2023 MTV Workshop Agenda

Monday, March 20, 2023		
18:30	Welcome Dinner, guest speaker Jessica Bufford, Senior Program Officer, Nuclear Threat Initiative: Curiosity, Connection, and Commitment in Nuclear	Apse Room, University of Michigan Museum of Art (UMMA), 525 S. State St., Ann Arbor, MI 48109
Workshop Day 1, March 21, 2023		
8:00	Registration and Poster Set-up	Michigan League, 911 N. University Ave. Ann Arbor, MI 48109
9:00	Welcome & Logistics	Shaun Clarke, MTV Associate Director, Sara Pozzi, MTV Director, University of Michigan
9:15	NNSA Goals for MTV	Keith McManus, Deputy Director, Office of Proliferation Detection, NNSA
9:30	MTV Accomplishments	Sara Pozzi, Faculty, MTV Director, University of Michigan
9:50	Precision Reactor Oscillation and SPECTrum (PROSPECT-I) Measurement of Absolute Reactor Antineutrino Flux	Paige Kunkle, Boston University
10:05	Evaluating Sensitivity Trends for Mobile Antineutrino-Based Safeguards	Matthew Dunbrack, Georgia Institute of Technology
10:20	First Search For Neutrino-Induced Nuclear Fission	Tyler Johnson, Duke University
10:35	BREAK - 20 mins	
10:55	Application of Resonance Ionization Mass Spectrometry (RIMS) to Spent Fuel Analysis	Henry Burns, Georgia Institute of Technology
11:10	Simulations of Prompt-Gamma Response to Epithermal-Neutron Activation for Nuclear Forensics	Brad Nethercutt, Penn State University
11:25	Toward a Robotic Multi-Tool for Neutron Measurements in Support of Remote Inspections	Eric Lepowsky, Princeton University
11:40	Characterization of New Organic Glass Scintillators	Tessa Maurer, University of Michigan
11:55	Group Photo	Michigan League
12:00	Consortia students and national laboratory scientist meet-and-greet luncheon	Lunch
13:15	CVT/MTV Consortia Alumni Panel, Moderated by Shaun Clarke	Angela Di Fulvio, University of Illinois, Michael Hua, Helion; Steven Czyz, Lawrence Livermore National Laboratory; Meghan McGarry, Lawrence Livermore National Laboratory ; Tony Shin, Los Alamos National Laboratory
14:10	Better Seismic Event Locations Using Geographically Registered Master Events	Goran Ekstrom, Columbia University
14:25	Effect of Plume Hydrodynamics on the Combustion Chemistry of Laser Ablation Plasmas	Emily Kwapis, University of Florida
14:40	Analysis of Explosion Data Collected from the High Stratosphere	Sarah Popenhagen, University of Hawai'i
14:55	BREAK - 20 mins	
15:15	HITMAN: A General Deep Learning Approach to Building Likelihood Functions for Neutrino Detectors	Garrett Wendel, Penn State University
15:30	Evaluation of Muon Tomography Techniques for Dry Cask Spent Fuel Storage Imaging	Jesus Valencia, University of New Mexico
15:45	Building Towards Coherent Elastic Neutrino Scattering For Reactor Monitoring	Ryan Bouabid, Duke University

16:00	Neutron Resonance Analysis for the Identification and Quantification of Nuclear Material	Ethan Klein, Massachusetts Institute of Technology
16:15	Special Nuclear Material Experiments with a Dual-Particle Imager and Visualization in Mixed Reality	Ricardo Lopez, University of Michigan
16:30	Poster Overview Presentations (1-minute each)	Odd-numbered poster presenters
16:50	Poster Reception: Odd-numbered Posters	Hussey and Vandenberg Rooms, Michigan League
18:00	Adjourn Day 1	
Workshop Day 2, March 22, 2023		
8:30	Hybrid Optical Neutrino Detectors: Research and Development toward Eos and Theia	Edward Callahan, University of California, Berkeley
8:45	Advancements in Cylindrical Time-Encoded Imaging and Explorations in Spherical Time-Encoded Imaging	John "Jack" Kuchta, University of Michigan
9:00	Extending Nucleon-Nucleus Interaction Models to the Fission Fragment Region	Kyle Beyer, University of Michigan
9:15	Development of 241Am13C Calibration Sources for a Large Water Cherenkov Detector	Colton Graham, University of Michigan
9:30	BREAK - 20 mins	
