

Education

Texas A&M University, College Station, TX.

Masters of Science in Nuclear Engineering

Certificate from the Center for Nuclear Security Science & Policy Initiatives (NSSPI)

Graduate Advisor: Dr. Sunil Chirayath & Dr. Charles M. Folden III

August 2017 – December 2022

Overall GPA: 3.88/4.00

The University of Texas (UT), Austin, TX.

Bachelor of Science in Physics

Radiation Physics Option, six courses in Nuclear and Radiation Engineering

Certificate in Forensic Science

July 2013 – May 2017

Overall GPA: 3.43/4.00

Research Experience

Center for Nuclear Security Science and Policy Initiatives (NSSPI)

Texas A&M University, College Station, TX.

Graduate Research Assistant

Graduate Advisor: Dr. Sunil Chirayath, Director of NSSPI and Associate Professor

June 2018 – Present

Thesis Title: Safeguards Analysis for Neptunium-237 in High-Level Used Fuel Waste Through Computational and Radiochemical Methods

- Conduct literary research and review on neptunium extraction and reprocessing work for safeguards
- Analyze and quantify how much neptunium is produced from various reactor and fuel types
- Conduct chemical separation processes to analyze separation methods for neptunium

Undergraduate Research Assistant at the Nuclear Engineering Teaching Laboratory (NETL)

University of Texas, Austin, TX.

Supervisor: Dr. Steven Biegalski, Former Director of NETL and Academic Program Professor

Current Nuclear and Radiological Engineering and Medical Physics Program Chair at Georgia Tech

February 2016 – July 2017

Mass Spectrometry of Noble Gases

- Develop quantitative method for analysis of tracer gas samples
- Helped construct a Diffusion Column to extract samples using developed quantitative method to measure diffusion rates of the various gases using a Gas Chromatography Mass Spectroscopy and Lab Solution software
- Analyze the diffusion levels of Argon (Ar), Krypton (Kr), Xenon (Xe), Neon (Ne) and Sulfur Hexafluoride (SF₆) over a span of time using developed quantitative method

Spectra Manipulation and Analysis

- Constructed spectra using obtained data and performing peak search analysis on new spectra
- Analyze various methods of data collection of different source samples using various counting statistics to obtain different percentages of error
- Experience doing NAA, gamma ray spectroscopy, germanium detectors, calibration of systems, and spectra analysis

Experience

Graduate Research Assistant, Summer Internship

Los Alamos National Laboratory, Los Alamos, NM.

Mentor: Alex McSpaden & Rene Sanchez

May 2019 – August 2019

- Assist in the design of future experiments involving neptunium, including a potential fast burst assembly using MCNP simulations to determine feasible designs
- Aid in analysis of previous measurements involving the material to help better understand its properties and neutronic behavior
- Completed the NSSC-LANL Dr. G. Robert Keepin Nonproliferation Science Summer Program

Graduate Teaching Assistant, Nuclear Engineering Department

September 2017 – May 2018

Texas A&M University, College Station, TX.

Course: Nuclear Detection and Isotope Technology Laboratory

Supervisor: Dr. Craig Marianno (Spring 2018)

Course: Radiological Safety

Supervisor: Dr. John Ford (Fall 2017)

- In charge of evaluating student performance in the Radiological Safety course and Nuclear Detection and Isotope Technology Laboratory through grading student homework assignments, lab reports, and exams
- Teach students the theory and technology behind detectors, sensors, and source technologies during the laboratory
- Ensure understanding of the interactions of radiation with matter and the behavior of various radiation detectors

Student Associate for the Services for Students with Disabilities (SSD)

January 2015 – August 2017

University of Texas, Austin, TX.

Supervisor: Kelli Bradley, MSW, MBA

- Work with a diverse set of students such as students with disabilities: medical/physical, cognitive/psychological, visual and or students in crisis
- Assist faculty and staff, students and parents by answering questions through written or oral communication
- Provide support for academic testing accommodations for students with disabilities, including scheduling and proctoring

Relevant Course Work

Texas A&M University, College Station, TX.

August 2017 – Present

- Radiation Interactions & Shielding, Radiation Detection & Nuclear Materials Measurements, Nuclear Nonproliferation & Arms Control, Nuclear Reactor Theory, Reactor Analysis & Experiments, Fuel Cycle & Materials Safeguards, International Security, Monte Carlo Transport, Radiation Biology, Deterrence and Coercion, & Radio-Chemistry
- International Nuclear Facilities Experience (INFE)

University of Texas, Austin, TX.

August 2013 – May 2017

- Concepts in Nuclear & Radiation Engineering, Introduction to Nuclear Power Systems, Nuclear Environmental Protection, Nuclear Safety & Security, Radiation & Radiation Protection Laboratory, & Nuclear Operations & Reactor Engineering

Affiliations and Honors

Institute of Nuclear Materials & Management

August 2017 – Present

- Secretary of Texas A&M student chapter & National Member

LANL Seaborg Institute Research Fellowship Recipient

Fall 2020

American Nuclear Society, National Member

January 2019 – January 2020

NSSC-LANL Dr. G. Robert Keepin Nonproliferation Science Summer Program

June 2019 – August 2019

NSSC-LANL Nuclear Safeguards Summer School

June 2019

American Nuclear Society – Member, UT Austin

August 2016 – May 2017

Disability Advocacy Student Coalition – President, UT Austin

August 2015 – May 2017

National Society of Colligate Scholars – Member, UT Austin

August 2014 – May 2017

Best Buddies – Membership Director, UT Austin

August 2014 – May 2017

Top Ten-Scholarship Recipient, UT Austin

August 2013 – August 2016

Nominee for President's Student Employee of the Year, UT Austin

August 2015 – May 2016

Skills

Software:

Proficient using Microsoft Office Suite, Maestro, Genie 2K, MCNP, familiar with Python

Instrumentation:

Can proficiently calibrate detectors and read associated spectra with detectors such as HPGe, NaI, LaBr, and ^3He detectors. Knowledgeable with a GC Mass Spec and associated software and reading mass spectra

Communication: Proficient oral and written communication skills and can proficiently communicate amongst a diverse set of people. Proficient with social media management and marketing skills.

Publications

1. M.M. Mendoza, A.A. Sagadevan, J.N. Wagner, S.S. Chirayath, E.D. Kitcher, H. Rysz, L. Anuar, A. Perry, A. Maldonado, M. Ramirez, D. Mulyana, A. Edwin, and S. Martinson, "Advanced Reactor Safeguards Workshop at Texas A&M University", Poster. 60th Annual Meeting of the Institute for Nuclear Materials Management (INMM), Palm Desert, California, 14-18 July 2019.
2. J. King, S. Chirayath, E. Aboud, V. Bautista, P. Behne, H. Boo, R. Brownfield, J. Chisholm, K. Cook, A. Edwin, H. Kistle, P. O'Neal, E. Ordonez, M. Ramirez, S. Ricketts, R. Suh, "Safety Evaluation of a Spent Fuel Dry-Storage Canister with Various Fill Materials", *Transactions of the American Nuclear Society*, 120 (2019).