

# Kathryn A. Mummah

NUCLEAR ENGINEERING GRADUATE STUDENT

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## Education

### University of Wisconsin-Madison

Madison, WI

PHD STUDENT, NUCLEAR ENGINEERING

Fall 2017-PRESENT

- Advisor: Professor Paul Wilson

### University of Illinois

Urbana, IL

B.S. NUCLEAR, PLASMA, AND RADIOLOGICAL ENGINEERING

May 2017

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

## Research

### Advanced Reactors and Fuel Cycle Research Group

UNDERGRADUATE RESEARCH ASSISTANT

Aug. 2016 - May 2017

- Developed introductory experience in running the CYCLUS fuel cycle code
- Conducted literature review on previous fuel cycle transition studies

### Analysis of Reactor Transients and Stability Research Group

UNDERGRADUATE RESEARCH ASSISTANT

Jan. 2016 - Dec. 2016

- Developed BISON cases benchmarking pellet cladding mechanical interactions, building on summer work at Idaho National Lab

### Experimental Thermal Hydraulics Research Group

UNDERGRADUATE RESEARCH ASSISTANT

Aug. 2015 - Dec. 2015

- Developed a Computer-Aided-Design (CAD) 3D model of a section of lab space with over 30 pipes and supports for use in developing laboratory experiments

## Experience

### Los Alamos National Laboratory

Los Alamos, NM

SYSTEMS DESIGN & ANALYSIS INTERN

May 2017 - Aug. 2017

- Developed MCNP decks for nuclear thermal rockets
- Completed the Dr. G. Robert Keepin Nonproliferation Summer School
- Created and taught a primer on nuclear engineering for students without a background in nuclear science and engineering

### Idaho National Laboratory

Idaho Falls, ID

FUELS MODELING & SIMULATION INTERN

May 2016 - Aug. 2016

- Benchmarked the BISON fuel performance code with experimental data from the Halden Research Reactor, focusing on pellet clad mechanical interactions (PCMI)
- Organized the collection of donations at 16 different buildings/complexes on the INL site. Ultimately collected \$1500, 100 handwritten cards, and 150 lbs of donations to be sent to active servicemembers, veterans, and first responders through Operation Gratitude.

### University of Illinois

Urbana, IL

TEACHING ASSISTANT

- Lead Engineering Learning Assistant (ELA) for ENG 100 for Nuclear, Plasma, and Radiological Engineering Department. Fall 2015 & '16
- Teaching Assistant for NPRE 100: Introduction to Nuclear, Plasma, and Radiological Engineering. Fall 2014, '15, & '16
- Teaching Assistant for NPRE 101: Introduction to Energy Sources. Spring 2014 & '15
- Grader for ASTR 100: Introduction to Astronomy. Fall 2014

## Oyster Creek Generating Station

REACTOR ENGINEERING INTERN

*Forked River, NJ*

*Jun. 2015 - Aug. 2015*

- Aligned 700 employees on Reactivity Management (RM) responsibility. For example, the weekly plant newsletter includes a "Reactivity Management System of the Week" that focuses on how that particular system could effect reactivity, or power changes in the core.
- Verified Special Nuclear Material Inventory and bundle orientations for spent fuel
- Lead a raffle fundraiser that raised \$600 to place retired Military Working Dogs in loving homes, often with retired servicemembers.

## Exelon Generation Cantera Regional Headquarters

SPENT FUEL & DECOMMISSIONING INTERN

*Warrenville, IL*

*Jun. 2014 - Aug. 2014*

- Accumulated and analyzed data on fuel cycle burnups and fuel assembly failures.
- Created and reviewed documents to track all Special Nuclear Material

# Leadership

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## American Nuclear Society (ANS)

STUDENT DIRECTOR

*Jun. - Jun. 2019*

LOCAL SECTIONS COMMITTEE MEMBER

*Jun. 2016 - PRESENT*

STUDENT SECTIONS COMMITTEE MEMBER

*Jun. 2016 - Jun. 2017*

## University of Wisconsin-Madison ANS Student Section

ADVOCACY CO-CHAIR

*Jun. 2017 - PRESENT*

## University of Illinois ANS 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 Student Section

FOUNDER

*Aug. 2015*

MEMBER

*Aug. 2015 - May 2017*

## Engineering Ambassadors

RECRUITMENT & PUBLICITY CHAIR

*Apr. 2016 - Dec. 2016*

AMBASSADOR

*Nov. 2015 - May 2017*

## Phi Mu - Delta Beta Chapter

ACADEMIC EXCELLENCE CHAIRMAN

*Dec. 2016 - May 2017*

## Engineering Council

UNDERGRADUATE ADVISORY BOARD REPRESENTATIVE

*Apr. 2014 - Dec. 2016*

STUDENT INTRODUCTION TO ENGINEERING (SITE) RESERVATIONS CHAIR

*May 2015 - May 2016*

## Student Chapter of the American Meteorological Society

SECRETARY

*Apr. 2015 - Apr. 2016*

## Illinois Space Society

RASC-AL TECHNICAL TEAM

*Aug. 2014 - Dec. 2014*

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

*Sept. 2013 - Sept. 2014*

## Honors & Awards

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### SCHOLARSHIPS

2017-2018	<b>ANS Fuel Cycle and Waste Management Division Randall Scholar,</b>
2016-2017	<b>Roy G. Post Foundation Scholarship,</b>
2016-2017	<b>Dale W. and Wanda L. Weaver Engineering Scholarship,</b>
2016-2017	<b>Crowe Horwath Scholarship,</b>
2016-2017	<b>Edith and Harry Darby Leadership Scholarship,</b>
2015-2017	<b>DOE Nuclear Energy University Program (IUP) Scholarship Award,</b>
2015-2017	<b>Nuclear Regulatory Commission Scholarship,</b>
2015-2017	<b>American Nuclear Society Decontamination &amp; Environmental Sciences Scholarship,</b>
2015-2017	<b>Catherine Pritchard Undergraduate Scholarship,</b>
2015-2016	<b>Exelon Energy for Education Scholarship Award,</b>
2014-2016	<b>National Academy for Nuclear Training Scholarship,</b>
2013-2017	<b>Mike Harper Leadership Scholarship,</b>

### AWARDS

2017	<b>Knights of St. Patrick,</b>
2016	<b>Alpha Nu Sigma,</b>
2016	<b>William R. Schowalter Award,</b>
2016	<b>American Nuclear Society Commendation for Service and Leadership,</b>
2014	<b>American Nuclear Society Most Committed Member,</b>
2013	<b>University of Illinois James Scholar,</b>

## Conference Presentations

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### 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

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

*Las Vegas, NV*

2016 AMERICAN NUCLEAR SOCIETY WINTER MEETING - STUDENT POSTER SESSION

*Nov. 2016*

K. MUMMAH, R. WILLIAMSON

### 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

- Winner of "Public Image" technical track

### Reactivity Management: More Than Just Reactor Engineers

*Washington, DC*

2015 AMERICAN NUCLEAR SOCIETY WINTER MEETING - STUDENT POSTER SESSION

*Nov. 2016*

K. MUMMAH

## Professional Organizations

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2014 - 2017	<b>Student Member,</b> American Nuclear Society
2016 - 2017	<b>Student Member,</b> American Society of Mechanical Engineers
2015 - 2017	<b>Student Member,</b> Society of Women Engineers
2015 - 2016	<b>Student Member,</b> American Meteorological Society