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Reactor Physics Experiment NEA Benchmark Possibilities for Measurements at ORCEF and Other DOE Facilities

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MANAGED BY UT-BATTELLE FOR THE US DEPARTMENT OF ENERGY

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Isotope and Fuel Cycle Technology Division

REACTOR PHYSICS EXPERIMENT NEA BENCHMARK POSSIBILITIES FOR MEASUREMENTS AT ORCEF AND OTHER DOE FACILITIES

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CONTENTS

ACRONYMS

DOE	Department of Energy
LANL	Los Alamos National Laboratory
NEA	Nuclear Energy Agency
ORNL	Oak Ridge National Laboratory
ORCEF	Oak Ridge National Laboratory Critical Experiments Facility
PNNL	Pacific Northwest National Laboratory
Y-12 NSC	Y-12 National Security Complex

ABSTRACT

This report documents a wide variety of critical and subcritical reactor physics measurements that could be included in the Nuclear Energy Agency (NEA) *International Handbook of Evaluated Reactor Physics Benchmark Experiments*. The experiments were performed by John T. Mihalczo and coworkers at many (8) Department of Energy (DOE) facilities, including the Oak Ridge National Laboratory Critical Experiments Facility (ORCEF between 1958 and 1975); Los Alamos National Laboratory (LANL); Pacific Northwest National Laboratory; Babcock and Wilcox at Lynchburg, Virginia; and the Y-12 National Security Complex (Y-12 NSC) (the latter between 1975 and up to 2006). This report lists the various measurement programs and a limited description of the reactor physics measurements that were performed in each, which could serve as benchmarks. Some criticality safety measurements at these facilities have already been documented in the NEA *International Handbook of Evaluated Criticality Safety Benchmark Experiments*. Some of these reactor physics measurements have also been documented in the literature, and this document give a complete list of references for which John T. Mihalczo was an author or co-author. The experiments are divided into four classes: critical experiments only, critical and subsequent subcritical experiments, subcritical experiments at critical facilities, and subcritical measurements performed in material balance areas of the Y-12 NSC and other facilities. Because of the high cost and large amount of facility time related to these measurements, it is very cost-effective to mine the existing data to produce NEA reactor physics benchmarks. The information for many of these measurements is documented in critical experiment and subcritical experiment logbooks at the International Criticality Safety Benchmark Program at Idaho National Laboratory and in laboratory records at Oak Ridge National laboratory.

1. INTRODUCTION

Between 1958 and 2006, a wide variety of critical experiments and subcritical experiments were performed at eight different US DOE facilities, many at ORCEF. Many of the measurements were performed in critical experiment facilities. This report documents a wide variety of critical and subcritical reactor physics measurements that could be included in the NEA *International Handbook of Evaluated Reactor Physics Benchmark Experiments.* The experiments were performed by John T. Mihalczo and coworkers. Some criticality safety measurements at these facilities have already been documented in the NEA *International Handbook of Evaluated Criticality Safety Benchmark Experiments* (list given in Appendix A). In many cases these experiments included reactor physics measurements. Some of these reactor physics measurements have also been documented in the literature, and this report give a complete list of references (Appendix B) for which John T. Mihalczo was an author or co-author. The experiments are divided into four classes: critical experiments only, critical and subsequent subcritical experiments, subcritical experiments at critical facilities, and subcritical measurements performed in material balance areas of the Y-12 NSC and other facilities. Because of the high cost and large amount of facility time related to these measurements, it is very cost-effective to mine the existing data to produce NEA reactor physics benchmarks. The information for many of these measurements is documented in critical experiment and subcritical experiment logbooks at the International Criticality Safety Benchmark Program at Idaho National Laboratory and in laboratory records at Oak Ridge National Laboratory.

2. REACTOR PHYSICS MEASUREMENTS

This section lists the various reactor physics that have been performed by John T. Mihalczo and co-workers, some of which have been described in the references. The majority of these measurements were performed at the ORCEF, but measurements at a total of eight DOE facilities are also included.

2.1 MIXTURES OF LOW ENRICHED UF_4 AND PARRAFIN

These experiments were performed at the ORCEF starting in 1959 and the early 1960s, and they included reactor physics measurements of the fast fission factor, which is related to the number of fissions occurring at high energy; foil activation, which measured the spatial distribution of the neutron flux; cadmium ratios, which are the ratios of the activation of a bare foil minus the activation of a cadmium-covered foil divided by the activation of a bare foil; extrapolation distance, buckling, and reflector savings; the infinite medium neutron multiplication factor determined at ORCEF and the Physical Constants Testing Reactor at Pacific Northwest National Laboratory (PNNL); the neutron age and nonleakage probability; and the prompt neutron time decay using a 150 keV Cockcroft Walton accelerator. Some of these data could be evaluated NEA reactor physics benchmarks. Some of these quantities—such as the fast fission factor, cadmium ratios, and the prompt neutron decay—are neutron spectrum dependent quantities and characterize the neutron spectrum. Some of criticality safety aspects of this work have been benchmarked in the NEA *International Handbook of Evaluated Criticality Safety Benchmark Experiments* (document number LEU-COMP-THERM-033). Much of the information in the criticality safety benchmark can be used to describe the system in the reactor physics benchmark.

2.2 REACTOR PHYSICS MEASUREMENTS FOR THE DESIGN OF THE HEALTH PHYSICS RESEARCH REACTOR

In 1960, delayed critical experiments with 93.2 wt. % ^{235}U enriched uranium molybdenum (10 wt. % Mo) alloy were performed to benchmark calculational methods for the design of the Health Physics Research Reactor. In these measurements many reactor physics measurements were performed relative to the design of the reactor. The fissile materials were annular 8 in. outside diameter, 5-25/32 in. inside diameter metal plates of thicknesses varying from 1/8 to 1 in. with some special pie-shaped pieces that were 1/32 in. thick. There were cylindrical alloy plugs (5 23/32 in. outside diameter) for filling the central holes in the annular plates. The following reactor physics measurements were performed: prompt neutron time decay using the pulsed neutron method, radial and axial distribution of the fission density, reactivity associated with height change, central reactivity worth, reflection effects, effect of cadmium between the core and reflector, and effects of Plexiglas in the annulus center.

2.3 SPACE POWER REACTOR EXPERIMENTS

In the early 1960s, an unmoderated graphite reflected critical assembly of UO_2 (93.2 wt. % ^{235}U enriched) fuel pins was assembled as part of the development of a space power reactor. A system with a beryllium reflector was also assembled. The UO_2 pellet density was 9.71 g/cm^3, and the pellets were contained in two hundred and fifty-three 1.27 cm diameter and 30.48 cm long stainless-steel tubes with a center-to-center spacing of 1.506 cm in an aluminum container with a 25.96 cm dimeter. This reactor core mock-up was also assembled with a beryllium reflector. The criticality safety data from these measurements were benchmarked in the NEA *International Handbook of Evaluated Criticality Safety Benchmark Experiments* with documents numbers SCCA-SPACE-EXP-001 and SCCA-FUND-EXP-001.

The following reactor physics measurements were used with these reactor mock-ups: axial and radial flux distributions from foil activation measurements in the core and reflector, axial and radial distributions of the cadmium ratios (bare foil activation minus activation of a cadmium covered foil divided by the activity of the bare foil), reactivity worth of the central fuel pin and fuel pins as a function of radial position in the core and reflector, reactivity worth of the graphite reflector plugs. Reactivity coefficients of rods (0.317 cm diameter) in the core of stainless steel (90 of 1,704 g and 46 of 871 g), tungsten (40 of 2,110 g), graphite (23 of 82 g), polyethylene (8 of 18.4 g), and niobium (46 of 1,050 g) were measured. The reactivity associated with outward displacement of the outer 20 fuel pins, potassium reactivity coefficient in the core, and the reactivity worth of a B_4C (30.5 g) in the central fuel pin location. These measurements could be reactor physics benchmarks.

2.4 SORA REACTOR EPERIMENTS

A mock-up of the proposed Sorgente Rapida (SORA) reactor, which was a repetitively pulsed reactor that served as a source of thermal neutrons for neutron scattering experiments at ORCEF. The system was brought to above delayed criticality by a rotating beryllium reflector. Neutrons from the fast core were moderated in polyethylene in the iron reflector. The following reactor physics measurements performed with this system could be used as NEA benchmarks: the reactivity of the beryllium reflector as a function of position relative to the reactor core, the fission rate distribution throughout the core used to obtain the peak-to-average power density, the thermal neutron fluence at the outer surface if the polyethylene scatterer in the reflector per fission in the core, and the prompt neutron decay constant as a function of reactivity. In addition, dynamic experiments were performed as a function of reactivity above delayed criticality. The static SORA reactor experiments have been documented in the NEA *International Handbook of Evaluated Criticality Safety Benchmark Experiments* in HEU-MET-FAST-096.

2.5 OAK RIDGE ORALLOY SPHERE

This uranium (~93.2 wt. % ^{235}U) metal sphere was more spherical than Godiva and the critical configuration has been documented Nuclear Energy Benchmark HEU-MET-FAST-100. The following reactor physics measurements were performed with this system and could be used as NEA benchmarks: central uranium metal reactivity worth, fission rate spatial distributions, fission neutron importance spatial distributions, prompt neutron decay constant by the Rossi-α technique, and effective delayed neutron fraction.

2.6 INTERACTING URANIUM METAL CYLINDERS

Interacting enriched uranium metal coaxial cylinders with their flat surfaces parallel were assembled to delayed criticality. The diameters of the cylinders were 7, 11, and 15 in. with the thickness varied. The spacing between cylinders were as large as 52 in., and the reactivity of the individual cylinders was as high as 65 cents subcritical. The following reactor physics measurements performed with this system could be used as NEA benchmarks: the reactivity worth associated with a change in spacing between cylinders, the prompt neutron decay constant by the Rossi-α technique and axial fission rate distributions in the uranium metal and in the space between cylinders. For systems with large spacing, the axial distributions were very sensitive to small differences in reactivity of each cylinder. Small change in reactivity of the individual cylinders produced large changes in the axial fission rate distributions. The prompt neutron decay constants depended on the spacing between cylinders because the flight time between cylinders is a large part of the prompt neutron lifetime. A nuclear criticality safety benchmark for the interacting 11 in. diameter cylinders is given in HEU-MET-FAST-051.

2.7 ORNL MEASUSREENTS IN FLATOP AND JEZEBEL

In 1971, Oak Ridge National Laboratory (ORNL) performed measurements at LANL with JEZEBEL and with FLATTOP using an enriched uranium metal core and a plutonium metal core. The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven noise analysis measurements near delayed criticality to determine the effective delayed neutron fraction, spatial distribution of the fission density, spatial distribution of the neutron importance, and Rossi-α measurements of the prompt neutron time behavior.

2.8 LANL JEMIMA PLATES WITH POLYETHYLENE AT ORCEF

These critical and subcritical measurements used the JEMIMA at LANL and 0.12 in. thick HEU metal cylinders with varying thicknesses of polyethylene (1/16, 1/8, 1/4, 3/8, 1/2, 1, 1 1/2, 2, and 2 3/8 in.) between the plates. The measurements were performed on the ORCEF vertical assembly machine. Partial pie-shaped pieces were available for adjustment to delayed criticality. Rossi-α and randomly pulsed neutron measurements with a time-tagged Cf source were performed at delayed criticality and at a variety of subcritical configurations. The LANL JEMIMA uranium metal plates were assembled to delayed critical and subcritical configurations with polyethylene measuring from 1/16 to 1 in. thick between them.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven noise analysis measurements at critical and subcritical and Rossi-α measurements of the prompt neutron time behavior. Break-frequency noise analysis interpretation was performed to determine the subcriticality that was compared to Cf source-driven noise analysis measurements of the subcriticality. The nuclear criticality safety benchmark for the unmoderated and unreflected JEMIMA plates is given in HEU-MET-FAST-001.

2.9 WINCO STORAGE TANK EXPERIMENTS AT LANL

These experiments were with two flat coaxial cylindrical uranyl nitrate tanks separated in air in support of storage of uranium solutions at Idaho National Laboratory. The neutron multiplication factor varied from 1.000 at a spacing of 9.6 cm to 0.80 at a spacing of 57.9 cm. The following reactor physics measurements performed with these systems could be used as NEA benchmarks are: Cf source-driven noise analysis measurements at critical and subcritical and Rossi-α measurements of the prompt neutron time behavior at delayed criticality and varying subcriticalities. Break-frequency noise analysis interpretation was performed to determine the subcriticality that was compared to Cf source-driven noise analysis measurements of the subcriticality and agreed very well. Some of these subcritical measurements were a nuclear criticality safety benchmark and are given in SUB-HEU-SOL-THERM-002.

