

Kathryn A. Mummah

PHD STUDENT IN NUCLEAR ENGINEERING & ENGINEERING PHYSICS

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Education

University of Wisconsin-Madison

Madison, WI

PHD STUDENT, NUCLEAR ENGINEERING & ENGINEERING PHYSICS, GPA:

Aug. 2017-PRESENT

M.S. NUCLEAR ENGINEERING AND ENGINEERING PHYSICS

May 2020

- Advisor: Professor Paul P.H. Wilson
- Fellow, NNSA Nuclear Nonproliferation and International Safeguards (NNIS) Graduate Fellowship Program
- Graduate Associate, Consortium for Monitoring, Technology, and Verification (MTV)
- PhD Minor in Science Communication
- Graduate Certificate in Energy Analysis & Policy

University of Illinois at Urbana-Champaign

Urbana, IL

B.S. NUCLEAR, PLASMA, AND RADIOLOGICAL ENGINEERING, GRADUATED WITH HONORS, GPA: 3.6 / 4.0

May 2017

- Concentration in Power, Safety, and the Environment
- Minor, Atmospheric Sciences

Research

Computational Nuclear Engineering Research Group (CNERG), UW-Madison

Madison, WI

GRADUATE RESEARCH ASSISTANT

Sept. 2017 - PRESENT

- Developing software to model the lifecycle of nuclear materials within Cyclus for nuclear nonproliferation applications
- Reviewing public communication efforts in consent-based siting of radioactive waste disposal facilities worldwide
- Designed uranium enrichment cascades in the Cyclus fuel cycle code to model post-JCPOA cascade performance scenarios

Los Alamos National Laboratory

Los Alamos, NM

GRAD RESEARCH ASSISTANT, NEN-1 SAFEGUARDS SCIENCE & TECHNOLOGY

Jan. 2020 - PRESENT

GRAD RESEARCH ASSISTANT, NEN-2 ADVANCED NUCLEAR TECHNOLOGY & GLENN T. SEABORG SUMMER RESEARCH FELLOW

May 2018 - Aug. 2018

VISITING STUDENT GUEST, NEN-5 SYSTEMS DESIGN & ANALYSIS

May 2017 - Aug. 2017

Idaho National Laboratory

Idaho Falls, ID

INTERN, FUELS MODELING & SIMULATION

May 2016 - Aug. 2016

University of Illinois Department of Nuclear, Plasma, and Radiological Engineering

Urbana, IL

UNDERGRAD RESEARCH ASSISTANT, ADVANCED REACTORS AND FUEL CYCLE RESEARCH GROUP (PROFESSOR K. HUFF)

Aug. 2016 - May 2017

UNDERGRAD RESEARCH ASSISTANT, ANALYSIS OF REACTOR TRANSIENTS AND STABILITY RESEARCH GROUP (PROF. T. KOZLOWSKI)

Jan. 2016 - Dec. 2016

UNDERGRAD RESEARCH ASSISTANT, EXPERIMENTAL THERMAL HYDRAULICS RESEARCH GROUP (PROFESSOR C. BROOKS)

Aug. 2015 - Dec. 2015

Fermi National Accelerator Laboratory

Batavia, IL

QUARKNET HIGH SCHOOL SUMMER INTERN, OPTICAL ASTRONOMY

Jun. 2012 - Aug. 2012

Honors & Awards

SCHOLARSHIPS AND FELLOWSHIPS

2021-22	ANS Graduate Scholarship
2020-21	ANS Michael J. Lineberry Memorial Scholarship
2019-20,21	Graduate Fellow, Nuclear Nonproliferation International Safeguards Program (NNIS)
2018	Summer Research Fellow, Glenn T. Seaborg Institute
2017-18,19	Graduate Fellow, Consortium for Verification Technology
2017-18,19	ANS Fuel Cycle and Waste Management Division Randall Scholar
2015-16,17	DOE Nuclear Energy University Program IUP Scholarship Award
2015-16,17	Nuclear Regulatory Commission Scholarship
2015-16,17	American Nuclear Society Decommissioning & Environmental Sciences Scholarship
2016-17	Roy G. Post Foundation Scholarship
2016-27	Dale W. and Wanda L. Weaver Engineering Scholarship
2016-17	Crowe Horwath Scholarship

2016-17	Edith and Harry Darby Leadership Scholarship
2015-16,17	Catherine Pritchard Undergraduate Scholarship
2013-14,15,16,17	Mike Harper Leadership Scholarship
2015-16	Exelon Energy for Education Scholarship Award
2014-15,16	National Academy for Nuclear Training Scholarship
2014-15	ANS Incoming Sophomore Scholarships

