

Melissa A. Rose
1162 Jenny Dr. Apt. D
Sycamore, IL 60178
(630) 777-8958
marose81614@gmail.com

Education

B.S. in Chemical Engineering from Clarkson University in May 2009
M.S. in Nuclear Engineering from Purdue University in May 2011
Ph.D. in Nuclear Engineering from Purdue University in December 2014

Research Interests

Pyroprocessing, Actinide Electrochemistry, Spent Fuel Reprocessing, Transmutation

Research Experience

Graduate Research -Argonne National Laboratory

June 2010-Present

Mark Williamson, CSE, Nuclear and Environmental Processes

- Conducted engineering scale tests of U-Mo fuel scrap recovery process
- Conducted laboratory scale experiments investigating anodic film formations
- Constructed a mathematical model of electrorefining operations in MatLab

Honors Thesis Research- Clarkson University

Fall 2007- Spring 2009

Professor Ruth Baltus, Chemical Engineering Department, Clarkson University

- Continued the REU work of Summer 2007 completing a thesis
- Developed mathematical relations describing defects in nano-filtration membranes

Nanotechnology & Materials REU-Clarkson University

Summer 2007

Professor Ruth Baltus, Chemical Engineering Department, Clarkson University

- Investigated the effects of defects in nano-filtration membranes
- Developed and implemented experimental procedures

Honors Summer Research -Clarkson University

Summer 2006

Professor Suresh Dhaniyala, Mechanical Engineering Department,

Professor Phillip Hopke, Chemical Engineering Department

- Investigated efficiency and accuracy of new DMA technology (VNCDMA)
- Developed procedures to test new technology(VNCDMA) and implemented them
- Gained substantial MATLAB experience

Honors Summer Research –Clarkson University

Summer 2005

Zuocheng Wang, PhD Student at Clarkson University

Professor Phillip Hopke, Chemical Engineering Department

- Researched effects of Air quality on depositions in human airways
- Gained limited CAD experience, while designing lung bifurcations

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First Author Publications and Presentations

- M.A. Rose. “Investigation and Modeling of Uranium Polarization for the Electrorefining of Scrap U-Mo Foils”. Ph.D. Dissertation, Purdue University Dec. 2014.
- M.A. Rose, M.A. Williamson, J. Willit. “Determining the Exchange Current Density and Tafel Constant for Uranium in LiCl/KCl Eutectic”. *ECS Electrochemistry Letters*. Vol. 4(1) pp C5-C7. November 2014.
- M.A. Rose, M.A. Williamson, and J.L. Willit. “Investigation of the Polarization Behavior of Uranium in LiCl/KCl Molten Salt”. Presented at the 2014 International Pyroprocessing Research Conference. Idaho Falls, ID October 19-24th, 2014.
- M.A. Van Kleeck, M.A. Williamson, J.L. Willit, and A.W. Fentiman. “Generating Tafel Parameters In Support of Electrorefining Modeling for Uranium Recovery from Scrap U-Mo Foils”. Presented at the 225th Electrochemical Society Meeting. Orlando, FL. May 11-16th, 2014.
- M.A. Van Kleeck, J. Willit, M.A. Williamson, and A.W. Fentiman. “Experiments in Anodic Film Effects During Electrorefining of Scrap U-10Mo Fuels in Support of Modeling Efforts”. GLOBAL 2013: International Fuel Cycle Conference. Salt Lake City, UT. September 29- October 3rd, 2013.
- M.A. Van Kleeck, J. Figueroa, R. Blaskovitz, J. Willit, M.A. Williamson and A.W. Fentiman. “Investigation and Modeling of Anodic Behavior During Electrorefining of U-10Mo Fuels for Uranium Recovery”. The 2012 International Pyroprocessing Research Conference in Fontana, WI. August 26-30th, 2012.
- M.A. Van Kleeck, J. Figueroa, R. Blaskovitz, J. Willit, M.A. Williamson and A.W. Fentiman. “A Model for Recovering Uranium From Scrap Monolithic Uranium Molybdenum” ANS 2012 Annual Meeting in Chicago, IL June 24-28th, 2012.
- M.A. Van Kleeck. “A Model for Recovery of Scrap Monolithic Uranium Molybdenum Fuel by Electrorefining” M.S. dissertation, Purdue University. May 2011.
- M.A. Van Kleeck, R. Baltus. “An Investigation of Etch Kinetics in Track-Etch Membranes”. Symposium for Undergraduate Research Experience Conference April 2008. Potsdam, NY.
- M.A. Van Kleeck, and S. Dhaniyala. “Investigation of the Volatility Nano-Cross Flow Differential Mobility Analyzer”. Poster, Symposium for Undergraduate Research Experience Conference 2006. Potsdam, NY.
- M.A. Van Kleeck, Z. Wang, and P. Hopke. “Fiber Deposition in Realistic Human Nasal Airway and Lung Bifurcation Models”. Poster, Symposium for Undergraduate Research Experience Conference 2005. Potsdam, NY

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Co-Authored Publications and Presentations

- J. Figueroa, M.A. Williamson, M.A. Van Kleeck, R. Blaskovitz, T.A. Cruse, J. Willit, S. Chemerisov, and G.F. Vandegrift. "GTRI Progress in Developing Pyrochemical Processes For Recovery of Fabrication Scrap and Reprocessing of Monolithic U-Mo Fuel". 33rd International Meeting on Reduced Enrichment for Research and Test Reactors. Santiago, Chile. October 23-27th, 2011.
- G.F. Vandegrift, D.C. Stepinski, J. Figueroa, M.A. Williamson, M.A. Van Kleeck, R. Blaskovitz, J. Jerden, A.J. Ziegler, L.E. Maggos, J. Swanson, J. Fortner, A. J. Bakel. "Reprocessing of LEU U-Mo Disperion and Monolithic Fuels". Research Reactor Fuel Management Conference, in Rome, Italy, March 2011.
- J. Figueroa, M.A. Williamson, M.A. Van Kleeck, R.J. Blaskovitz, and G.F. Vandegrift. "Pyrochemical Recovery in the Fabrication of LEU Monolithic U-Mo Fuel for High Performance Research Reactors". 32nd International Meeting for the Reduced Enrichment of Research and Test Reactors, Lisbon, Portugal Oct.10-14, 2010.

Professional Society Membership

<i>International Golden Key Society</i>	2013- Present
<i>Alpha Nu Sigma</i>	2012- Present
<i>Omega Chi Epsilon</i>	2007- Present
• President 2008-2009 (Clarkson University Chapter)	
<i>Tau Beta Pi</i>	2008-Present
<i>Women in Nuclear</i>	2012-Present
<i>American Nuclear Society</i>	2012-Present