2.10 URANYL NITRATE SOLUTION TANK WITH VARYING CONCENTRATION

The solution concentration of uranium (93.16 wt. % ^{235}U) in the uranyl nitrate solution was varied in 15 steps from 13.7 g ^{235}U/L to 0.3 g/L and then to 0.0 (water). To minimize the handling hazard, the solution had no free acid content. The inside diameter of the tank was 30.48 in. and was filled to a height of 14.5 in. The neutron multiplication factor, k_{eff}, varied from 0.9 to 0. Californium source-driven noise-analysis measurements (~160) were collected at each solution concentration with a variety of detectors, detector locations, and source locations. In the solution, two ^3He proportional counters in aluminum tubes were used and external to the tank, plastic, and liquid scintillators.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements and Rossi-α measurements of the prompt neutron time behavior.

2.11 TWO INTERACTING URANYL NITRATE SOLUTION TANKS

Californium source-driven noise analysis measurements were performed for subcritical configurations of two cylindrical tanks with their axes parallel. The tanks were filled with 480 g/L aqueous solution of highly enriched uranyl nitrate to a height of 90 cm. The separation between the tanks was varied from contact to 40 in. After initial measurement, the solution in one tank was diluted to 140 g/L and measurements were performed. Then the concentration of the solution in both tanks was 140 g/L, and measurements were performed. At one stage, measurements were performed with one tank full to 90 cm and the other tank half full. Measurements were also performed as the tanks were initially filled as a function of height.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical se analysis measurements and Rossi-α measurements of the prompt neutron time behavior.

2.12 URANYL NITRATE SAFE STORAGE BOTTLES

These subcritical measurements with up to six 5 in. diameter “safe” storage bottles of aqueous uranyl nitrate solution located in close contact and separated used the Cf source-driven noise analysis method. Measurement were performed at a variety of source locations and with ^{3}He proportional counters at a variety of locations and adjacent to the bottles. The solution concentration was in grams per liter with no free acid content; the enrichment was the density in grams per cubic centiliter. The configurations included a linear array of one to three bottles, a triangular array of three bottles, and square arrays of four and six bottles. The spacing between the bottles was varied. Neutron multiplication factors for six bottles in a square array were as high as 0.95, and for a single bottle they were as low as 0.3.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements and Rossi-α measurements of the prompt neutron time behavior.

2.13 MIXED URANIUM–PLUTONIUM CYLINDRICAL SOLUTION TANK AT PNNL

These measurements were performed with a stainless-steel cylindrical tank (13.93-in. inside diameter with a wall thickness of 0.031 in.) of mixed uranyl (127 g/L) and plutonium (255 g/L) nitrate 5.4 *M* solution. The initial measurements were at delayed criticality, and the solution height was reduced in steps down to 4.0 in. The Cf source-driven noise analysis measurements were performed with the source located on the external surface of the tank, and after the initial measurements, a thin-walled tube was inserted on the axis of the tank so that the source could be centrally located in the tank. With an external source, the measurements were performed at the critical height of 20.9 in., and 10 measurements were performed down to a solution height of 7.06 in. For the central source location, measurements were performed at the critical height of 23.89 in., and 10 were performed down to a solution height of 4 in.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven noise analysis measurements at critical and subcritical, Rossi-α measurements of the prompt neutron time behavior. Break-frequency noise analysis interpretation was performed to determine the subcriticality that was compared to Cf source-driven noise analysis measurements of the subcriticality.

2.14 MIXED URANIUM–PLUTONIUM ANNULAR SOLUTION TANK AT PNNL

A series of experiments were performed in annular tank geometry using a mixed aqueous plutonium-uranium nitrate with 173 and 262 g/L of plutonium and depleted uranium, respectively. The height of the solution in the 53.34 cm outside diameter, 25.4 cm inside diameter, 106.68 cm high tank was varied from 73.8 cm at delayed criticality down to 23 cm, and the k_{eff} value varied from delayed criticality down to 0.70. The plutonium contained 91.1 wt. % ^{239}Pu, and the depleted uranium contained 0.57 wt. % ^{235}U. Californium source-driven noise analysis measurements were performed at delayed criticality and as the height was reduced. Subcritical measurements were also performed by the inverse kinetics methods slightly below delayed criticality, and break-frequency noise analysis measurements were performed for k_{eff} values as low as 0.70. The results were compared.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven noise analysis measurements at critical and subcritical, Rossi-α measurements of the prompt neutron time behavior. Break-frequency noise analysis interpretation was performed to determine the subcriticality that was compared to Cf source-driven noise analysis measurements of the subcriticality.

2.15 MIXED URANIUM–PLUTONIUM SLAB SOLUTION TANK AT PNNL

A series of experiments were performed in slab geometry using a mixed aqueous plutonium-uranium nitrate with 173 and 262 g/L of plutonium and depleted uranium, respectively. Both the thickness of the slab for a fixed height of ~71 cm and the height for a fixed thickness of 19.05 cm were varied. The base length of the slab was 106.7 cm. The plutonium contained 91.1 wt. % ^{239}Pu, and the depleted uranium contained 0.57 wt. % ^{235}U. Cf source-driven noise analysis measurements were performed at delayed criticality as the height was reduced in both configurations to a variety of subcritical configurations with k_{eff} values as low as 0.70. Subcritical measurements were also performed by the inverse kinetics methods slightly below delayed criticality and break-frequency noise analysis for k_{eff} values as low as 0.70, and the results were compared.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven noise analysis measurements at critical and subcritical, Rossi-α measurements of the prompt neutron time behavior. Break-frequency noise analysis interpretation was performed to determine the subcriticality that was compared to Cf source-driven noise analysis measurements of the subcriticality.

2.16 SUBCRITICAL MEASUREMENT WITH TWO INTERACTING URANYL NITRATE SOLUTION TANKS

Californium source-driven noise analysis measurements were performed for subcritical configurations of two cylindrical tanks with their axes parallel. The tanks were filled with 480 g/L aqueous solution of highly enriched uranyl nitrate to a height of 90 cm. The separation between the tanks was varied from contact to 40 in. After initial measurement, the solution in one tank was diluted to 140 g/L and measurements performed. Then the concentration of the solution in both tanks was 140 g/L, and measurements were performed. At one stage, measurements were performed with one tank full to 90 cm and the other tank half full. Measurements were also performed as the tanks were initially filled as a function of height.

The following reactor physics measurements performed with these systems that could be NEA benchmarks are: Cf source-driven subcritical noise analysis measurements, Rossi-α measurements of the prompt neutron time behavior.

2.17 SUBCRITICAL MEASUREMENT WITH HEU URANYL NITRATE SAFE STORAGE BOTTLES

These subcritical measurements with up to six 5 in. diameter “safe” storage bottles of aqueous uranyl nitrate solution located in close contact and separated used the Cf source-driven noise analysis method. Measurement were performed at a variety of source locations and with ^{3}He proportional counters at a variety of locations and adjacent to the bottles. The solution concentration was in grams per liter with no free acid content; the enrichment was the density in grams per cubic centiliter. The configurations were a linear array of one to three bottles, a triangular array of three bottles, square arrays of four and six bottles. The spacing between the bottles was varied. neutron multiplication factors for six bottles in a square array were as high as 0.95 and for a single bottle as low as 0.3.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements and Rossi-α measurements of the prompt neutron time behavior.

2.18 SUBCRITICAL MEASUREMENT WITH HIGHLY ENRICHED URANIUM HYDRIDE CYLINDERS

Californium source-driven noise analysis subcritical measurements were performed on July 6–7, 1989, by ORNL at the LANL Critical Experiments Facility for unreflected ~15.0 cm diameter uranium (~91 wt. % ^{235}U enriched) hydride (H/U ratio of 3) with cylinders of varying heights. The UH_3 powder was in thin cylindrical stainless-steel cans with a density of the hydride of ~10 g/cm^3. The enrichment of the uranium metal to make the hydride was 93.15 wt. % ^{235}U. Four 3.00 cm high (identified as I, II, III, and IV) and two 2.0 cm high (identified as A and B) hydride canned cylinders were available. The 0.5 cm thick steel table on which the configurations were assembled was located 3 m from the nearest two walls. The hydride cylinders were stacked on a 0.5 cm thick table 86 cm above the concrete floor. Configurations of cylinders 11, 14, and 16 cm high were assembled with nominal heights of 12, 14, and 16 cm and masses of 22,676, 26,264, and 29,858 g (including the steel cans), respectively.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements of the subcriticality and Rossi-α measurements of the prompt neutron time behavior.

2.19 SUBCRITICAL MEASUREMENTS WITH HEU CASTINGS IN A CONCRETE STORAGE VAULT

Californium source-driven frequency analysis measurements for a highly enriched uranium (HEU) (~93.2) metal storage vault at the Oak Ridge Y-12 NSC were performed to provide data for verification of calculational methods for criticality safety and to assess the effects of any loss of unbound water from the concrete. The measurements showed that 3 × 3 × 10 arrays of ~18 kg uranium annular castings are essentially infinite because the results for the 5 × 5 × 10 arrays are not statistically different from those of the smaller arrays. These measured frequency analysis parameters are presented and inferred subcritical neutron multiplication factors from the measurement are compared with the calculations.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements, Rossi-α and randomly pulsed neutron measurements of the prompt neutron time behavior, spatial distribution of the neutron importance, and spatial distribution of the fission density.

2.20 SUBCRITICAL MEASUREMENTS WITH TWO HIGHLY ENRICHED URANIUM METAL CYLINDERS WITH VARYING MATERIALS BETWEEN THEM

Materials of varying thicknesses that were of interest to nuclear criticality safety were placed between two coaxial canned HEU metal cylinders of 6 in. diameter, and a variety of measurements were taken using the Cf source-driven noise analysis method.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements, and Rossi-α and randomly pulsed neutron measurements of the prompt neutron time behavior

2.21 SUBCRITICAL INTERACTING HEU URANIUM METAL SEPARATED BY VARYING THICKNESSES OF BOROPLASTER

Californium source-driven noise analysis subcriticality measurements were performed for interaction experiments with varying thicknesses (0.38–5.7 in.) of boroplaster (each boroplaster was ~0.38 in. thick with a diameter of 7 in.) between 7-in.-diameter HEU metal cylinders.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements and Rossi-α and randomly pulsed neutron measurements of the prompt neutron time behavior.

2.22 SUBCRITICAL MEASUREMENT WITH UP TO FIVE ADJACENT UNREFLECTED HEU CASTINGS

These measurements for Y-12 NSC nuclear criticality safety involved up to 90 kg of uranium (93.2 wt. % ^{235}U) metal castings. Each of the annular castings had an outside diameter of 5 in., an inside diameter of 3.5 in., a height of 6 in., and weighed about 18 kg. Each was contained in stainless-steel cans for contamination control. Active interrogation measurement with 1, 2, 3, 4, and 5 adjacent castings (>2) were performed both with a time tagged Cf source and a DT neutron generator. The measurements were performed with four 1 × 1 × 6 in. long plastic scintillators adjacent to the casting in a variety of locations, with the long dimensions parallel to the axis of the casting.

The following reactor physics measurements performed with these systems could be used as NEA benchmarks: Cf source-driven subcritical noise analysis measurements and Rossi-α, randomly pulsed neutron and accelerator-driven measurements of the prompt neutron time behavior.

3. CONCLUSIONS

This report details a wide variety of data that can be mined for Nuclear Energy Agency reactor physics benchmarks. The acquisition of these data required a large amount of critical facility operational time that has been documented and, in many cases, could not be repeated due to costs, approval processes, and availability of fissile material. The experiments were performed by John T. Mihalczo and coworkers at many eight DOE facilities including ORCEF (between 1958 and 1975); Los Alamos National Laboratory; Pacific Northwest National Laboratory; Babcock and Wilcox at Lynchburg, Virginia; and the Y-12 National Security Complex (the latter between 1975 and up to 2006). Some criticality safety measurements at these facilities have already been documented in the NEA *International Handbook of evaluated Criticality Safety Benchmark Experiments*. Some of these reactor physics measurements have also been documented in the literature, and this document give a complete list of references for which John T. Mihalczo was an author or co-author. The experiments are divided into four classes: critical experiments only, critical and subsequent subcritical experiments, subcritical experiments at critical facilities, and subcritical measurements performed in material balance areas of Y-12 NSC and other facilities. Because of the high cost and large amount of facility time related to these measurements, it is very cost-effective to mine the existing data to produce NEA reactor physics benchmarks. The information for many of the measurements is documented in critical experiment and subcritical experiment logbooks at the International Criticality Safety Benchmark Program at Idaho National Laboratory and in laboratory records at ORNL.

APPENDIX A. HANDBOOK OF EVALUATED CRITICALITY SAFETY BENCHMARK EXPERIMENTS

The following experiments have been included by the Nuclear Energy Agency's *International Handbook of Evaluated Criticality Safety Benchmark Experiments*.

