and variable temperature NMR studies including kinetic and titration studies.

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Graduate Research Assistant McMaster University, Hamilton, Canada

Focus: Synthetic organic/main group chemistry

- Synthesis, purification, and characterization of siloxane boronic acids and boronates. Synthetic techniques included reactions under inert atmosphere and metal-catalyzed reactions (hydrosilylation, hydroboration, and hydrogenation) in addition to general chemistry techniques (e.g.) Grignard reactions and protection/deprotection reactions.
- Purification techniques included: Silica-gel columns (mg - multi gram scales), distillation, and crystallization.
- Characterization techniques included multinuclear NMR techniques, FT-IR, and UV/VIS.

Graduate Research Assistant Jordan University of Science & Technology, Irbid, Jordan

Focus: Macromolecular chemistry

- Synthesis, characterization, and pyrolysis of alkaline earth polycarbosilazane complexes
- Study thermal properties using TGA/DSC techniques.

TEACHING EXPERIENCE

2017-

Full Time Lecturer The University of Jordan, Amman, Jordan

- Courses Taught: General chemistry (I), general chemistry (II), inorganic chemistry (I), , inorganic chemistry (II), and experimental general chemistry.

2015-2017

Full Time Lecturer Hashemite University, Zarqa, Jordan

- Courses Taught: General chemistry, basics of general chemistry, inorganic chemistry I, inorganic chemistry II, and experimental inorganic chemistry.

2013-2014

Guest Lecturer University of Windsor, Windsor, Canada

- Lectures taught in: general chemistry and organic chemistry.

2007-2011

Graduate Student Instructor Queen's University, Kingston, Canada

- Prepared and presented tutorials and review sessions for general chemistry and organic chemistry students.
- Provided help desk sessions for organic chemistry students.
- Prepared and presented pre-laboratory material for organic, inorganic, and general chemistry students.
- Supervised and evaluated students in the laboratory environment.
- Marked assignments, tests, exams, and lab reports.
- Invigilated exams as required.

2004-2006

Graduate Student Instructor McMaster University, Hamilton, Canada

- Provided tutorials and lab supervision for general chemistry, organic chemistry, and undergraduate chemistry lab projects (ATRP, 2D-NMR, and DFT-based projects included)