AWARDS

2020	First place, Institute of Nuclear Materials Management J.D. Williams Student Paper Award
2017	University of Illinois Knights of St. Patrick
2016	Alpha Nu Sigma
2016	William R. Schowalter Award
2016	American Nuclear Society Commendation for Service and Leadership
2014	American Nuclear Society UIUC Most Committed Member
2013	University of Illinois James Scholar

Papers and Presentations

JOURNAL ARTICLES

It's Time to Reignite U.S.-Russian Cooperation in Space: Nuclear Power May Hold the Key

BULLETIN OF THE ATOMIC SCIENTISTS, VOLUME 77, ISSUE 4

July 2021

S. Buono, J. Hecla, V. Kobezskii, **K. Mummah**, J. de Troullioud de Lanversin (alphabetical)

CONFERENCE PRESENTATIONS

Integrating Acquisition Pathway Analysis Into The Cyclus Fuel Cycle Simulator

[Virtual](#)

2020 INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT ANNUAL MEETING

July 2020

K. Mummah, P. P.H. Wilson

- 1st place, INMM J.D. Williams Student Paper Award

Graph representation of a fuel cycle for acquisition pathway analysis

[Virtual](#)

2020 CONSORTIUM FOR MONITORING, TECHNOLOGY, & VERIFICATION (MTV) STUDENT VIRTUAL RESEARCH SYMPOSIUM

June 2020

Acquisition Pathway Analysis using Fuel Cycle Simulators

[Palm Desert, CA](#)

2019 INSTITUTE OF NUCLEAR MATERIALS MANAGEMENT ANNUAL MEETING

July 2019

K. Mummah, R. Bahran, K. Miller, P. P.H. Wilson

Material diversion analysis within a fuel cycle simulator

[Champaign, IL](#)

2019 TECHNICAL WORKSHOP ON FUEL CYCLE SIMULATION

June 2019

K. Mummah, P. P.H. Wilson

Assessing Material Inventory Uncertainties in Integrated Fuel Cycle Simulations

[Wilmington, NC](#)

ADVANCES IN NUCLEAR NONPROLIFERATION TECHNOLOGY AND POLICY CONFERENCE 2018

September 2018

B. Mougnot, **K. Mummah**, P.P.H. Wilson

Modeling Potential JCPOA Diversion Scenarios with Cyclus

[Philadelphia, PA](#)

2018 AMERICAN NUCLEAR SOCIETY ANNUAL MEETING

June 2018

B. Mougnot, **K. Mummah**, P. P.H. Wilson

Integrating Nonproliferation and Safeguards Concepts into Reactor Lab Courses

[Los Alamos, NM](#)

LA-UR-17-27198

Aug. 2017

K. Mummah, D. Poston, M. Griffin, R. Bahran, C. Verschuren

NuWWIS: An Interim Storage Solution for Spent Fuel

[Pittsburgh, PA](#)

2017 AMERICAN NUCLEAR SOCIETY STUDENT CONFERENCE

Apr. 2017

K. Mummah, J. Bae, D. OGrady, A. Lopez

Public Image in Spent Fuel Disposal: Lessons Learned from Sweden's SKB

[Madison, WI](#)

2016 AMERICAN NUCLEAR SOCIETY STUDENT CONFERENCE

Apr. 2016

K. Mummah, C. Kuprianczyk

- 1st place, "Public Image" technical track

Asymmetry of the Milky Way

FERMILAB-UNIVERSITY OF CHICAGO QUARKNET SUMMER RESEARCH PROGRAM

K. Mummah, B. Yanny

Batavia, IL

Aug. 2012

POSTERS

Systems modeling of the nuclear fuel cycle to enhance safeguards implementation

CONSORTIUM FOR MONITORING, TECHNOLOGY, AND VERIFICATION (MTV) VIRTUAL WORKSHOP 2021

K. Mummah, P. P.H. Wilson

Virtual

March 2021

Good Practices and Clear Communication Gaps in the Effort to Site a Low- and Intermediate-Level Deep Geologic Waste Repository in Ontario

WASTE MANAGEMENT SYMPOSIUM 2021

K. Mummah

Virtual

March 2021

Off-normal operation in gas centrifuge enrichment cascades

2018 AMERICAN NUCLEAR SOCIETY STUDENT CONFERENCE - POSTER SESSION

K. Mummah, B. Mouginot, P. P.H. Wilson

Gainesville, FL

Apr. 2018

Investigating the Effects of Fuel Pellet Geometry on Pellet Cladding Mechanical Interaction (PCMI) using BISON

2016 AMERICAN NUCLEAR SOCIETY WINTER MEETING - STUDENT POSTER SESSION

K. Mummah, R. Williamson

Las Vegas, NV

Nov. 2016

Reactivity Management: More Than Just Reactor Engineers

2015 AMERICAN NUCLEAR SOCIETY WINTER MEETING - STUDENT POSTER SESSION

K. Mummah

Washington, DC

Nov. 2015

SPONSOR CONFERENCE PRESENTATIONS

Graph Representation of a fuel cycle from Cyclus input

2020 MTV WORKSHOP, POSTER

Ann Arbor, MI

Mar. 2020

Can we study material diversion analysis within a fuel cycle simulator?