Identifier	Experimenter	Title
HEU-MET-FAST-003	Mihalczo	Complex Geometry Bare Oralloy (93.15 ^{235}U) Metal Annuli Experiments
HEU-MET-FAST-007	Mihalczo	Uranium Metal Slabs Moderated with Polyethylene, Plexiglas and Teflon
HEU-MET-FAST-051	Mihalczo	Uranium (93.2) Metal Cylinders (7-Inch, 9- Inch, 11-Inch, 13-Inch, 15-Inch Diameter Cylinders and Two 11-Inch Diameter Interacting Uranium (93.2) Metal Cylinders
HEU-MET-FAST-059	Mihalczo	Oralloy (93.15 ^{235}U) Metal Annuli with Beryllium Core
HEU-MET-FAST-061	Mihalczo	Oralloy (93.2 ^{235}U) Metal Cylinder with Beryllium Top Reflector
HEU-MET-FAST-071	Mihalczo	Uranium (93.14) Metal Annuli with One- And Two-Inch Graphite Reflectors
HEU-MET-FAST-074	Mihalczo	Oralloy (93.2 ^{235}U) Bare Metal Annuli and Disks
HEU-MET-FAST-076	Mihalczo	Uranium (93.14 ^{235}U) Metal Annuli and Cylinders with Thick Polyethylene Reflectors and/or Internal Polyethylene Moderator
HEU-MET-FAST-077	Mihalczo	Experiments with HEU (93.14 wt. %) Metal Annuli with Internal Graphite Cylinders
HEU-MET-FAST-081	Mihalczo	Grotesque: Complex Geometric Arrangement of Unreflected HEU (93.15) Metal
HEU-MET-FAST-083	Mihalczo	Complex Geometry Bare Oralloy (93.15 235U) Metal Annuli Experiments
HEU-MET-FAST-096	Mihalczo	Static Critical Experiments for The Sorgente Rapida (Sora) Reactor Mockup
HEU-MET-FAST-099	Mihalczo	Fast Neutron Spectrum Potassium Worth for Space Power Reactor Design Validation (also known as ORCEF-SPACE-EXP-001)
HEU-MET-FAST-100	Mihalczo	Orsphere: Critical, Bare, HEU (93.2)-Metal Sphere
SCCA-SPACE-EXP-001	Mihalczo	Critical Configuration and Physics Measurements for Assemblies of U(93.15)O_2 Fuel Rods
HEU-COMP-FAST-002	Mihalczo	Critical Configuration and Physic Measurements for Graphite Reflected Assemblies of U(93.15)O_2 Fuel Rods (1.506-cm Pitch)
HEU-COMP-FAST-004	Mihalczo	Critical Configuration for Beryllium Reflected Assemblies of U(93.15)O_2 Fuel Rods (1.506-CM Pitch and 7-Tube Clusters)
SCCA-FUND-EXP-001	Mihalczo	Critical Configurations and Physics Measurements for Graphite Reflected Assemblies of U (93.15)O_2 Fuel Rods (1.27-cm-pitch)
SUB-HEU-SOl-THERM-001	Mihalczo	Unreflected High-Enriched Uranyl Nitrate Subcritical Noise Measurements
SUB-HEU-SOL-THERM-002	Mihalczo	Subcritical Noise Measurements for a Two Coaxial Cylindrical Tanks Containing 93.1 Uranyl Nitrate Solution

APPENDIX B. REFERENCES

JOURNAL ARTICLES

B. R. Grogan, J. Henkel, J. Johnson, J. T. Mihalczo, T. Miller, and B. Patton, "Investigation of active interrogation techniques to detect special nuclear material in maritime environments: Boarded search of a cargo container ship," *Journal Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 316, pp. 62–70 (Dec. 2013).

T. Miller, B. Patton, J. Henkel, B. R. Grogan, J. Johnson, and J. T. Mihalczo, "Investigations of active interrogation techniques to detect special nuclear material in maritime environments: Standoff interrogation of small and medium sized cargo ships," *Journal Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 316, no. 1, pp. 94–104, (Dec. 2013)

J. T. Mihalczo, "Prompt neutron decay for delayed critical bare and natural-uranium-reflected metal spheres of plutonium and highly enriched uranium," *Journal Nuclear Technology*, 2011, vol. 178, no. 2, pp. 498–508.

J. T. Mihalczo, and T. Uckan, "Holdup characterization of the UO_2F_2 "hockey stick" deposit using Cf-source-driven transmission imaging," *Journal of Nuclear Materials Management*, vol. 36, no. 2,, pp. 25–30 (Summer 2008).

P. A. Hausladen, P. R. Bingham, J. S. Neal, J. A. Mullens, and J. T. Mihalczo, "Portable fast-neutron radiography with the nuclear materials identification system for fissile material transfers," *Nuclear Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms*, vol. 261, no. 1–2 pp. 387–90 (2007).

J. A. Mullens, P. A. Hausladen, P. R. Bingham, D. E. Archer, B. R. Grogan, and J. T. Mihalczo, "Use of imaging for nuclear material and control and accountability," ESARDA Conference, Aix en Provence, France, (May 2007). [OSTI #975054]

S. Clarke, T. Downar, S. A. Pozzi, M. Flaska, J. T. Mihalczo, E. Padovani, A. Hunt, "Photonuclear physics models, simulations, and experiments for nuclear nonproliferation; joint international topical meeting on mathematics and computations and supercomputing in nuclear applications," *M and C + SNA 2007*, *Joint International Topical Meeting on Mathematics and Computations and Supercomputing in Nuclear Applications*,(2007).

B. R. Grogan, J. T. Mihalczo, J. A. Mullens, "MCNP-PoliMi simulation of neutron radiography measurements of mass determination for a trough of UO_3," *Journal of Nuclear Materials Management*, vol. 36, no. 1, pp. 27–32 (Fall 2007).

S. A. Pozzi, J. S. Neal, R. B. Oberer, and J. T. Mihalczo, "Monte Carlo analysis of neutron detection with a BaF_2 scintillation detector," *IEEE Transactions on Nuclear Science*, vol. 51, no. 3, pp. 1088–90 (Jun. 2007).

P. A. Hausladen, J. S. Neal, and J. T. Mihalczo, "An alpha particle detector for a portable neutron generator for the Nuclear Materials Identification System (NMIS)," *Nuclear Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms*, vol. 241, no. 1–4, pp. 835–38 (2005).

S. A. Pozzi, R. B. Oberer, L. G. Chiang, J. K. Mattingly, J. T. Mihalczo, "Higher-order statistics from NMIS to measure neutron and gamma ray cross talk in plastic scintillators," *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 481, no. 1–3, pp. 739–48 (April 2002).

J. A. Mullens, J. S. Neal, P. A. Hausladen, S. A. Pozzi, and J. T. Mihalczo, "Fast coincidence counting with active inspection systems," Nuclear *Instruments and Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms*, vol. 241, no. 1–4, pp. 804–809. (Dec. 2005).

M. Monville, E. Padovani, S. A. Pozzi, and J. T. Mihalczo, "Towards the simulation of photo fission for nuclear material identification," *JNMM, Journal of the Institute of Nuclear Materials Management*, vol. 34, no. 1, pp. 38–47 (Fall 2005).

S. A. Pozzi, J. A. Mullens, and J. T. Mihalczo, "Analysis of neutron and photon detection position for the calibration of plastic (BC-420) and liquid (BC-501) scintillators," *Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, vol. 524, no. 1–3, pp. 92–101 (May 21, 2004).

J. T. Mihalczo, J. K. Mattingly, J. S. Neal, and J. A. Mullens, "NMIS plus gamma spectroscopy for attributes of HEU, PU, and HE detection," *Nuclear Instruments & Methods in Physics Research Section B-Beam Interactions with Materials and Atoms* vol. 213, pp. 378–384 (2004).

S. A. Pozzi, J. S. Neal, R. B. Oberer, and J. T. Mihalczo, "Monte Carlo analysis of neutron detection with a BaF_2 scintillation detector," *IEEE Nuclear Science Symposium Conference Record*, vol. 2, *2003 IEEE Nuclear Science Symposium Conference Record—Nuclear Science Symposium, Medical Imaging Conference*, pp. 873–76 (2003).

J. C. Cooper, D. S. Koltick, J. T. Mihalczo, and J. S. Neal, "Evaluation of ZnO(Ga) coatings as alpha particle transducers within a neutron generator," *Nuclear Instruments and Methods*, *Section A*, vol. 505, pp. 498–501 (2003).

S. A. Pozzi, R. B. Oberer, L. G. Chiang, J. K. Mattingly, and J. T. Mihalczo, "Higher-order statistics from NMIS to measure neutron and gamma ray cross talk in plastic scintillators," *Nucl. Instrum. Methods A*, vol. 81, pp.739–48 (April 2002).

J. T. Mihalczo, J. J. Lynn, J. R. Taylor, G. E. Hansen, and D. B. Pelowitz, "Delayed critical ORNL unreflected uranium (93.20) metal sphere and the pure unreflected uranium (93.80) sphere critical mass," *Annals of Nuclear Energy*, vol. 29, no. 5, Mar., pp. 525–60 (2002).

Munoz-Cobo, J. L., Y. Rugama, T. E. Valentine, J. T. Mihalczo, and R. B. Perez, "Subcritical reactivity monitoring in accelerator driven systems," *Ann. Nucl. Energy*, vol. 28, pp. 1519–47 (2001).

J. L. Munoz-Cobo, R. B. Perez, T. E. Valentine, V. Rugama, J. T. Mihalczo, "A stochastic transport theory of neutron and photon coupled fields: neutron and photon counting statistics in nuclear assemblies," *Ann. Nucl. Energy*, vol. 27, pp. 1087–1114 (2000).

J. T. Mihalczo, J. A. Mullens, J. K. Mattingly, and T. E. Valentine, "Physical description on nuclear materials identification system (NMIS) signatures," *Nuclear Instruments & Methods in Physics Research Section A- Accelerators, Spectrometers Detectors and Associated Equipment*, vol. 450, no. 2–3, pp. 531–555 (2000).

T. Uckan, M. S. Wyatt, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, and T. F. Hannon, "Cf-252-source-correlated transmission measurements for uranyl fluoride deposit in a 24-in.-OD process pipe," *Nuclear Instruments & Methods in Physics Research Section A-Accelerators Spectrometers Detectors and Associated Equipment* vol. 422, no. 1–3, pp. 26–34 (1999).

J. T. Mihalczo, J. J. Lyon, and J. R. Taylor, "The central void reactivity in the Oak Ridge enriched uranium (93.2) metal sphere," *Nucl. Sci. and Engr*., vol. 130, no. 1, September, pp.153–163 (1998). [OSTI #656695]

J. T. Mihalczo, T. E. Valentine, and L. D. Phillips, "Subcritical measurements for a HEU storage vault at the Y-12 Plant using the ^{252}Cf-source-driven frequency analysis method," *Nuclear Safety*, vol. 38, no. 1, January 10–Mar. 24 (1997).

G. E. Ragan, J. T. Mihalczo, and R. C. Robinson, "Prompt neutron decay constants at delayed criticality for the Oak Ridge Research Reactor with 20 and 93 wt. % ^{235}U enriched fuel," *Annals of Nuclear Energy,* vol. 24, no. 1,pp. 21–31 (1997).

T. E. Valentine and J. T. Mihalczo, "Validation of the Monte Carlo Code MCNP-DSP," *Annals of Nuclear Energy*, vol. 24, no. 2, 79–98 (1997).

J. T. Mihalczo, V. K. Paré, E. D. Blakeman, B. Damiano, T. E. Valentine, L. D. Phillips, R. B. Bonner, D. B. Bopp, T. R. Chilcoat, J. DeClue, E. P. Elliott, G. D. Hackett, N. W. Hill, D. J. Nypaver, L. H. Thacker, W. T. Thomas, J. A. Williams, and R. E. Zumstein, "NWIS signatures for confirmatory measurements with B_{33} trainers," *Journal of Nuclear Materials Management,* vol. 25, no. 3, pp. 64–80 (Jun. 1997).

T. E. Valentine and J. T. Mihalczo, "MCNP-DSP: A neutron and gamma ray Monte Carlo calculation of source-driven noise-measured parameters," *Annals of Nuclear Energy*, vol. 23, no. 16, pp. 1271–87 (1996).

J. T. Mihalczo and T. E. Valentine, "Calculational verification and process control applications utilizing the high sensitivity of noise measurement parameters to fissile system configuration," *Nucl. Sci. Eng.*, vol. 121, pp. 286–300 (1995).

J. T. Mihalczo and V. K. Paré, "Nuclear weapons identification system," *Arms Control and Nonproliferation Technologies*, pp. 24–26, third quarter (1994).

J. T. Mihalczo, E. D. Blakeman, V. K. Paré, T. E. Valentine, and D. L. Auslander, "Subcriticality of two uranyl nitrate flat cylindrical tanks spaced in air by the ^{252}Cf-source driven noise analysis method," *Nucl. Technol*., vol. 103, pp. 346–78 (1993).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, H. Seino, and R. C. Robinson, "^{252}Cf-source-driven neutron noise measurements of subcriticality for an annular tank containing aqueous Pu-U nitrate," *Nucl. Technol*., 94, 336–60 (1991). (also, ORNL/TM-2014/461)

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, H. Seino, and R. C. Robinson, "^{252}Cf-Source-driven noise measurements of subcriticality for a slab tank of aqueous Pu-U-nitrate," *Nucl. Sci. Eng.*, vol. 107, pp. 35–57 (1991).

