

Henry “Hank” M. Thurston, Ph.D., B.S.C.E.

CONTACT INFORMATION	776 Silver St. Elko, NV 89801	hankt@thurstonlabs.com
EDUCATION	Ph.D. Physics (Exotic Materials), Ph.D. Computational Math, Science, and Engineering , Michigan State University, E Lansing, MI ΣΠΣ, ΣΖ, GPA 3.74/4.00	March 2023
	M.S. Physics (Nuclear) , Michigan State University, E Lansing, MI GPA 3.64/4.00	May 2020
	Machine Learning in Physics , FRIB Theory Alliance, E Lansing, MI Certification of Completion	May 2019
	B.S. Civil Engineering, B.S. Physics , Gonzaga University, Spokane, WA TBII, ΑΣΑ, <i>Magna Cum Laude</i> , GPA 3.71/4.00	May 2017
	22 Professional Military Education Courses, 8 Service/Special Skills Schools , MCB Camp Pendleton, CA	2009 to 2012
ACADEMIC & PROFESSIONAL EXPERIENCE	CEO Thurston Laboratories, LLC	Fall 2023 to present
	• Business management, development, and marketing • Strategic planning and risk assessment • Conducts concrete, rebar, and other special inspections • Oversees field and laboratory testing of construction materials • Oversees specialty testing including environmental and radiological	
	Founder Anthracene Softworks	Summer 2023 to present
	• Business management, development, and marketing • Oversees production of enterprise software products • Computation modeling specialist, developing models of complex physical processes in physics and engineering	
	Lecturer in Physics Hillsdale College	Fall 2021 to Spring 2023
	• Planned, wrote, and delivered lectures to students • Wrote and edited student lab manuals • Oversaw safe and proper lab procedures • Graded student work • Hosted public telescope and astronomy nights	

Graduate Research Assistant

Spring 2020 to Spring 2023

MSU Dept. of Electrical and Computer Engineering: Microwave, Plasma, and Materials Processing Lab, in conjunction with Fraunhofer USA

- Developed Diamond-based ultra-fast Neutron detection technology
- Conducted testing of detector at Weapons Neutron Research facility, Los Alamos National Laboratory Neutron Science Center, Los Alamos, NM.
- Performed Monte Carlo simulation of passage of particles through matter using SRIM, GEANT4, and GEANT4 with the GEANT Crystal Object extensions
- Derivation of theoretical framework for the distribution and diffusion of lattice defects in structured materials
- Development of meso-scale computer simulation of nuclear and atomistic effects in diamond lattice (done in Fortran and C)
- Physical characterization of diamond through X-ray Diffraction and Quantitative Birefringence

Summer Faculty Fellowship Program

Summer 2020, 2021

U.S. Air Force Research Laboratory

- Remote work in 2020 due to SARS-CoV2 viral outbreak
- Computational simulation of focused and broad-beam ion implantation in diamond crystal lattice
- Computational simulation of post-implantation defect diffusion
- In-Lab measurements to benchmark computational models (2021)

Founder, Chief Investment Officer

Winter 2019 to Summer 2025

Trinary Capital

- Quantitative Analysis of financial markets and asset portfolios
- Qualitative geopolitical and economic risk assessment
- Investor risk profiling
- Development and implementation of proprietary genetic algorithms for portfolio optimization
- Development of proprietary forward looking credit risk model
- Chief researcher into genetic algorithms and machine learning applied to management of financial assets

Graduate Research Assistant (MoNA Collaboration)

Summer 2018 to Spring 2020

National Superconducting Cyclotron Laboratory/Michigan State University

- Prepared two live-beam experiments at NSCL
- Led scheduling and project management efforts for experiment preparation
- Designed and built detector test apparatus
- Developed beamline/ion optics simulation code (Developed in Python)
- Participated in Neutron dark scattering experiments at the Los Alamos National Laboratory Neutron Science Center, Los Alamos, NM

Graduate Teaching Assistant
Michigan State University

Summer 2018 to Spring 2020

- Tutored students in Calculus-based Electricity and Magnetism
- Instructed Algebra and Calculus based physics labs and delivered “Mini-Lectures” delivered at the start of Lab Meetings
- Developed students’ knowledge of the scientific process, experimental design, uncertainty, and error analysis.
- Graded students in a variety of deliverable exercises/assignments.