9:50	DEI Initiatives and Successes Panel, Moderated by Sara Pozzi	Aditi Verma, University of Michigan; J'Tia Hart, Idaho National Laboratory; Chris Perfetti, University of New Mexico; Mackenzie Warwick, University of Michigan; Nancy Jo Nicholas, Los Alamos National Laboratory
10:45	New Developments in Zero-knowledge Verification: Toward 2D-Radiography and Real-time Confirmation Measurements	Jihye Jeon, Princeton University
11:00	Quantifying Effects of Measurement Uncertainty on Separated Plutonium Attribution Methodology	Patrick O'Neal, Texas A&M University
11:15	Detector System Component Feasibility for Fresh Nuclear Fuel Signature Analysis	Cathleen Barker, University of Florida
11:30	Poster Overview Presentations (1-minute each)	Even-numbered poster presenters
11:50	General Luncheon and coPI Meeting	
13:00	Poster Reception: Even-Numbered Posters	Hussey and Vandenberg Rooms, Michigan League
14:00	Analysis of Laser Induced Fluorescence Images of Plants Exposed to Metal Contamination and Environmental Stress	Kelly Truax, University of Hawai'i
14:15	Electric Zero Knowledge	Areg Danagoulian, Massachusetts Institute of Technology
14:30	Response of a High-pressure He-4 Scintillation Detector to Nuclear Recoils up to 9 MeV	Oskar Searfus, University of Michigan
14:45	Closing Remarks and Student Awards	Prof. Sara Pozzi and Col. Keith McManus
15:15	Adjourn Day 2	
15:30	Depart for University of Michigan, Nuclear Engineering and Radiological Sciences Laboratory Tours	Cooley Building, 2355 Bonisteel Blvd, Ann Arbor, MI 48109
16:00	Laboratory Tours - University of Michigan, Nuclear Engineering and Radiological Sciences	Cooley Building, 2355 Bonisteel Blvd, Ann Arbor, MI 48109
Poster Presentations: Day 1 (Odd Numbers) and Day 2 (Even Numbers)		
#	**Research Title (links to poster pdf)**	**Presenter Names**

1	Identification of Thermal Imagery Comparing Machine Learning Classifiers for Real Time Monitoring of Solvent Extraction	Kelly Truax, University of Hawai'i
2	Gamma-ray Spectroscopy using an Opaque Water-based Liquid Scintillator	Andrew Wilhelm, University of Michigan
3	Verification of Upcoming Monte Carlo N-Particle (MCNP) Features for Estimating Nuclear Data Sensitivities in Fixed Source Simulations	Juliann Lamproe, University of Michigan
4	Gamma-ray Multiplicity and Spectra from Neutron Induced Fission of 235U	James Baker Jr., University of Michigan
5	Novel Measurement of Sm-146 Half-Life Utilizing Microcalorimetry	Alexander Kavner, University of Michigan
6	Fast Emulation of the Neutron Diffusion Equation using the Reduced Basis Method (RBM)	Patrick Myers, University of Michigan
7	Verification and Validation of Dual Particle Imaging Simulations	Katie Ballard, University of Michigan
8	Simultaneous Gamma-Ray Coincidence and Pinhole Imaging	Alexander Rice, University of Michigan
9	Generating Diverse Bacterial Strain Collections for Identifying Genetic Markers of Radiation Exposure	Anne Shen, Massachusetts Institute of Technology
10	Probabilistic Sequencing for Compton Imaging Using the Polarized Klein-Nishina Formula	Prabhjot Kaur, University of Michigan
11	Update on the Design of a Low-Cost Radiation Weather Station (RWS-lite)	Ryan Kim, University of Michigan
12	Attritable Sensor Data Collection on Ocean Platforms	George (Wyatt) Burkley, University of Hawai'i
13	Implementation of a Nonplayer Character (NPC) as a Versatile Learning and Assessment Tool for a Virtual Reality (VR) Radiation Protection Game/Improved User Interface and Radiation Physics Implementation in a Fully Immersive Virtual Reality Educational Experience	Jackson Eggerd and Ernesto Enriquez, University of Michigan
14	Nuclear Radiation Source 3D Localization from Angular Particle Imagers	Dhruv Garg, University of Michigan
15	Assessing the Impact of Nuclear Contamination on Soil Microbial Communities	Heather MacGregor, University of California, Berkeley
16	Sensitivity of the Antineutrino Source Term on Nuclear Reactor Simulations of Varying Levels of Complexity	Douglas Woodward, University of Michigan