JOURNAL PUBLICATIONS

- (15) Hazem Amarne*, Wissam Helal, Suning Wang "Synthesis, structure, and DFT calculations of a novel photoluminescent trisarylborane-bismuth(III) complex" *Luminescence* **2019** accepted.
- (14) Deeb Taher*, Firas Awwadi, Mousa Al-Noaimi, Lina K Khader, Hassan K Juwhari, Hazem Amarne, Mohammed H Kailani, Abdellatif Ibdah "Bis (N, N'-substituted oxamate) Zincate (II) complexes: Synthesis, spectroscopy, solid state structure and DFT calculations" *Inorg. Chim. Acta.*, **2019**, 487, 409.
- (13) Deeb Taher*, Firas Awwadi, J.M. Speck, M. Korb, D. Schaarschmidt, C. Wagner, Hazem Amarne, K. Merzweiler, G. van Koten, H. Lang.* "From ferrocenyl selenoesters to diferrocenyl methanols" *J. Organomet. Chem.* **2018**, 863, 1-9.
- (12) Soren K. Mellerup; Ying-Li Rao; Hazem Amarne; and Suning Wang* "Tuning the Colors of the Dark Isomers of Photochromic Boron Compounds with Fluoride Ions: Four-State Color Switching" *Org. Lett.* **2016**, 18(17), 4436-4439.
- (11) Ismail Elguraish; Kelong Zhu; Leslie Hernandez; Hazem Amarne; Jingwei Luo; V. Nicholas Vukotic; and Stephen Loeb* "Assembly of a M4L4 "folded-cube" using a T-shaped, right-angled ligand" *Dalton Trans.* **2015**, 44, 898-902
- (10) Ying-Li Rao; Hazem Amarne; Leanne Chen; Matthew Brown; Nicholas Mosey; and Suning Wang* "Photo and Thermal-induced Multi-structural Transformation of 2-phenyl-azolyl Chelate Boron Compounds" *J. Am. Chem. Soc.*, **2013**, 135, 3407-3410.
- (9) Michael Brook*; Laura Dodge; Yang Chen; Ferdinand Gonzaga; Hazem Amarne "Sugar Complexation to Silicone-Boronic Acids" *Chem. Comm.* **2013**, 49, 1392-1394.
- (8) Ying-Li Rao; Hazem Amarne; Jia-Sheng Lu; and Suning Wang* "Impact of a Dithienyl Unit on Photostability of N,C-Chelating Boron Compounds" *Dalton Trans.* **2013**, 42, 638-644.
- (7) Ying-Li Rao; Hazem Amarne; and Suning Wang* "Photochromic Organoboron Compounds" *Coordination Chemistry Reviews*, **2012**, 256, 759-770.
- (6) Hazem Amarne; Chul Baik; Rui-Yao Wang; and Suning Wang* "Photoisomerization of 1-Phenyl -2-(pyridin-2-yl)indole BMes₂: The Dark Isomer" *Organometallics*. **2011**, 30, 665-668.
- (5) Zachary Hudson; Christina Sun; Michael Helander; Hazem Amarne; Zheng-Hong Lu; and Suning Wang* "Enhancing Phosphorescence and Electrophosphorescence Efficiency of Cyclometalated Pt(II) Compounds with Triarylboron" *Adv. Funct. Mater.* **2010**, 20, 3426-3439.
- (4) Hazem Amarne; Chul Baik; Stephen Murphy; and Suning Wang* "Steric and Electronic Influence on Photochromic Switching of N,C-Chelate Four-Coordinate Organoboron Compounds" *Chem. Eur. J.*, **2010**, 16, 4750-4761.
- (3) Chul Baik; Zachary Hudson; Hazem Amarne; and Suning Wang* "Enhancing the Photochemical Stability of N,C-Chelate Boryl Compounds: C-C Bond Formation versus C=C Bond cis, trans-Isomerization" *J. Am. Chem. Soc.*, **2009**, 131, 14549-14559.
- (2) Ying-Li Rao; Hazem Amarne; Shu-Bin Zhao; Theresa McCormick; Sanela Martic; Yi Sun; Rui-Yao Wang; and Suning Wang* "Reversible Intramolecular C-C Bond Formation/Breaking and Color Switching Mediated by a N,C-Chelate in (2-ph-py)BMes₂ and (5-BMes₂-2-ph-py)BMes₂" *J. Am. Chem. Soc.* **2008**, 130, 12898-12900.
- (1) Paul Zelisko; Hazem Amarne; Karen Neumann; and Alex Bain* "Extensions of a Basic Laboratory Experiment: [4+2] and [2+2] Cycloadditions" *J. Chem. Edu.*, **2008**, 85, 104-106.

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PATENTS

Hazem Amarne; Ying-Li Rao; and Suning Wang* "Boron compounds and use thereof" US provisional 61/470.046, Canada formal 2,735, 531, filed March 31, 2011, full patent application filed on March 31st, 2012, US2012/0253044 A1.

AWARDS

2007-2011 Queen's Graduate Award, Queen's University
2009 Discretionary Conference Award, Queen's University
2007 Discretionary Conference Award, Queen's University
2004 Manske-MacLean Bursary in Chemistry, McMaster University.
2004 Centennial Scholarship, McMaster University.

NOMINATIONS

2010/2011 (1) Fisher Scientific TA Award, Queen's University (2) Department of Chemistry TA Award for Excellence in Teaching, Queen's University
2009/2010 (1) Fisher Scientific TA Award, Queen's University (2) Department of Chemistry TA Award for Excellence in Teaching, Queen's University
2008/2009 Fisher Scientific TA Award, Queen's University