John Washington, Ph.D.
Assistant Professor, Concordia University of Edmonton

General

John Washington earned his Ph.D. in Chemistry (University of Alberta) in the general area of the syntheses of organometallic molecules and their applications to catalytic systems. Further post-doctoral work at Purdue University focused on the simultaneous use of spectroscopy and electrochemistry to study both ultrafast electron transfer reactions and the electrocatalytic reduction of carbon dioxide.

Dr. Washington has held a number of administrative positions at CUE, most recently serving as Dean of Science (Acting) until June 2015. He teaches at all levels of undergraduate chemistry, ranging from an introductory chemistry course for non-science students to a senior-level course in advanced spectroscopy. Dr. Washington has also worked with Alberta Education in the review of both the high school chemistry curriculum and diploma exams. An area of educational interest involves curriculum and degree design to suit the needs of current students. This involves working with the Association of the Chemical Profession of Alberta (ACPA) to ensure Science degrees from CUE meet the needs of emerging professional chemists as well as developing a dual-degree in Science and Management. Through both classroom instruction and summer research work Dr. Washington has mentored a large number of students who have become valued members of the chemistry profession, teachers, and members of various medical fields. Former students have also earned or are in the midst of earning graduate degrees.

Research Interests

Dr. Washington has extensive experience in materials and inorganic syntheses as well as expertise in a large number of analytical, spectroscopic, and spectrometric techniques. A long term and continuing research interest is the syntheses and catalytic applications of organometallic molecules.

Recent work has been focused on the detection, identification, and quantification of potentially hazardous materials in the environment. This is part of a larger Research Cluster within the Faculty of Science investigating cytotoxicity in selected invertebrates and fish in Alberta. This project represents a collaborative effect between different Departments in the Faculty of Science at Concordia. Specifically, faculty members from the Departments of Biological and Environmental Sciences, Public Health, and Physical Sciences combine their various areas of expertise in order to investigate a project of considerable breadth.

Additional current research is in the general field of Materials Chemistry. The specific focus is on the development of novel silicon-based nanomaterials that can act as safe and reliable electro-optic materials for use in electronic devices and sensors. This work is carried out in the research laboratories of Prof. Jon Veinot at the University of Alberta and represents a collaborative effort between these two Edmonton-based institutions.

Selected Recent Publications

1. "*Synthesis and Properties of Covalently Linked Photoluminescent Magnetic Magnetite Nanoparticle-Silicon Nanocrystal Hybrids*." Morteza Javadi, Tapas Purkait, Lida Hadidi, John Washington and Jonathan G. C. Veinot" *MRS Advances*, Available on CJO 2016 doi:10.1557/adv.2016.465

2. **"***From Hydrogen Silsesquioxane to Functionalized Silicon Nanocrystals***."** Rhett J. Clark, Maryam Aghajamali, Christina M. Gonzalez, Lida Hadidi, Muhammad Amirul Islam, Morteza Javadi, Hosnay Mobarok, Tapas Purkait, Christopher Jay T. Robidillo, Regina Sinelnikov, Alyxandra N. Thiessen, John Washington,[§] Haoyang Yu,[†] Jonathan G. C. Veinot, *Chemistry of Materials*, **2016** submitted for publication

3. "*Regiospecific Generation of Trifluoropropyne Bridged Heterobimetallic Compounds: Synthesis and Properties*." John Washington, Kenneth C. Hoffman, Robert McDonald, and Josef Takats *Organometallics*, **2016**, manuscript in progress

4. "*Structure of Tetracarbonylethyleneosmium: Ethylene Structure Changes upon Complex Formation.*" Karunatilaka, C.; Tackett, B.; Washington, J.; Kukolich, S. *J. Am. Chem. Soc.*, **2007**, 129, 10522.