MTV FUEL CYCLE FACILITY MODELING WORKSHOP

Madison, WI

Oct. 2019

Extending the Cyclus Fuel Cycle Simulator for International Safeguards

2019 NNSA UNIVERSITY PROGRAM REVIEW

Raleigh, NC

June 2019

Simulation of the Nuclear Fuel Cycle and its Applications to International Safeguards

2018 CONSORTIUM FOR VERIFICATION TECHNOLOGY (CVT) WORKSHOP

Ann Arbor, MI

Oct 2018

Progress on Studying Gas Centrifuge Cascade Behavior of Off-Normal Enrichment Scenarios

2018 NNSA UNIVERSITY PROGRAM REVIEW, POSTER

Ann Arbor, MI

June 2018

Modeling Post-JCPOA Cascade Performance with Cyclus

2017 CVT WORKSHOP, POSTER

Ann Arbor, MI

Nov. 2017

Work Experience

University of Wisconsin-Madison Engineering Physics Department

GRADER

- NE405: Nuclear Reactor Theory, Spring 2018

Madison, WI

University of Illinois

Urbana, IL

TEACHING ASSISTANT

- Lead Engineering Learning Assistant, ENG 100 for the Nuclear, Plasma, and Radiological Engineering. Fall 2015 & '16
- NPRE 100: Introduction to Nuclear, Plasma, and Radiological Engineering. Fall 2014, '15, & '16
- NPRE 101: Introduction to Energy Sources. Spring 2014 & '15

GRADER

- ASTR 100: Introduction to Astronomy. Fall 2014

Oyster Creek Generating Station

Forked River, NJ

INTERN, REACTOR ENGINEERING

Jun. 2015 - Aug. 2015

Exelon Generation Cantera Regional Headquarters

Warrenville, IL

INTERN, SPENT FUEL & DECOMMISSIONING

Jun. 2014 - Aug. 2014

Service

PROFESSIONAL SERVICE

American Nuclear Society (ANS)

CHAIR, STUDENT SECTIONS COMMITTEE (SSC)

June 2021 - PRESENT

EXECUTIVE COMMITTEE, FUEL CYCLE AND WASTE MANAGEMENT DIVISION

June 2021 - PRESENT

EXECUTIVE COMMITTEE, YOUNG MEMBERS GROUP

June 2019 - PRESENT

COMMITTEE MEMBER, SSC

June 2016 - PRESENT

CHAIR, RETENTION SUBCOMMITTEE OF THE SSC

Apr. 2021 - PRESENT

VICE CHAIR, STUDENT SECTIONS COMMITTEE (SSC)