17	Obtaining a Remote Pilot Certificate for the Safe and Legal Operation of an Intelligent Radiation Awareness Drone (iRAD)/ Personnel Safety Considerations for Initial Testing of a Small Homemade Drone	Meredith Doan and Jordyn Vermut, University of Michigan
18	Improving Environmental Contamination Monitoring Through Microbial Genomics with Machine Learning and Mechanistic Knowledge	Han Zhang, University of California, Berkeley
19	Rossi-Alpha Experiments with Highly Enriched Uranium using Organic Scintillators	Flynn Darby, University of Michigan
20	The calibration of CeBr3 Scintillators for Gamma-ray spectroscopy in a Zero-power Reactor	Andrew Lucas, University of Michigan
21	Rapid Repair of an Intelligent Radiation Awareness Drone (iRad) Using Additive Manufacturing/ Protecting iRAD-Lite: Damage-Reducing Approaches for a Customized Drone Designed for High School Outreach	Kabir Khwaja and Siddharth Gupta, University of Michigan
22	Correlations Between Fission Fragment Properties and γ-Ray Emission	Nathan Giha, University of Michigan
23	Remote Observation of Nuclear Reactors: Neutrio Arrival Directions	John Learned, University of Hawai'i
24	Microbial Biosensors for Detecting Nuclear Fuel Cycle Activities in the Environment	Kurt Ash, University of Tennessee, Knoxville
25	Using Organic Scintillators to Characterize a Reactor Fast Neutron Beam for Nonproliferation Applications	Nicholas Stubblefield, University of Michigan

26	DoseBusters: A Virtual Reality Game for Radiation Detection and Protection Education and Outreach	Liam O'Driscoll, University of Michigan
27	Efficient Exploration Strategies for Source Localization in an Intelligent Radiation Awareness Drone (iRAD)	Christopher Davis, University of Michigan
28	Integration of an Advanced Data Logger into a Professional Radiation Weather Station (RWSpro)	Enrique Orozco, University of Michigan
29	Approximating Resonance Parameter Sensitivities Using the Multipole Formalism	Matthew Lazaric, University of New Mexico
30	Comprehensive Nuclear Test Ban Treaty Organization Radioactive Noble Gas Monitoring System Data for Nuclear Detonation Characterization	Brice Turner, University of Florida
31	Enhancement of a Fully-Immersive Virtual Reality Environment for Teaching Radiation Detection and Protection/ Educational Posters Illustrating Radiation Physics in the Tutorial Room of a Fully Immersive 3D Virtual Learning Environment	Hadi Elghoul and Isabella De Sousa, University of Michigan
32	The Influence of Time Temperature Profiles on the Minimum Detectable Dose of LiF:Mg,Ti Thermoluminescent Dosimeters	Katie Olivas, University of Michigan
33	Extensive Evaluation of a Consumer-Grade Temporal Radon Monitor	Carly Evans, University of Michigan
34	Preliminary Performance Testing of Ukrainian SBM-20 Geiger-Muller Tubes	Andrew Andrade and Evan Sirianni, University of Michigan
35	Temporal and Spectral Comparisons of Explosions recorded on Smartphones and Infrasound Microphones	Samuel "Kei" Takazawa, University of Hawai'i
36	Nuclear Explosion Monitoring in the MT Range: Hunga Tonga Case Study	Shirin Wyckoff, University of Hawai'i
37	Deterministic Computation of Neutron Multiplicity Counting Moments in PARallel, TIme-Dependent SN (PARTISN)	Jawad Moussa, University of New Mexico
38	Simulated State Accounting Data for Development of Advanced and Automated State-level Safeguards Analysis	Kathryn Mummah, University of Wisconsin
39	Integration of a Customizable, Modular Payload into a Pixhawk-Based Unmanned Aerial Vehicle/ Preliminary Design of a WiFi-Sensing Payload for an Intelligent Radiation Awareness Drone (iRAD)	Hythem Beydoun and Meredith Doan, University of Michigan
40	Comparison of Two Laser Systems Used in a Laser-Induced Fluorescence (LIF) Method to Detect physiological changes in Azolla filiculoides due to lead exposure	Haley Currier, University of Hawai'i
42	Fast Emulation of the Neutron Diffusion Equation using the Reduced Basis Method (RBM)	Patrick Myers, University of Michigan