J. T. Mihalczo, N. W. Hill, E. D. Blakeman, and V. K. Paré, "Detection system characteristics using ^{252}Cf ionization chambers," *Nucl. Instrum. Meth. in Phys. Res.*, vol. A299, pp. 38–40 (1990). [OSTI #1527128]

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, E. B. Johnson, and Y. Hachiya, "Dynamic subcriticality measurements using the ^{252}Cf-source-driven noise analysis method," *Nucl. Sci. Eng.*, vol. 104, pp. 314–38 (1990).

J. A. Williams, J. T. Mihalczo, C. W. Ricker, F. L. Glesius, and T. A. Kniss, "A high-sensitivity, position-sensitive fission counter for subcriticality measurements of spent fuel," *Nucl. Instrum. Meth. in Phys. Res.*, vol. A299, pp. 187–90 (1990).

J. T. Mihalczo and W. T. King, "Quality assurance verification of high-flux isotope reactor fuel elements by the ^{252}Cf-source-driven noise analysis method," *Nucl. Technol*., vol. 84, pp. 205–23 (1988).

J. T. Mihalczo, W. T. King, and E. D. Blakeman, "Subcriticality measurements for coupled uranium metal cylinders using the ^{252}Cf-source-driven neutron noise analysis method," *Nucl. Sci. Eng.*, vol. 95, pp. 1–13 (1987).

J. T. Mihalczo, E. D. Blakeman, W. T. King, and R. C. Kryter, "Cf-source-driven neutron-noise measurements of subcriticality for a 4.95 w.t % ^{235}U-enriched uranyl fluoride solution cylinder," *Ann. Nucl. Energy*, vol. 13, pp. 351–62 (1986).

D. W. Swain et al., "High beta injection experiments on the ISX-B tokamak," *Nucl. Fusion*, vol. 21, pp. 1409–23 (1981).

J. Kim and J. T. Mihalczo, “D-D neutron measurements on a 40-keV, 60-A neutral beam test facility,” *Nucl. Instrum. Meth.*, vol. 169, pp. 83–88 (1980).

R. A. Lillie, R. G. Alsmiller, Jr., and J. T. Mihalczo, “Design calculations for a 14-MeV neutron collimator,” *Nucl. Technol*., vol. 43, 373–81 (1979).

M. Murakami et al., “Plasma confinement studies in the ISX-A tokamak,” *Phys. Rev. Lett*., vol. 42, no. 10, pp. 655–58 (1979).

M. Murakami et al., “Plasma confinement studies in the ISX-A tokamak,” *Phys. Rev*. (1978).

J. T. Mihalczo, V. K. Paré, G. L. Ragan, M. V. Mathis, and G. C. Tillett, “Determination of reactivity from power spectral density measurements with californium-252,” *Nucl. Sci. Eng*., vol. 66, pp. 29–59 (1978).

J. T. Mihalczo, “Prompt alpha and reactivity measurements on fast metal assemblies,” *Nucl. Energy*, vol. 1, pp. 1–26 (1977).

J. T. Mihalczo, M. V. Mathis, and V. K. Paré, “Reactivity surveillance procedures experiments with the FFTF engineering mockup core,” *Nucl. Sci. Eng*., vol. 59, pp. 350–68 (1976). [OSTI #34003800]

J. T. Mihalczo, G. C. Tillett, and D. L. Selby, “Evaluation of initial loading counting rate date from experiments with the mock-up core for the Fast Flux Test Facility,” *Nucl. Technol*., vol. 30, no. 3, pp. 422–33 (1976).

J. T. Mihalczo, “Use of ERDA facilities in the University of Tennessee nuclear engineering curriculum,” *Tenn. Eng*., 1975–76 1, 26 (1976).

N. W. Hill, J. T. Mihalczo, J. W. Allen, and M. M. Chiles, “Optimization of nanosecond fission ion chambers for reactor physics applications,” *IEEE Trans. Nucl. Sci*., vol. NS-22, pp. 686–90 (1975).

J. T. Mihalczo, “Measurement of the effective delayed neutron fraction for an unreflected uranium sphere,” *Nucl. Sci. Eng*. (1975).

V. K. Paré and J. T. Mihalczo, “Reactivity from power spectral density measurements with californium-252,” *Nucl. Sci. Eng*., vol. 56, no. 213 (1975).

J. T. Mihalczo, “Neutron importance and fission density in uranium-235-enriched uranium and plutonium metal spheres,” *Nucl. Sci. Eng*., vol. 56, no. 271 (1975).

J. T. Mihalczo, “Time domain noise measurements for fast metal assemblies with ^{252}Cf,” *Ann. Nucl. Energy*, vol. 2, pp. 161–75 (1975).

J. T. Mihalczo, V. K. Paré, and M. V. Mathis, “Spectral density measurements with a mock-up of the Fast Flux Test Facility reactor,” *Ann. Nucl. Energy*, vol. 2, pp. 177–91 (1975).

J. T. Mihalczo and V. K. Paré, “Theory of correlation measurement in time and frequency domains with ^{252}Cf,” *Ann. Nucl. Energy*, vol. 2, pp. 97–105 (1975). [OSTI #4243449]

J. T. Mihalczo, “The use of californium-252 as a randomly pulsed neutron source for prompt neutron decay measurements,” *Nucl. Sci. Eng*., vol. 53, pp. 393–414 (1974).

J. T. Mihalczo, “Static and dynamic experiments with a repetitively pulsed neutron booster,” *Nucl. Sci. Eng*., vol. 47, no. 290 (1972).

J. T. Mihalczo, “Criticality of graphite– and polyethylene–reflected uranium (93.2) metal cylinders and annuli,” *Nucl. Sci. Eng*., vol. 49, pp. 489–504 (1972).

J. T. Mihalczo and S. J. Raffety, “Homogeneous critical assemblies of 2 and 6 uranium-235-enriched uranium in paraffin,” *Nucl. Sci. Eng*., vol. 48, no. 433 (1972).

J. T. Mihalczo, "New method for measurement of the effective fraction of delayed neutrons from fission," *Nucl. Sci. Eng*., vol. 46, no. 147 (1971). [OSTI #4729884]

J. T. Mihalczo and J. A. Reuscher, "Dynamic neutronic and neutronic and mechanical measurements with a pulse reactor of uranium molybdenum alloy," Y–DR–40; *Nucl. Appl. Technol*., vol. 11, pp. 563–77 (1971).

J. T. Mihalczo, "The use of ^{252}Cf as a randomly pulsed neutron source for prompt neutron decay measurements," *Nucl. Sci. Eng*., vol. 41, no. 296 (1970).

G. Kistner and J. T. Mihalczo, "Critical experiments for the repetitively pulsed reactor SORA," *Nucl. Sci. Eng*., vol. 35, no. 27 (1969).

J. T. Mihalczo, "Prompt neutron decay and reactivity measurements in subcritical uranium metal cylinders," *Nucl. Sci. Eng*., vol. 32, no. 292 (1968).

J. T. Mihalczo, "Multiplication factor of uranium metal by one-velocity Monte Carlo calculations," *Nucl. Sci. Eng*., vol. 27, no. 557 (1967).

J. T. Mihalczo, "Uranium (93.2) metal cylinders with thin stainless-steel reflectors," *Nucl. Sci. Eng*., vol. 25, no. 444 (1966). [OSTI #4520545]

J. T. Mihalczo, "Prompt neutron lifetime in critical enriched-uranium metal cylinders and annuli," *Nucl. Sci. Eng*., vol. 20, no. 60 (1964). [OSTI #403157]

J. T. Mihalczo, "Superprompt-critical behavior of an unmoderated, unreflected uranium-molybdenum alloy reactor," *Nucl. Sci. Eng*., vol. 16 (1963).

J. T. Mihalczo and V. I. Neeley, "The infinite neutron multiplication constant of homogeneous hydrogen-moderated 2.0 wt.% U^{235} enriched uranium," *Nucl. Sci. Eng*., vol. 13, no. 6 (1962).

C. B. Mills and J. T. Mihalczo, "Criticality of low enrichment U^{235} in hydrogen," *Nucl. Sci. Eng*., vol. 11, no. 95 (1961). [OSTI #4834611]

LABORATORY REPORTS (ORNL, Y-12, K-25)

J. T. Mihalczo, "Data from Rossi-Alpha and Pulsed Neutron Prompt Neutron Time Decay Measurements at the Oak Ridge Critical Experiments Facility," Oak Ridge National Laboratory, ORNL/TM-2019/1155 (April 2019).

M. Wright, E. Nelius, J. T. Mihalczo, S. M. McConchie, and P. A. Hausladen, "Preliminary Investigation if Small Feature Detection Capability of the ORNL Fast Neutron Tomographic Imaging System," Oak Ridge National Laboratory, ORNL/TM-2018/846 (April 2018) [OSTI #1494902]

S. M. McConchie, D. Archer, J. T. Mihalczo, B. Palles, and M. Wright, "Transportable, Low-Dose Active Fast-Neutron Imaging," Oak Ridge National Laboratory, ORNL/TM-2017/187 (Aug. 2017). [OSTI #1400208]

J. T. Mihalczo, B. A. Palles, E. Nelius, and S. M. McConchie, "NMIS/FNMIS Comparison for the US DOE Office of Nuclear Verification," Oak Ridge National Laboratory, ORNL/TM-2017/432 (Sept. 2017).

S. M. McConchie, J. A. Mullens, B. R. Grogan, P. A. Hausladen, and J. T. Mihalczo, "Blind testing of NMIS in fast neutron imaging at INL in 2010," Oak Ridge National Laboratory, ORNL/TM-2016-231(OUO) (Jul. 2016).

S. M. McConchie, and J. T. Mihalczo, "Summary of the Effort to Use Active-induced Time Correlation Techniques to Measure the Enrichment of HEU," Oak Ridge National Laboratory, ORNL/TM-2015/465 (Sept. 2015). [OSTI #1325423]

J. T. Mihalczo, P. A. Hausladen, and S. M. McConchie, "Passive Time Coincidence Measurements with HEU and DU," Oak Ridge National Laboratory, ORNL/TM-2015/104 (Jun. 2015). [OSTI #1184380]

M. A. Marshall, J. D. Bess, J. B. Briggs, C. E. White, J. E. Dyrda, N. P. Tancock, and J. T. Mihalczo, "ORSPHERE: Physics Measurements for Bare HEU (93.2)-METAL SPHERE," Idaho National Laboratory, INL/EXT-13-30309 Rev. 1. (Mar. 2015).

J. Mullens, D. Austin, and J. T. Mihalczo, "Active Interrogation Safety: DT Generator Dosimetry Measurements," Oak Ridge National Laboratory, ORNL/LTR-2014/669 (Feb. 2015).

D. Archer, J. T. Mihalczo, "FNMIS Letter Report for Task 8-Fission Detector Status," Oak Ridge National Laboratory, ORNL/LTR-2014/612 (Nov. 2014).

J. T. Mihalczo, J. Mullens, B. Palles, T. Wellington, and B. Canion, "R14-V-TransDisman-PD2Ne—FY14 Annual Report," Oak Ridge National Laboratory, ORNL/LTR-2014/545 (Nov. 2014). [OSTI #1171321]

J. T. Mihalczo, "Passive Detection of HEU Without U-232 Using Fast-Time Correlation Methods -NA-22 FY14 Annual Report," Oak Ridge National Laboratory, ORNL/LTR-2014/547 (Oct. 2014).

S. M. McConchie, and J. T. Mihalczo, "Time Correlation Measurements to Determine the Enrichment of HEU," ORNL/TM-2014/461 (Oct 2014)

D. Archer, C. Britton Jr., R. Carter, R. Lind, J. T. Mihalczo, J. Mullens, and T. Wellington, "2014 Annual Report for the Fieldable Nuclear Materials Identification System," Oak Ridge National Laboratory, ORNL/LTR-2014/436 (Sept. 2014).

J. Mullens, P. A. Hausladen, J. T. Mihalczo, and J. Henkel, "Induced Fission Density Determination Using D-T Active Interrogation," Oak Ridge National Laboratory, ORNL/TM-2013/486 (Oct. 2013).

J. T. Mihalczo, "Combustible Materials Estimates for ORNL Radiation Detection and Measurement Equipment for Active and Passive Radiation Measurements in the NDSTC Areas and in Closed Areas at the Y-12 National Security Complex," Oak Ridge National Laboratory, ORNL/LTR-2013/105 (Apr. 2013).

M. A. Marshall, J. D. Bess, J. B. Briggs, M. F. Murphy, and J. T. Mihalczo, "Critical Configuration and Physics Measurements for Assemblies of U (93.15) O_2 Fuel Rods," Idaho National Laboratory, INL/EXT-11-23295 R2 (Mar. 2013).