June 2019 - June 2021

EXECUTIVE COMMITTEE, NUCLEAR NONPROLIFERATION POLICY DIVISION

June 2018 - June 2021

COMMITTEE MEMBER, DIVERSITY AND INCLUSION COMMITTEE

July 2018 - June 2021

STUDENT DIRECTOR, ANS BOARD OF DIRECTORS

June 2017 - June 2019

CHAIR, COMMENDATIONS SUBCOMMITTEE OF THE SSC

June 2016 - Jan. 2021

COMMITTEE MEMBER, LOCAL SECTIONS COMMITTEE

June 2016 - June 2019

American Nuclear Society, University of Wisconsin-Madison Student Section

MEMBER

Aug. 2017-PRESENT

GOVERNOR

May 2018 - Dec 2018

ADVOCACY CO-CHAIR

Jun. 2017 - Nov. 2017

Catalysts for Science Policy

MEMBER

June 2019 - PRESENT

Wisconsin Baja Racing

MEMBER

Aug. 2018 - May 2020

American Nuclear Society, University of Illinois Student Section

MEMBER

Aug. 2013 - May 2017

PRESIDENT

Apr. 2015 - Apr. 2016

INTERNAL VICE PRESIDENT

Apr. 2014 - Apr. 2015

FRESHMAN PRESIDENT

Oct. 2013 - Apr. 2014

Women in Nuclear, University of Illinois Student Section

COFOUNDER

Aug. 2015

MEMBER

Aug. 2015 - May 2017

Engineering Ambassadors, University of Illinois

RECRUITMENT & PUBLICITY CHAIR

Apr. 2016 - Dec. 2016

AMBASSADOR

Nov. 2015 - May 2017

Phi Mu - Delta Beta Chapter

ACADEMIC EXCELLENCE CHAIRMAN

Dec. 2016 - May 2017

MEMBER

Sept. 2016 - May 2017

Engineering Council, University of Illinois

STUDENT INTRODUCTION TO ENGINEERING (SITE) RESERVATIONS CHAIR

May 2015 - May 2016

University of Illinois Student Chapter of the American Meteorological Society

SECRETARY

Apr. 2015 - Apr. 2016

MEMBER

Jan. 2015 - May 2017

Illinois Space Society

RASC-AL TECHNICAL TEAM MEMBER

Aug. 2014 - Dec. 2014

REPRESENTATIVE TO STUDENTS FOR THE EXPLORATION AND DEVELOPMENT OF SPACE (SEDS)

Sept. 2013 - Sept. 2014

DEPARTMENTAL SERVICE

University of Wisconsin-Madison Department of Engineering Physics

CHAIR, STUDENT ADVISORY COMMITTEE

Apr. 2019-PRESENT

DEPARTMENT REPRESENTATIVE TO THE COLLEGE OF ENGINEERING GRADUATE ADVISORY COMMITTEE

Aug. 2018 - PRESENT

University of Illinois Department of Nuclear, Plasma, and Radiological Engineering

UNDERGRADUATE ADVISORY BOARD REPRESENTATIVE

Apr. 2014 - Dec. 2016

OTHER SERVICE

Generation Atomic

ADVISORY BOARD MEMBER, ATOMIC AMBASSADOR

July 2020-PRESENT

Rethinking Nuclear

SCIENCE ADVISOR

[Madison, WI](#)

2018-PRESENT

Nuclear Innovation Bootcamp 2020

COMMUNICATIONS TEAM

[Madison, WI](#)

Jan 2020-Apr. 2020

Short Courses and Other Training

Young Professionals Nuclear Forum

STANFORD CENTER FOR INTERNATIONAL SECURITY AND COOPERATION AND THE MOSCOW ENGINEERING PHYSICS INSTITUTE

[Virtual](#)

Dec. 2020 - PRESENT

Nuclear Facilities Experience

ARGONNE NATIONAL LAB AND TEXAS A&M UNIVERSITY

[Virtual](#)

Aug. 2021

International Safeguards Policy and Information Analysis-Intensive Summer Course

MIDDLEBURY INSTITUTE OF INTERNATIONAL STUDIES AT MONTEREY AND LAWRENCE LIVERMORE NATIONAL LAB

[Virtual](#)

June 2021

Nuclear Security: The Nexus Between Policy and Technology

UNIVERSITY OF CALIFORNIA, BERKELEY COURSE NE C285

[Virtual](#)

Jan. 2021 - Apr. 2021

Verification in Nuclear Arms Control

MIT AND PACIFIC NORTHWEST NATIONAL LAB

[Virtual](#)

Jan. 2021

ETI Annual Summer School

CONSORTIUM FOR ENABLING TECHNOLOGIES AND INNOVATION

[Virtual](#)

August 2020

Nonproliferation and International Safeguards Summer Course

PACIFIC NORTHWEST NATIONAL LAB

[Virtual](#)

June 2020

Nondestructive Assay (NDA) Summer Course

LOS ALAMOS NATIONAL LAB

[Los Alamos, NM](#)

June 2018

Nuclear Innovation Bootcamp

UNIVERSITY OF CALIFORNIA, BERKELEY

[Berkeley, CA](#)

July 2017

Dr. G. Robert Keepin Nonproliferation Science Summer School

LOS ALAMOS NATIONAL LAB

[Los Alamos, NM](#)

Jun. - Aug. 2017

Professional Organizations

Since 2013	Student Member, American Nuclear Society
Since 2015	Member, Women in Nuclear
Since 2015	Student Member, Society of Women Engineers
Since 2017	Member, Earth Science Women's Network
Since 2018	Student Member, Institute of Nuclear Materials Management
Since 2018	Member, C3E Network for Women's Leadership in Clean Energy
Since 2019	Member, National Science Policy Network

PRIOR MEMBERSHIP

2019 - 2020	Student Member, Society of Automotive Engineers
2016 - 2017	Student Member, American Society of Mechanical Engineers
2015 - 2016	Student Member, American Meteorological Society