Undergraduate Research Assistant
Gonzaga University, Spokane, WA

2017

1. 3 Body Nuclear Kinematic Modeling
 - Computational model of reactions in Activated Target-Time Projection Chamber
 - Development done in Python and Fortran
 - Traveled to National Superconducting Cyclotron Laboratory (NSCL) to collaborate with colleagues
 - Presented at Gonzaga ZagFam Weekend 2017
2. Finding a Relation Between Galactic Redshift and Radial Distance
 - Replication of Edwin Hubble’s work with undergraduate program organic equipment
 - Presented at Pacific Northwest Mathematical Assc. of America Conference, 2017
 - Presented at Gonzaga ZagFam Weekend 2017
 - Research is ongoing

Granted Enrollment as Engineer in Training
Washington State Board of Registration for Professional Engineers and Land Surveyors

Summer 2016

Engineering Senior Design Capstone Project
Gonzaga University, Spokane, WA

Fall 2015 to Spring 2016

- Project Manager
- Oversaw design, construction, and testing of modular armor for expeditionary shelters
- Awarded funding from Gonzaga Center for Engineering Design & Entrepreneurship

Project Manager Gonzaga ASCE Concrete Canoe Team
Gonzaga University, Spokane, WA

Fall 2015 to Spring 2016

Estimator, Data Analyst, & Project Manager

Spring 2015 to Summer 2018

Garco Construction, Inc., Spokane, WA

- Analyze potential projects for risk and opportunity
- Collect, Analyze, and Assess historical cost and production data
- Manage projects, responsible for budget, materials, and subcontracts
- Manage interns, delegating work and ensuring accountability
- Mentor interns in real world skillsets in the Construction Management, Engineering, and Estimating fields.
- Have personally bid over 45 projects, including bridges, schools, industrial and military facilities, and a variety of private projects
- Wrote software (development done entirely in Python) to analyze historical data and simulate future projects, which has been proven to reliably outperform the leading commercially available equivalent software package. Development continues.
- Managed over \$1.25 million worth of work, and bid over \$500 million worth of work.

Undergraduate Lab Teaching Assistant

Fall 2014 to Spring 2015

Gonzaga University, Spokane, WA

- PHYS 103 Calculus Based Introductory Mechanics Lab
- Provided auxiliary instruction to students
- Oversaw safe and proper lab procedures
- Graded lab reports

ACADEMIC AND
COMMUNITY
SERVICE**Gonzaga ROTC** Gonzaga University, Spokane, WA 2015-2018

Volunteered time to attend multiple multi-day and single day field exercises to assist in training Gonzaga's ROTC Officer Candidates

Physicists Inspiring the Next Generation Program 2019, 2020 NSCL, E Lansing, MI
Sat on a panel answering High School students' question about college and the sciences**Candidate for student Diversity and Inclusion Representative to MSU Department of Physics and Astronomy, 2020****VFW Post 2350 Honor and Color Guard member, 2023-present**

Volunteer time to render military honors at military funerals and community events.

Elko High School Robotics Team, 2023-present

Mentor students in mechanical design, coding, and construction in preparation for competitions.

Nat'l Small Business Assoc. Leadership Council, 2023-2025

Public and political outreach and education on public policy matters of concern to small businesses and their owners and operators.

Nevada Classical Academy - Elko; Board Treasurer 2025-Present

Oversee governance of school funds, including operational, donations, and discretionary accounts. Assist in budgeting and financial risk analysis.

AFFILIATIONS & MEMBERSHIPS	American Society of Civil Engineers Association for the Advancement of Cost Engineering American Physical Society, Div. of Nuclear Physics Materials Research Society Society for Industrial and Applied Mathematics International Code Council (ICC) Nat'l Small Business Assoc.
PUBLICATIONS	• <i>The Development Of A Novel Diamond-Based Neutron Detector and Quantum Color Center Fabrication Framework</i>, Dissertation, Michigan State University, 2023 • <i>A Comparative Survey of Low Energy Ion Implant Profiles Generated by Structured and Amorphous Monte Carlo Frameworks</i>, Nuclear Instruments and Methods B, (in review) • <i>Positionally Opposed Schottky Semi-metal Ultra-fast Neutron Detector</i>, Nuclear Instruments and Methods A, (in progress)
COURSES TAUGHT	• PHYS103L Calculus Based Physics Lab (Gonzaga University) • PHY252 Lab “DATA Lab” Algebra Based Physics Lab (Michigan State University) • PHY191 Calc based Introductory Mechanics Lab (Michigan State University) • Physics 100 (Hillsdale College) • Private tutoring in a variety of subjects including Structural Analysis, Chemistry, and Algebra
SEMINARS AND TALKS GIVEN	• “The Role of Data Analytics in Construction Estimating” (AACE Int'l) • “Finding a Relation Between Galactic Redshift and Radial Distance” (Mathematical Association of America Conference Jun. 2017) • “3 Body Nuclear Kinematic Modeling” Poster Session (APS DNP Meeting Oct. 2017) • “The Use of Diamond in the Detection of High Energy Neutrons” Conference Talk (MRS Fall Conference Nov. 2020) • “Applications of Physics to Financial Markets” (MSU Physics Graduate Organization Colloquium Feb. 2021) • “Development of an Enhanced Solid State Neutron Detector” Conference Talk (American Conference on Neutron Scattering Jun. 2022) • “Introduction to Cosmology” (Elko High School STEM Seminar Class Sept. 2024)

Last updated: January 26, 2026