M. E. Walker and J. T. Mihalczo, "Active Neutron Interrogation of Non-Radiological Materials with NMIS," Oak Ridge National Laboratory, ORNL/TM-2012/77 (Feb. 2012). [OSTI#1035833]

M. A. Marshall, J. D. Bess, J. B. Briggs, M. F. Murphy, and J. T. Mihalczo," Critical Configuration and Physics Measurements for Graphite Reflected Assemblies of U(93.15)O_2 Fuel Rods (1.506-CM Pitch)," Idaho National Laboratory, INL/EXT-12-25264 (Mar. 2012).

J. T. Mihalczo and J. Mullens, "NMIS with Imaging and Gamma Ray Spectrometry for Pu, HEU, HE and Other Materials," Oak Ridge National Laboratory, ORNL/TM-2012/22 (Mar. 2012). [OSTI #1037035]

M. Walker and J. T. Mihalczo, "Simulated NMIS Imaging Data for an Unknown Object," Oak Ridge National Laboratory, ORNL/TM-2012/131 (Apr. 2012). [OSTI #1038485]

M. A. Marshall, J. D. Bess, J. B. Briggs, M. F. Murphy, and J. T. Mihalczo, "Critical Configuration for Beryllium Reflected Assemblies of U(93.15)O_2 Fuel Rods (1.506-CM Pitch and 7-Tube Clusters)," Idaho National Laboratory, INL/EXT-12-25732 (May 2012).

J. T. Mihalczo, "Uncertainties in Masses, Dimensions, Impurities, and Isotopics of HEU Metal Used in Critical Experiments at ORCEF," Oak Ridge National Laboratory, ORNL/TM-2012/32 (Sept. 2012). [OSTI #1052246]

S. Frederiksen, J. T. Mihalczo, “Spatial Distribution of Induced Fission from the Pixilated Alpha Detector in a DT Generator,” Oak Ridge National Laboratory, ORNL/TM-2010/74 (Sept. 2010). [OSTI #1325423]

J. D. Bess, L. M. Montierth, R. L. Reed, and J. T. Mihalczo, “Oralloy (93.15 ^{235}U) Metal Annuli with Beryllium Core,” Idaho National Laboratory, INL/EXT-10-18065 (9/1/2010)

J. D. Bess, L. M. Montierth, R. L. Reed, and J. T. Mihalczo, “Oralloy (93.2 ^{235}U) Metal Cylinder with Beryllium Top Reflector,” Idaho National Laboratory, INL/EXT-10-17856 (9/1/2010)

J. T. Mihalczo and J. Mullens, “Unclassified Characteristics of Nuclear Weapons for Use with NMIS Imaging for Nuclear Warhead Verification,” Oak Ridge National Laboratory ORNL/TM-2009/030R1 (Aug 2010).

J. T. Mihalczo, J. J. Henkel, M. C. Wright, D. E. Archer, and J. A. Mullens, “Subcriticality Measurements with HEU (93.2) Metal Annular Storage Castings,” Oak Ridge National Laboratory, ORNL/TM-2007/134 (2007). [OSTI #988200]

J. T. Mihalczo, D. Archer, M. C. Wright, J. Mullens, “Pulsed Neutron Measurements with a DT Neutron Generator for an Annular HEU Uranium Metal Casting,” Oak Ridge National Laboratory, ORNL/TM-2007/092 (Sept. 2007).

J. K. Mattingly, T. E. Valentine, J. T. Mihalczo, and J. March-Leuba, “Passive Measurements to estimate the Shape of Plutonium Assemblies” Y/LB-16013 (May 2007). [OSTI #12636]

J.A. Mullens, P. A. Hausladen, D. E. Archer, M. C. Wright, and J. T. Mihalczo, “NMIS with Imaging and Gamma Ray Spectrometry for PU, HEU, HE, Chemical Agents, and Drugs,” Oak Ridge National Laboratory, ORNL/TM-2006/76R1 (2006).

S. A. Pozzi, J. Mullens, and J. T. Mihalczo, “Calibration of Small Plastic Scintillators for Imaging Applications,” Oak Ridge National Laboratory, ORNL/TM-2004/298 (2004). [OSTI #885841]

J. T. Mihalczo, “Radiation Detection for Active Interrogation of HEU,” Oak Ridge National Laboratory, ORNL/TM-2004/302 (2004). [OSTI #885764]

J. T. Mihalczo, “Radiation Detection from Fission,” Oak Ridge National Laboratory, ORNL/TM-2004/234 (2004). [OSTI #885828]

L. G. Chiang, J. K. Mattingly, J. A. Ramsey, and J. T. Mihalczo, “Verification of Uranium Mass and Enrichments of Highly Enriched Uranium (HEU) using the Nuclear Materials Identification System (NMIS),” Y/LB-16056 (April 2004). [OSTI #754364]

Parkey, S. E. and J. T. Mihalczo, “Uranium (93.2) Metal Annuli with One- and Two-Inch Graphite Reflectors,” Oak Ridge National Laboratory, ORNL/R04-120972 (2004).

S. A. Pozzi, J. K. Mattingly, J. T. Mihalczo, and E. Padovani, “Validation of the Monte Carlo Code MCNP-PoliMi. Part I: Plutonium,” Oak Ridge National Laboratory, R04-11998 (2004).

S. A. Pozzi and J. T. Mihalczo, “Preliminary Comparison of Cf-252 and the Associated Particle Sealed Tube Neutron Generator as Interrogation Sources for Uranium Metal Castings,” R04-119983 (2004).

E. Padovani, S. A. Pozzi, J. K. Mattingly, J. K., and J. T. Mihalczo, “Validation of the Monte Carlo code MCNP-PoliMi. Part II: Uranium,” Y/LB-16143 (2004).

S. A. Pozzi, J. A. Mullens and J. T. Mihalczo, “Analysis of Neutron and Photon Detection Position for the Calibration of Plastic (BC-420) and Liquid (BC-501) Scintillators,” Oak Ridge National Laboratory, ORNL/TM-2003/168 (2003).

S. A. Pozzi and J. T. Mihalczo, “Characterization of Large Liquid Scintillation Detectors,” Oak Ridge National Laboratory, ORNL/TM-2003/170 (2003). [OSTI #885874]

J. T. Mihalczo, “Capabilities of NMIS for Verification of HEU Storage Cans Entering and in the HEUMF,” Oak Ridge National Laboratory, ORNL/TM-2003/163 (2003).

J. S. Neal, S. A. Pozzi, J. D. Edwards, and J. T. Mihalczo, “Measurements of Water and B_4C Content of Rackable Can Storage Boxes for HEU Storage at the HEUMF at the Y-12 National Security Complex” mcnp-polimibc-501, Oak Ridge National Laboratory, ORNL/TM-2002/254 (Dec. 2002). [OSTI #885648]

J. T. Mihalczo and J. S. Neal. “Methods for Verification of the Hydrogen and Boron Content of the RCSB for Storage of HEU at the HEUMF,” Oak Ridge National Laboratory, ORNL/TM-2002/253 (2002). [OSTI #814349]

S. A. Pozzi, J. K. Mattingly, J. T. Mihalczo, and E. Padovani, “Validation of the Monte Carlo Code MCNP-PoliMi Part 1: Plutonium” T-12 National Security Complex, Y/LB-16138 (Aug. 2002).

S. A. Pozzi, J. K. Mattingly, and J. T. Mihalczo, “Monte Carlo Evaluation of the Interactions between Adjacent Liquid Scintillating Cells,” Y/LB-16136 (2002).

S. A. Pozzi, E. Padovani, and J. T. Mihalczo, “MCNP-PoliMi Evaluation of Time Dependent Coincidence between Detectors for Fissile Metal vs. Oxide Determination,” Oak Ridge Y-12 Plant, Y/LB-16,131 (2002).

J. T. Mihalczo, “Oak Ridge Multiple Attribute System (ORMAS) for Pu, HEU, HE, Chemical Agents, and Drugs,” ORNL/TM-2001/175 (2001). [OSTI #814375]

R. Reichardt, J. T. Mihalczo, R. B. Oberer, L. G. Chiang, and J. K. Mattingly, “Small, Portable, Lightweight, DT Neutron Generator for Use with NMIS,” Y-12 National Security Complex, Y/LB-16078 (Jun. 2001).

V. V. Gurov, M. I. Kuvshinov, V. A. Popov, V. P. Dubinin, J. K. Mattingly, and J. T. Mihalczo, “VNIIEF-ORNL Joint Plutonium Measurements with NMIS and Results of Plutonium Attribute Preliminary Evaluation,” Y-12 National Security Complex, Y/LB-16,075 (Jun. 2001).

J. K. Mattingly, J. T. Mihalczo, L. G. Chiang, and J. S. Neal, “Preliminary analysis of Joint RFNC-VNIIEF/ORNL Measurements Performed in the Year 2000,” Y-12 National Security Complex, Y/LB-16,097 (Sept. 2001)

J. A. Mullens, J. T. Mihalczo, “Overview of NMIS Software,” Y-12 National Security Complex, Y/LB-16017R1 (Jan. 2000) [OSTI #751466]

J. T. Mihalczo, “Blenddown Monitoring System for HEU Transparency,” Y-12 National Security Complex, Y/LB-16051 (Feb. 2000). [OSTI #7519]

J. K. Mattingly, T. E. Valentine, J. T. Mihalczo, L. G. Chiang, and R. B. Perez, “Enrichment and Uranium Mass from NMIS for HEU Metal,” Y-12 National Security Complex, Y/LB-16059 (Feb. 2000).

J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, “Use of the Nuclear Materials Identification System (NMIS) for Enhanced Receipt Confirmation Measurements at the Oak Ridge Y-12 Plant,” Y-12 National Security Complex, Y/LB-16025 (May 2000). [OSTI #757221]

J. T. Mihalczo, J. K. Mattingly, J. A. Mullens, L.G. Chiang, and R. B. Perez, “Use of Nuclear materials Identification System (NMIS) at the Oak Ridge Y-12 Plant,” Y-12 National Security Complex, Y-12 report Y/LB-16057 (May 17, 2000).

J. T. Mihalczo and J. K. Mattingly, “Attributes and Templates from active Measurements with ^{252}Cf,” Y-12 National Security Complex, Y/LB-16052 (2000). [OSTI #751985]

S. A. Pozzi and J. T. Mihalczo, “Preliminary Comparison of Cf-252 and the Associated Particle Sealed Tube Neutron Generator as Interrogation Sources for Uranium Metal Castings” Y-12 National Security Complex, Y/LB-16,060 Jun. (2000).

J. K. Mattingly, J. A. Mullens, and J. T. Mihalczo, "Reduction of Background by Higher Order Statistics with NMIS," Y-12 National Security Complex, Y/LB-16064 (Jul. 2000).

Valentine, T.E., L.G. Chiang, and J. T. Mihalczo, "Preliminary Evaluation of NMIS for Interrogation of Pu and HEU in AT400-R Containers at Mayak," Oak Ridge National Laboratory, ORNL/TM-6648/R4 (2000). [OSTI #885755]

J. K. Mattingly, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, J. March-Leuba, and T. Uckan, "Correlation Measurements with 252 Cf to Characterize Fissile Material," Oak Ridge National Laboratory, ORNL/TM-2000/3 (2000). [OSTI # 20093648]

J. T. Mihalczo, "Brief Summary of Unreflected and Unmoderated Cylindrical Critical Experiments with Oralloy at Oak Ridge," Oak Ridge National Laboratory, ORNL/TM-1999/302 (1999). [OSTI #814830]

J. T. Mihalczo, J. A. Mullens, J. K. Mattingly, and T. E. Valentine, "Physical Description of Nuclear Material Identification System (NMIS) Signatures," Y-12 National Security Complex, Y/LB-15946 R6 (Aug. 1999).

J. K. Mattingly, J. T. Mihalczo, J. A. Mullens, R. B Perez, and T. E. Valentine, "Estimating Attributes of Nuclear Weapon and Other Fissile Material Configurations Using Features of Nuclear Materials Identification Signatures," Y-12 National Security Complex, Y/LB-16,015R1 (Aug. 1999)

T. E. Valentine, L. G. Chiang, and J. T. Mihalczo, "Preliminary Evaluation of NWIS for the Mayak Storage Facility," Oak Ridge National Laboratory, ORNL/M-6628 (1998). [OSTI #64000413]

T. E. Valentine, J. T. Mihalczo, R. C. Kryter, and C. Miller, "Subcritical Noise Analysis Measurements with Fresh and Spent Research Reactor Fuel," Oak Ridge National Laboratory, ORNL/TM 13752 (Feb. 1999). [OSTI #12457]

J. K. Mattingly, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, and S. S. Hughs, "Operational Use of NMIS for Storage of Weapons Components at the Oak Ridge Y-12 Plant," Y-12 National Security Complex, Y/LB 15943R2 (Jun. 1998).

