Kyle Cameron Hartig, Ph.D.

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Research Interests

Proliferation Detection, Nonproliferation, Signatures and Observables Development, Ultra-Fast Laser Physics, Remote Sensing, Nuclear Forensics, and Radiochemistry.

Education

College of Engineering, The Pennsylvania State University

Ph.D. Nuclear Engineering, August 2016

- Dissertation Topic: Laser Induced Breakdown Spectroscopy for Nuclear Forensics
- Advisor: Prof. Dr. Igor Jovanovic
  - Los Alamos National Lab G.T. Seaborg Research Fellow (2014)
  - NNSA Nonproliferation Graduate Fellow (2012 - 2013)
  - DTRA/DHS Nuclear Forensics Graduate Fellow (2011 - 2016)

College of Engineering, Oregon State University

B.S. Nuclear Engineering, June 2011

- Department of Navy - Naval Reactors (2009-2011)
- Undergraduate Research - Radiochemistry of Np in the PUREX Process

Security Clearance

Active and current - further information is available upon request

Work Experience

June 2017 – Current	Assistant Professor of Material Science & Nuclear Engineering, University of Florida
June 2016 – June 2017	Post-Doctoral Research Associate, Applied Physics Group, Pacific Northwest National Laboratory
2013 – 2016	Counterproliferation Analyst, Department of Defense, Office of Counterproliferation
2014 – 2016	Glenn T. Seaborg Graduate Research Fellow/Guest Scientist, Los Alamos National Lab Chemistry Division (C-CDE): Projects include dissertation research on LIBS in C-CDE and Multi-Source Intelligence Analysis of weaponization activities through PADGS.
2012 – 2013	Nonproliferation Graduate Fellow, Department of Energy/National Nuclear Security Administration (DOE/NNSA) – PNNL Employee: Office of Nonproliferation and International Security, Program Manager for Safeguards Technology Development Subprogram with portfolios covering the detection of undeclared activities in the nuclear fuel cycle, signature and observable development, in-field analysis techniques for inspections, and Laser Induced Breakdown Spectroscopy R&D.

2009 – 2011	Nuclear Engineer, Department of Defense (DoD), Naval Base Kitsap, Washington Conducted Naval Reactor Engineering oversight of servicing, refueling, and operations during selected availabilities.
2010	INL/UNLV Radiochemistry Fellowship An eight-week fellowship involving an intensive course in radiochemistry with a focus on the nuclear fuel cycle.

Professional Training

- Nuclear Device Proliferation Intelligence Course, Los Alamos National Lab
- Nuclear Device Assembly and Disassembly
- IAEA Pre-Inspector Training, Idaho National Lab

Selected Honors and Awards

2014	Los Alamos National Lab G.T. Seaborg Research Fellowship
2014	Los Alamos National Lab Science of Signatures Program
2010	NRC Undergraduate Scholarship
2010	ANS William and Mila Kimel Nuclear Engineering Scholarship
2009	DOE-NEUP Scholarship Recipient

Publications

K. C. Hartig, *et al.,* 'Standoff isotopic analysis using laser-induced fluorescence of laser ablation plumes', Opt. Lett. (In Preparation 2018).

K. C. Hartig, B. E. Brumfield, M. C. Phillips, S. S. Harilal, I. Jovanovic, 'Evolution of uranium monoxide in femtosecond laser ablation plasmas', Opt. Express (Accepted April 2017)

K. C. Hartig, I. Ghebregziabher, I. Jovanovic, 'Standoff Detection of Uranium and its Isotopes by Femtosecond Filament Laser Ablation Molecular Isotopic Spectrometry', Sci. Rep. 7, 43852 (2017).

X. Xiao, S. Le Berre, **K.C. Hartig**, A. Motta, and I. Jovanovic, *Surrogate Measurement of Chlorine Concentration on Steel Surfaces by Alkali Element Detection via Laser-Induced Breakdown Spectroscopy,* (Submitted June 2016).

I. Ghebregziabher, **K.C. Hartig**, I. Jovanovic, *Propagation distance-resolved characteristics of filament-induced copper plasma,* Optics Express (2016).

K.C. Hartig, J. Colgan, D. Kilcrease, J. Barefield, and I. Jovanovic, *Laser-induced breakdown spectroscopy using mid-IR femtosecond laser pulses,* Journal of Applied Physics (2015).

B. Yee, **K.C. Hartig**, P. Ko, J.P. Mcnutt, I. Jovanovic, *Measurement of boron isotopic ratio with non-gated molecular spectroscopy of femtosecond laser-produced plasma,* Spectrochemica Acta Part B (2012).

P. Ko, **K.C. Hartig**, J.P. McNutt, R.B.D. Schur, T.W. Jacomb-Hood, and I. Jovanovic, *Adaptive femtosecond laser-induced breakdown spectroscopy of uranium,* Review of Scientific Instruments 84, 013104 (2013).

K.C. Hartig, J.P. Mcnutt, P. Ko, I. Jovanovic, *Effects of Pulse Shaping on Laser Induced Breakdown Spectroscopy,* Journal of Nuclear and Radioanalytical Chemistry (2012).