T. Uckan, M. S. Wyatt, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, and T. F. Hannon, "Fissile Deposit Characterization at the Former Oak Ridge Gaseous Diffusion Plant," Oak Ridge National Laboratory, ORNL/TM-13642 (May 1998). [OSTI #8181]

J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, "NWIS Measurements for Uranium Metal Annular Castings," Y-12 National Security Complex, Y/LB-15971 (May 1998). [OSTI #2739]

J. A. Mullens, T. E. Valentine, and J. T. Mihalczo, "NWIS Casting Measurements taken during Demonstrations to Russian Visitors," Y-12 National Security Complex, Y/LB-1615968 (April 1998). [OSTI #663359]

R. B. Perez, J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, "The Covariance and Biocovariance of the Stochastic Neutron Field," Oak Ridge National Laboratory, ORNL/TM-13690 (1998). [OSTI #769330]

J. T. Mihalczo. T. E. Valentine, J. A. Mullens, and J. K. Mattingly, "Physical and Mathematical Description of Nuclear Weapons Inspection System Signatures," Y-12 National Security Complex, Y/LB-15946R2 (Sept. 1997). [OSTI #665856]

T. E. Valentine, J. T. Mihalczo, J. K. Mattingly, J. A. Mullens, and S. S. Hughs, "NWIS Signatures for Identification of Weapons Components at the Oak Ridge Y-12 Plant," Y-12 National Security Complex, Y/LB-15943 (Jul. 1997).

J. T. Mihalczo, T. E. Valentine, and L. D. Phillips, "Subcritical Measurements for a HEU Storage Vault at the Y-12 Plant Using the ^{252}Cf-Source-Driven Frequency-Analysis Method," Y-12 National Security Complex, Y/DD-730 R1 (Jun. 1997).

J. T. Mihalczo, P. E. Koehler, T. E. Valentine, and L. D. Phillips, "Source Options for NWIS," Oak Ridge National Laboratory, ORNL/TM-13025 (Jul. 1995). [OSTI #135006]

P. E. Koehler and J. T. Mihalczo, "ORNL Measurements at Hanford Waste Tank TX–118," Oak Ridge National Laboratory, ORNL/TM-12904 (Feb. 1995). [OSTI# 26697]

J. T. Mihalczo, T. E. Valentine, and L. D. Phillips, "Subcritical Measurements for Calculational Verification of HEU Tube Vault Storage at the Y-12 Plant," Y/DD-661, Oak Ridge Y-12 Plant, (Sept. 1995). [OSTI #162496]

J. T. Mihalczo and V. K. Paré, "NWIS Signatures for Confirmatory Measurements with B^{33} Trainers," Y-12 National Security Complex, Y/WR-166 (Jan. 1995).

J. T. Mihalczo, L. D. Phillips, G. D. Ellis, and T. E. Valentine, "Neutron Transmission Properties of Concrete for a from Time of Flight Transmission Measurements with a ^{252}Cf Source," Y-12 National Security Complex, Y-DD-648 (1994). [OSTI #183135]

J. T. Mihalczo, M. L. Simpson, and S. A. McElhaney, "Dual Neutron Flux/Temperature Measurement Sensor," Oak Ridge National Laboratory, ORNL/CF-91/241 (May 1991).

J. T. Mihalczo, E. D. Blakeman, W. T. King, and R. C. Kryter, "Performance Evaluation of a Measurement System for the ^{252}Cf-Source Driven Neutron Noise Analysis Determination of Subcriticality," Oak Ridge National Laboratory, ORNL/TM-10145, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory (1988).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, H. Seino, and R. C. Robinson, "^{252}Cf-Source-Driven Neutron Noise Measurements of Subcriticality for a Slab Tank Containing Aqueous Pu-U Nitrate," Oak Ridge National Laboratory, ORNL/TM-10139 (1988).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, H. Seino, and R. C. Robinson, "^{252}Cf-Source-Driven Neutron Noise Measurements of Subcriticality for an Annular Tank Containing Aqueous Pu-U Nitrate," Oak Ridge National Laboratory, ORNL/TM-10138 (1988).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, and E. B. Johnson, "Dynamic Subcriticality Measurements Using the ^{252}Cf-Source-Driven Noise Analysis Method" Oak Ridge National Laboratory, ORNL/TM-10122 (Aug. 1988).

M. J. Haire, C. W. Ricker, J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, M. M. Chiles, F. C. Difilippo, and R. B. Perez, USDOE/PNC Technical Specialists' Meeting: ^{252}Cf "Subcriticality Measurement System Task, September 22–25, 1986", Oak Ridge National Laboratory, ORNL/TM-225 (Sept. 1986).

J. T. Mihalczo, D. L. Selby, and H. E. Knee, "The Evaluation of Ex-Vessel Monitoring for Initial Fuel Loading of Clinch River Breeder Reactor Plant," Oak Ridge National Laboratory, ORNL-5705/R1 (January 1, 1983).

J. T. Mihalczo, "Theoretical Evaluation of Ex-Vessel Monitoring for Initial Fuel Loading of CRBRP," Oak Ridge National Laboratory, ORNL/TM-5705 (1981).

W. W. Engle Jr., H. E. Knee, D. L. Loyd, J. T. Mihalczo, and D. L. Selby, "FY 1978 Progress Report of the Clinch River Breeder Reactor Source Range Flux Monitor Assessment Study for the Reference Heterogeneous Core," Oak Ridge National Laboratory, ORNL-5627 (Sept. 1980).

J. Kim and J. T. Mihalczo, "D-D Neutron Measurements on a 40-kV, 60-A Neutral Beam Test Facility," Oak Ridge National Laboratory, ORNL/TM-7016 (Oct. 1979). [OSTI #5864367]

J. T. Mihalczo, "A Review of Methods for Treatment of Source Effects in the Modified Source Multiplication Method for Monitoring the Reactivity in Refueling the CRBR," Oak Ridge National Laboratory, ORNL-5568 (Sept. 1979). [OSTI #5984287]

M. Murakami et al., "Plasma Confinement and Impurity Flow Reversal Experiments in the ISX-A Tokamak," Oak Ridge National Laboratory, ORNL/TM-6583 (Oct. 1978).

R. A. Lillie, R. G. Alsmiller, Jr., and J. T. Mihalczo, "Design Calculations for a 14-MeV Neutron Collimator," Oak Ridge National Laboratory, ORNL/TM-6487 (Aug. 1978). [OSTI #6874710]

A. C. England, H. C. Howe, J. T. Mihalczo, and R. H. Fowler, "Neutron Time Behavior for Deuterium Neutral Beam Injection into a Hydrogen Plasma in ORMAK," Oak Ridge National Laboratory, ORNL/TM-6035 (Oct. 1977). [OSTI #5279863]

J. T. Mihalczo, V. K. Paré, G. L. Ragan, M. V. Mathis, and G. C. Tillett, "Reactivity from Power Spectral Density Measurements with ^{252}Cf," Oak Ridge National Laboratory, ORNL/TM-5475 (Aug. 1977). [OSTI #7096009]

J. T. Mihalczo and R. N. Cherdack, "Preliminary Evaluation of D-T Operation of ORMAK Upgrade," Oak Ridge National Laboratory, ORNL/CF-77/44 (Feb. 1977). [OSTI #1035833]

A. C. England, J. T. Mihalczo, H. C. Howe, and R. H. Fowler, "Neutron Time Behavior for Deuterium Neutron Beam Injection into a Hydrogen Plasma in ORMAK," Oak Ridge National Laboratory, ORNL/TM-6035 (1977). [OSTI #5279863]

J. T. Mihalczo, G. C. Tillett, and D. L. Selby, "Evaluation of Initial Loading Counting Rate Data from Experiments with the Mockup Core for the FFTF," Oak Ridge National Laboratory, ORNL/TM-5106, (Mar. 1976).

M. V. Mathis, J. T. Mihalczo, and V. K. Paré, "Reactivity Surveillance Instrumentation for Measurements with the FFTF Engineering Mockup Core," Oak Ridge National Laboratory, ORNL/TM-4511 (Aug. 1976).

J. T. Mihalczo, G. C. Tillett, and M. V. Mathis, "Recommendations for Implementation of Modified Source Multiplication Method for Reactivity Surveillance in Refueling the FTR," Oak Ridge National Laboratory, ORNL/TM-5168 (Sept. 1976).

J. T. Mihalczo, M. V. Mathis, and V. K. Paré, "Reactivity Surveillance for Measurements with the FFTF Engineering Mockup Core," Oak Ridge National Laboratory, ORNL/TM-4704 (May 1976).

J. T. Mihalczo, G. C. Tillett, and M. V. Mathis, "Recommendations for Implementation of Modified Source Multiplication Method for Reactivity Surveillance in Refueling the FTR," Oak Ridge National Laboratory, ORNL/TM-5168 (1976).

J. T. Mihalczo, G. C. Tillett, and D. L. Selby, "Evaluation of Initial Loading Counting Rate Data from Critical Experiments with the Mock-Up Core for the FFTF," Oak Ridge National Laboratory, ORNL/TM-5106 (1976).

J. B. Bullock, J. T. Mihalczo, and M. V. Mathis, "Inverse Kinetics Rod Drop Measurements with a Mock-Up of the Clinch River Breeder Reactor Shield," Oak Ridge National Laboratory, ORNL/TM-4828 (1976). [OSTI #4276047]

R. W. Peelle, T. A. Lewis, J. T. Mihalczo, H. A. Mook, and R. M. Moon, "Use of ORELA to Produce Neutrons for Scattering Studies on Condensed Matter," Oak Ridge National Laboratory, ORNL/TM-4987 (Sept. 1975). [OSTI #4199553]

J. T. Mihalczo, "Reactivity from Power Spectral Density Measurements with ^{252}Cf," Oak Ridge National Laboratory, ORNL/TM-5475 (1975).

J. T. Mihalczo, "Report of Foreign Travel to the Specialist Meeting on Reactor Noise, Rome, and Laboratories in the United Kingdom, France, Italy, and West Germany," Oak Ridge National Laboratory, ORNL-CF-75-3-6 (Mar. 6, 1975).

J. T. Mihalczo, “Experimental Plan for a Unreflected Uranium Metal Sphere or Cylindrical Assembly,” Oak Ridge Y-12 Plant, Y-DR-134 (Feb. 1975)

F. Shahrokhi, J. C. Robinson, J. T. Mihalczo, and N. J. Ackermann Jr., “The State of the Art in Non-Destructive Assay and Application to LMFBR Aqueous Fuel Reprocessing Plant,” Oak Ridge National Laboratory, ORNL/TM-4586 (1974). [OSTI #4286066]

J. T. Mihalczo and V. K. Pare, “Theory of Correlation Measurements in the Time and Frequency Domains with ^{252}Cf,” Oak Ridge National Laboratory, ORNL/TM-4586 (Nov. 1974). [OSTI #4243440]

J. T. Mihalczo, “Prompt Neutron Decay in Plutonium Metal Using ^{252}Cf as a Randomly Pulsed Neutron Source,” Y-12 National Security Complex, Y/DR-111 (Aug. 1973). [OSTI #4686870]

J. T. Mihalczo, “Monte Carlo Calculations of Neutronic Properties for Unmoderated Cubic Arrays of Uranium (93.2) Metal Cylinders,” Y-12 National Security Complex, Y/DR-85 (Jul. 1972). [OSTI #4648629]

J. T. Mihalczo, “Randomly Pulse Neutron Measurements for Safeguards Interrogation” Graphite and Polyethylene Reflected Uranium-Metal Cylinders and Annuli,” Y-12 National Security Complex, Y/DR-81 (April 1972).

J. T. Mihalczo, “Randomly Pulsed Neutron Measurements for Safeguards Interrogation,” Y-12 National Security Complex, Y-DR-079 (Nov. 1972).

J. T. Mihalczo, “Static and Dynamic Experiments with a Repetitively Pulsed Booster,” Y-12 National Security Complex, Y/DR-44 (Mar. 1971).

J. T. Mihalczo, “The Use of ^{252}Cf as a Randomly Pulsed Neutron Source for Prompt Neutron Decay Measurements,” Y-12 National Security Complex, Y/DR-41 (Jan. 1971).

S. J. Raffety and J. T. Mihalczo, “Homogeneous Critical Assemblies of 2 and 3 Enriched Uranium in Paraffin,” Y-12 National Security Complex, Y/DR-14 (May 1969).

J. T. Mihalczo, “Static and Dynamic Measurements with the Army Pulse Radiation Facility Reactor,” Oak Ridge National Laboratory, ORNL/TM-2330 (1969). [OSTI #4762262]

J. T. Mihalczo, “Multiplication Factor of Uranium Metal by One Velocity Monte Carlo,” Oak Ridge National Laboratory, ORNL-P-2033 (Oct. 1968) [OSTI #4573224]

J. T. Mihalczo, “Preliminary Proposal for Experiments with a Repetitively Pulsed Assembly,” Oak Ridge National Laboratory, ORNL/CF-68-4-70 (April 1968).

G. Kistner and J. T. Mihalczo, “Critical Experiments for the Repetitively Pulsed Reactor SORA,” Oak Ridge National Laboratory, ORNL-4263 (Jun. 1968). [OSTI #4510524]

J. T. Mihalczo, “Prompt Neutron Decay and Reactivity Measurements in Subcritical Uranium Metal Cylinders,” Oak Ridge National Laboratory, ORNL/TM-1736 (1968). [OSTI #4556018]

A. M. Perry, H. F. Bowman, W. B. McDonald, and J. T. Mihalczo, “Preliminary Study of a Molten Salt Burst Reactor,” Oak Ridge National Laboratory, ORNL/TM-2282 (1968). [OSTI #4493446]

S. J. Raffety and J. T. Mihalczo, “Neutron Age and Infinite-Medium Neutron Multiplication Factor for Uranium-Tetrafluoride Paraffin Mixtures with Low Uranium-235 Enrichment,” Oak Ridge National Laboratory, ORNL-4280, 51–53, Oak Ridge National Laboratory Neutron Physics Division Annual Progress Report for Period Ending May 31, 1968 (Jan. 1968).

G. W. Morrison, J. T. Mihalczo, and D. C. Irving, “ACTIVIT—An O5R Monte Carlo Analysis Routine for Calculation of Activation,” Oak Ridge National Laboratory, ORNL/TM-1674 (1966). [OSTI #4454259]

J. T. Mihalczo, G. W. Morrison, and D. C. Irving, "05R Monte Carlo Analysis Routines for Calculating Various Mean Times in Reactor Problems," Oak Ridge National Laboratory, ORNL/TM-1246 (1966). [OSTI #4538976]

J. T. Mihalczo, G. W. Morrison, and D. C. Irving, "React and Convrg FORTRAN Subroutines for Determining Source Convergence for the 05R Monte Carlo Neutron Transport Code," Oak Ridge National Laboratory, ORNL/TM-1325 (Jan. 1966) [OSTI #4581337]

J. T. Mihalczo, "S(N) Calculations of the Aberdeen Pulse Reactor," Oak Ridge National Laboratory, ORNL-3973, 25 (Sept. 1966).

A. M. Perry, J. T. Mihalczo, H. F. Bauman, and W. B. McDonald, "Preliminary Study of a Molten-Salt Burst Reactor," Oak Ridge National Laboratory, ORNL/CF-65-11-23 (Nov. 1965). [OSTI #4493446]

G. W. Morrison, J. T. Mihalczo, and D. C. Irving, "Spectrum-An 05R Monte Carlo Analysis Routine for Calculating the Neutron Energy Spectrum," Oak Ridge National Laboratory, ORNL/TM-1245 (1965). [OSTI #4606053]

J. T. Mihalczo, "Multiplication Factor of Uranium Metal by One Velocity Monte Carlo Calculations," Oak Ridge National Laboratory, ORNL/TM-1220 (1965).

J. T. Mihalczo, G. W. Morrison, and D. C. Irving, "Source-a Neutron Distribution Routine for the 05R Monte Carlo Code," Oak Ridge National Laboratory, ORNL/TM-1192 (1965). [OSTI #4579748]

J. T. Mihalczo, "Increased Yields from Fast Burst Reactors, Part 1. Effects of Increased Mass on Uranium and Uranium-Molybdenum Critical Cylinders," Oak Ridge National Laboratory, ORNL/TM-1125 (1965).

J. T. Mihalczo, "One Velocity Mont Carlo Calculations of Uranium Metal Critical Experiments," Oak Ridge National Laboratory, ORNL-P-748 (Nov. 1964). [OSTI #34584953]

J. T. Mihalczo, "Effect of Floor-Reflected Neutrons on Rossi-Alpha Measurements with the Health Physics Research Reactor," Oak Ridge National Laboratory, ORNL-P-140 (Jul. 1964). [OSTI #4610219]

J. T. Mihalczo, "Geometrically Complicated Critical Assemblies of 93.2% Enriched Uranium Metal," Oak Ridge National Laboratory, ORNL-3714, 33 (Dec. 1964).

J. T. Mihalczo, "A Small Beryllium-Reflected UO_2 Assembly," Oak Ridge National Laboratory, ORNL/TM-655 (Jul. 1963).

J. T. Mihalczo, "A Small Graphite-Reflected UO_2 Critical Assembly, Part II," Oak Ridge National Laboratory, ORNL/TM-561 (April 8, 1963).

J. T. Mihalczo, "Prompt Neutron Decay in a Two-Component Enriched Uranium Metal Critical Assembly," Oak Ridge National Laboratory, ORNL/TM-470 (1963). [OSTI #4728701]

W. E. Kinney, J. T. Mihalczo, I. Happer, "Application of Monte Carlo Calculational Techniques to the Study of Fast Critical Assemblies," Oak Ridge National Laboratory, ORNL-3499, 77–81 (Aug. 1, 1963).

J. T. Mihalczo, "A Small Graphite-Reflected UO_2 Critical Assembly," Oak Ridge National Laboratory, ORNL/TM-450 (Dec. 28, 1962).

J. T. Mihalczo, "Reactivity Calibration and Fission Rate Distribution in an Unmoderated Unreflected Uranium Molybdenum Alloy Research Reactor," Oak Ridge National Laboratory, ORNL/TM-189 (1962). [OSTI #4819260]

J. T. Mihalczo, "Superprompt Critical Behavior of an Unmoderated, Unreflected Uranium–Molybdenum Alloy Assembly," Oak Ridge National Laboratory, ORNL/TM-230 (1962). [OSTI #4805229]

J. T. Mihalczo and W. E. Kinney, “Oak Ridge National Laboratory Fast Burst Reactor Critical Experiments and Calculation,” Oak Ridge National Laboratory, ORNL/CF-61-8-71 (Aug. 1961). [OSTI #4822124]

J. T. Mihalczo and J. J. Lynn, “Neutron Multiplication Experiments with Enriched Uranium in Slab Geometry,” Oak Ridge National Laboratory, ORNL/CF-61-4-33 (April 1961). [OSTI #4013616]

J. T. Mihalczo and J. J. Lynn, “Homogeneous Critical Assemblies of 3% Uranium-235 Enriched Uranium Tetrafluoride in Paraffin,” Oak Ridge National Laboratory, ORNL-4193, 131 (Oct. 1, 1961).

J. T. Mihalczo, “Comparison of Measurements in a Critical Assembly with k infinity Measurements in the Physical Constants Testing Reactor,” Oak Ridge National Laboratory, ORNL/CF-60-4-24 (May 1960). [OSTI #4160169]

J. T. Mihalczo and J. J. Lynn, “Multiplication Measurements with Highly Enriched Uranium Metal Slabs,” Oak Ridge National Laboratory, ORNL/CF-59-7-87 (Jul. 1959). [OSTI #4254086]

J. T. Mihalczo, D. Scott, J. J. Lynn, and W. C. Connolly, “Preliminary Report on 2% U-235-Enriched UF_4-C_{25}-H_{52} Critical Assemblies,” Oak Ridge National Laboratory, ORNL/CF-59-4-120 (April 1959). [OSTI #4240567]

J. T. Mihalczo, J. K. Fox, and L. W. Gilley, “Critical Experiments with 2.09 wt. % U235 Enriched Uranium Metal Plates in Water,” Oak Ridge National Laboratory, ORNL-CF-58-8-3 (Aug. 1958).

J.S. Martinez, W.F Krieve, J. T. Mihalczo, J. B. Robinson, F. N. Huffman, C. D. Penqelley, and R. J. Klotz, “Oak Ridge School of Reactor Technology (ORSORT), Reactor Design and Feasibility Study, Cavity Reactor for Rocket Propulsion,” Oak Ridge National Laboratory, ORNL-CF-57-8-11 (Aug. 1957).

MEETING PAPERS AND PRESENTATIONS

M. C. Wright, E. R. Nelius, J. T. Mihalczo, S. M. McConchie, and P. A. Hausladen, “Initial Investigation of the Small Feature Detection Capability of the ORNL Fast Neutron Tomographic Imaging System,” IEEE Nuclear Science Symposium, Nov. 16, 2018, Australia (2018).

J. T. Mihalczo, “Historic Measurements with up to Three Metric Tons of Weapons Grade HEU (93.4) Metal,” Seminar presented at the Y-12 National Security Complex on Oct. 29, 2018 and at the University of Tennessee on Nov. 9, 2018 [video link http://mediasite.utk.edu/UTK/Play/9d36fe76a16741778b4bc6f333b15f2d1d?catalog=1a9ab299e3c34f8689ce5f1130c504a021] (2018).

J. T. Mihalczo, T. Uckan, M. Wyatt, T. Valentine, and T. Hannon “NMIS Imaging for Hold-up at the Hockey Stick Deposit at K-29 Diffusion Plant,” Presentation, Apr. 2017, Topical Meeting on Best Practices for Material Hold-Up Monitoring, Apr. 12, 2017, Oak Ridge, TN (Apr. 2017).

D. Archer, C. Britton Jr., J. Carter, M. Ericson, N. D. Ezell, S. Frank, J. Jones Jr., R. Lind, J. T. Mihalczo, J. Mullens, J. Radle, E. Sword, and T. Thompson, “Fieldable Nuclear Materials Identification System,” Presentation, Jul. 2016, INMM, Jul. 24–28, 2016, Atlanta, GA (Jul. 2016).

B. Canion, S. M. McConchie, J. T. Mihalczo, and S. Landsberger, “The Incorporation of Source Correlated Prompt Gamma-ray Spectroscopy into an Active Interrogation Imaging System for Uranium Assembly Characterization,” Abstract, Apr. 2015, Rising Stars in Nuclear Science and Engineering Symposium, Apr. 15, 2015 Cambridge, MA (Apr. 2015).

T. Wellington et al. “Recent Fast Neutron Imaging Measurements with the Fieldable Nuclear Materials Identification System,” Conference Paper, Physics Procedia, vol. 66, pp. 432–432 (May 2015).

B. Palles, J. T. Mihalczo, J. Mullens, and J. Henkel, “Fast Neutron Transmission Imaging of Objects Near Walls,” Institute of Nuclear Materials Management 54th Annual Meeting, Jul. 14–18, 2013, Palm Desert, CA, conference paper (Jul. 2013).

B. R. Grogan and J. T. Mihalczo, “Identification of Lithium Isotopes Using Time-Tagged Neutron Scattering,” Presentation, Jul. 2012, 53rd Annual Meeting of the INMM, Jul. 15–19, 2012, Orlando, FL (Jul. 2012).

J. Neal, L. Boatner, and J. T. Mihalczo, “High Spatial and Temporal Resolution Particle Detectors,” Presentation, Jul. 2012, INMM, Jul. 14–19, 2012, Orlando, FL (Jul. 2012).

S. M. McConchie, J. T. Mihalczo, K. Pena, H. Hall, and J. Crye, “Time Correlations Measurements of Heavily Shielded Uranium Metal,” Paper at Jul. 2012, INMM Jul.15–20, 2012, Orlando, FL (Jul. 2012).

M. Walker and J. T. Mihalczo, “Active Gamma Spectroscopy with NMIS,” Paper, Jul. 2012, INMM 53rd Annual Meeting, Jul. 15–20, 2012, Orlando, FL (Jul. 2012).

A. Swift, B. R. Grogan, J. Mullens, J. Hayward, and J. T. Mihalczo, “Attributes from NMIS Time Coincidence, Fast-Neutron Imaging, Fission Mapping, and Gamma-Ray Spectrometry Data,” Presentation, Jul. 2012, INMM 53rd Annual Conference, Jul. 15, 2012, Orlando, Florida (Jul. 2012).

M. Walker and J. T. Mihalczo, “Identification of Non-Radiological Materials with NMIS,” Presentation, Jul. 2012, INMM 53rd Annual Conference, Jul. 15, 2012, Orlando, FL (Jul. 2012).

J. Crye, S. M. McConchie, B. R. Grogan, J. T. Mihalczo, and J. Johnson, “Active-induced Time Correlation Signatures for the Characterization of Shielded HEU,” Presentation, Aug. 2012, CAARI 2012, Aug. 5–10, 2012, Ft. Worth, TX (Aug. 2012).

P. A. Hausladen, M. Blackston, J. Mullens, and J. T. Mihalczo, “Multimodal Imaging with Tagged Fast Neutrons for Material Identification,” Presentation 2012, CAARI 2012, Aug. 5–10, 2012, Ft. Worth, TX (Aug. 2012).

S. M. McConchie, P. A. Hausladen, M. Blackston, J. Mullens, and J. T. Mihalczo, “Application of the Associated Particle Imaging Technique for Induced Fission Imaging,” 22nd International Conference on the Application of Accelerators in Research and Industry (CAARI 2012, www.caari.com, Aug. 5–10, 2012, Ft. Worth, TX (Aug 2012).

D. Archer, C. Britton Jr., N. D. Bull Ezell, M. Emery, M. Ericson, L. Fabris, E. Farquhar, S. Frank, D. Hurst, R. Lind, S. M. McConchie, J. T. Mihalczo, J. Mullens, E. Sword, and J. Radle, “The Imaging Detector Subsystem Electronics of the Fieldable Nuclear Materials Identification System (FNMIS),” IEEE 2012 Nuclear Science Symposium, Oct. 29, 2012, Anaheim, CA (Oct. 2012).

J. T. Mihalczo, P. Bingham, M. Blackston, J. Crye, B. R. Grogan, P. A. Hausladen, S. M. McConchie, and J. Mullens, “Fast-Neutron Imaging with API DT Neutron Generators,” Presentation, Oct 2012 at International Conference on Portable Neutron Generators and Technologies on Their Basis VNIIA, Moscow, Russia (Oct. 20–27, 2012).

J. Crye, S. M. McConchie, B. R. Grogan, J. T. Mihalczo, and J. Johnson, “Active-induced Time Correlation Signatures for the Characterization of Shielded HEU,” Presentation, Aug. 2012, CAARI 2012, Aug. 5–10, 2012, Ft. Worth, TX (Aug. 2012).

B. R. Grogan and J. T. Mihalczo, “Identification of Light Isotopes Using Time-Tagged Neutron Scattering,” Presentation, Oct. 2011, INMM Central Regional Chapter Fall Meeting, Oct. 25, 2011, Oak Ridge, TN (Oct. 2011).

D. A. Tollefson, S. L. Creasey, R. V. DeMeglio, and J. T. Mihalczo, “The Evaluation of Infinite Thickness Reflectors for Neutron Generator Active Interrogation Measurements,” Date: Y-12 Report:

TANSAO, 105, 569–572, *Transactions of the American Nuclear Society Conference Session: Recent Advances in Criticality Safety Activities at the Y-12 National Security* (Oct. 30, 2011).

B. R. Grogan, J. T. Mihalczo, S. M. McConchie, and J. A. Mullens "Identification of Shielding Material Configurations Using NMIS Imaging," Presentation, Jul. 2011, 52nd Annual Meeting of the INMM, Jul. 17–21, 2011, Palm Desert, CA (Oct. 2011). [OSTI #1023865]

B. R. Grogan, J. T. Mihalczo, "Simulating NMIS Imaging and Fission-Mapping Measurements," Presentation, Jul. 2011, 52nd Annual Meeting of the INMM, Jul. 17–21, 2011, Palm Desert, CA (Oct. 2011). [OSTI #1023863]

K. Pena, S. M. McConchie, J. Michael, and J. T. Mihalczo, "Active Interrogation Observables for Enrichment Determination of DU Shielded HEU Metal Assemblies with Limited Geometrical Information," Presentation, Jul. 2011, INMM 52nd Annual Meeting, Jul. 17–22, 2011, Desert Palm, CA (Oct. 2011). [OSTI #1020806]

J. Crye, H. Hall, S. M. McConchie, J. T. Mihalczo, K. Pena, "Enrichment Determination of Uranium in Shielding Configurations," Presentation, Jul. 2011, INMM 52nd Annual Meeting, Jul. 17–22, 2011, Desert Palm, CA (Oct. 2011).

J. Mullens, S. M. McConchie, P. A. Hausladen, J. T. Mihalczo, B. R. Grogan, and E. Sword, "Neutron Radiography and Fission Mapping Measurements of Nuclear Materials with Varying Composition and Shielding" Presentation, Jul. 2011, INMM 52nd Annual Meeting, Jul. 17–21, 2011, Desert Palm, CA (Oct. 2011).

J. T. Mihalczo, T. Valentine, E. Blakeman, and V. Pare, "CF Neutron Time of Flight Transmission for Material Identification for Weapons Trainers," Presentation, Jul. 2011, INMM 52nd Annual Meeting, Jul. 17–22, 2011, Desert Palm, CA (Oct. 2011). [OSTI #1035827]

J. Radle, J. T. Mihalczo, and M. Wright, "Fieldable Nuclear Material Identification System," Presentation, Jul. 2010, INMM, Jul. 11–15, 2010, Baltimore, MD (Jul. 2010).

S. M. McConchie, P. A. Hausladen, and J. T. Mihalczo, "Time Correlation Measurements of ^{252}Cf Source–driven Fission Chains in Bare HEU Metal Assemblies," Presentation, Jul. 2010, INMM 51st Annual, Jul. 11–16, 2010, Baltimore, MD (Jul. 2010).

S. M. McConchie, P. A. Hausladen, and J. T. Mihalczo, "Reflected Neutron Effects in Multiplicity Measurements of Bare HEU Assemblies," Presentation, Jul. 2010, INMM 51st Annual, Jul. 11–16, 2010, Baltimore, MD (Jul. 2010).

K. Pena, S. M. McConchie, and J. T. Mihalczo, "Prompt Neutron Time Decay in Single HEU and DU Metal Annular Storage Castings," Presentation, Jul. 2010, 51ST ANNUAL INMM, Jul. 11–15, 2010, Baltimore, MD (Jul. 2010).

M. Blackston, P. A. Hausladen, and J. T. Mihalczo, "Induced-Fission Imaging of Nuclear Material," Presentation, Jul. 2010, INMM 51st Annual Meeting, Jul. 12–16, 2010, Baltimore, MD (Jul. 2010).

B. R. Grogan and J. T. Mihalczo, "The Development of a Parameterized Scatter Removal Algorithm for NMIS Imaging," Presentation, Jul. 2010, INMM 51st Annual, Jul. 11–16, 2010, Baltimore, MD (Jul. 2010).

J. Mullens, J. T. Mihalczo, P. A. Hausladen, S. M. McConchie, M. Blackston, J. Henkel, B. R. Grogan, J. Neal, D. Archer, and M. Wright, "NMIS with Imaging and Gamma Ray Spectrometry for Pu, HEU, HE, Chemical Agents, and Drugs," Presentation, Nuclear Plant Instrumentation, Controls, and Human-Machine Interface Technology, April 7, 2009, Knoxville, TN (Apr. 2009).

J. Mullens, P. A. Hausladen, S. M. McConchie, D. Archer, P. Bingham, and J. T. Mihalczo, "NMIS with Imaging and Gamma Ray Spectrometry for Pu, HEU, and HE Detection for Nonproliferation and

NMC&A Applications," Paper; Apr 2009, NPIC & HMIT 2009, April 5–9, 2009, Knoxville, TN (Apr. 2009).

J. Mullens, J. T. Mihalczo, and J. Radle, "Fieldable Nuclear Material Identification System" Paper, Jul. 2009, International Nuclear Material Management 50th Annual Meeting, Jul. 12–16, 2009, Tucson, AZ (Jul. 2009).

J. Bevins, J. Hayward, and J. T. Mihalczo, "Monte Carlo Study of Feasibility of Passive, Time-Coincidence Measurements for Monitoring Large Fissile Storage Arrays," Presentation, Jul. 2009 INMM, Jul. 12–16, 2009, Tucson, AZ (Jul. 2009).

B. R. Grogan and J. T. Mihalczo, "Simulated Verification of Fuel Element Inventory in a Small Reactor Core Using the Nuclear Materials Identification System," Paper, Jul. 2009, INMM, Jul. 12–19, 2009, Tucson, AZ (Jul. 2009).

S. M. McConchie, P. A. Hausladen, and J. T. Mihalczo, "Prompt Neutron Decay Constant from Feynman Variance Fitting," Presentation, Jul. 2009, INMM, Jul. 12–19, 2009, Tucson, AZ (Jul. 2009).

S. M. McConchie, P. A. Hausladen, and J. T. Mihalczo, "Passive Time Coincidence Measurements with Assemblies of HEU and DU Castings," Presentation, Jul. 2009, INMM, Jul. 12–19, 2009, Tucson, AZ (Jul. 2009).

S. M. McConchie, P. A. Hausladen, J. T. Mihalczo, B. Blackburn, and D. Chichester, "Pulsed D-D Neutron Generator Measurements of HEU Oxide Fuel Pins," Conference Paper, American Institute of Physics Conference Proceedings, Aug. 2009, Vol. 1099, pp. 643–646 (Aug. 2009).

P. A. Hausladen, J. T. Mihalczo, B. Blackburn, S. Watson, J. Jones, and A. Hunt, "Identifying Nuclear Material via Prompt Photo-Neutron Multiplicity Measurements," Conference Paper, American Institute of Physics Conference Proceedings, Aug 2009, Vol. 1099, pp. 670–675 (Aug. 2009).

B. R. Grogan, S. M. McConchie, J. T. Mihalczo, and J. Mullens, "Measurements of 14.1 MeV Neutron Reflection and Transmission for Carbon, Polyethylene, and Steel," Conference Paper, pp 2951-2957, (Sept 2009)

P. A. Hausladen, J. T. Mihalczo, and B. Blackburn, "Pulsed Photonuclear Time Correlation Measurements of Shielded HEU Oxide Fuel Pins and DU Metal," Presentation, Oct 2009, IEEE, Oct. 15–31, 2009, Orlando, FL (Oct. 2009).

M. Blackston, J. T. Mihalczo, and J. Mullens, "Using Fast Neutrons to Image Induced Fissions," Presentation, Oct 2009, 2009 IEEE Nuclear Science Symposium, Oct. 25–31, 2009, Orlando, FL (Oct. 2009).

J. Henkel and J. T. Mihalczo, "MCNP-PoliMi Calculations of Cf-252 Measurements for Subcritical HEU Annular Castings," Presentation, Nov. 2009, ANS Meeting, Nov. 16–20, 2009 (Nov. 2009).

K Pena, J. T. Mihalczo, and S. M. McConchie, "Measurements of Prompt Neutron Time Decay for Depleted Uranium Casting," Presentation: Nov. 2009, INMM Chapter ORNL, Nov. 3–4, 2009, Oak Ridge, TN (Nov. 2009).

S. M. McConchie and J. T. Mihalczo, "Characterization of an Associated Particle Neutron Generator with ZnO:Ga Alpha-Detector and Active Focusing," *Book Chapter, Symposium on Radiation Measurements and Applications*, Jan. 2008, vol. 56, pp. 1–1305 (Jan. 2008).

J. T. Mihalczo, D. Archer, M. Wright, and J. Mullens, "Subcriticality Measurements with Multiple HEU Metal Castings," Paper, American Nuclear Society, Sept. 14, 2008, Reno, NV (2008).

D. Koltick, S. Kane, J. T. Mihalczo, S. M. McConchie, E. Mace, and M. Lvovsky, "Production of an Associated Particle Neutron Generator with ZnO:Ga Alpha-Detector," Conference Paper (Jun. 2008).

J. Henkel and J. T. Mihalczo, "MCNP-PoliMi Calculations of Active Neutron Interrogation Measurements for a HEU Annular Casting," Presentation, Jun. 2008, ANS, Jun. 9–12, 2008, Anaheim, CA (Jun. 2008).

J. T. Mihalczo, "Room Return Effects on HEU Metal Prompt Neutron Decay," Presentation, ANS,– Jun. 9–12, 2008, Anaheim, CA (Jun. 2008).

J. Mullens, B. R. Grogan, Daniel Archer, and J. T. Mihalczo, "Shipping Anomaly from NMIS Imaging," Presentation: 49th Annual INMM Meeting, Jul. 13–17, 2008, Nashville, TN (Jul. 2008).

B. R. Grogan, P. A. Hausladen, S. M. McConchie, J. T. Mihalczo, and J. Mullens, "Alpha Detector Pixelization Effects on NMIS Imaging" Presentation, Jul. 2008, 49th Annual INMM Meeting, Jul. 13–17, 2008, Nashville, TN (Jul. 2008).

S. M. McConchie, J. T. Mihalczo, P. A. Hausladen, and B. Blackburn, "Passive Time Coincidence Measurements with HEU Oxide Fuel Pins," Presentation, Jul. 2008, 49th Annual INMM Meeting,– Jul. 13–17, 2008, Nashville, TN (Jul. 2008). [OSTI #936800]

S. M. McConchie, J. T. Mihalczo, P. A. Hausladen, M. Wright, and D. Archer, "Passive Time Coincidence Measurements with HEU and DU Castings," Presentation, Jul. 2008, 49th Annual INMM Meeting,– Jul. 13–17, 2008, Nashville, TN (Jul. 2008).

S. M. McConchie, P. A. Hausladen, J. T. Mihalczo, D. Archer, and M. Wright, "Passive Time Coincidence Measurements with HEU and DU Castings Using Liquid Scintillators with Pulse Shape Discrimination" Presentation, Oct. 2008, IEEE, Oct. 19–25, 2008, Dresden, Germany (Oct. 2008).

J. T. Mihalczo, "Neutron (>1 MeV) Room Return Effects on Subcritical HEU Castings," *Transactions of the American Nuclear Society*, vol. 98, *Transactions of the American Nuclear Society and Embedded Topical Meetings: Isotopes for Medicine and Industry and Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, NFSM*, 2008, pp. 193–194 (2008).

P. A. Hausladen, S. M. McConchie, and J. T. Mihalczo, "Pulsed DD Neutron Generator Measurements for HEU Oxide Fuel Pins Using Liquid Scintillators with Pulse Shape Discrimination," Paper: IEEE Conference, Oct. 18–25, 2008, Dresden, Germany (Oct. 2008).

J. J. Henkel and J. T. Mihalczo, "MCNP-PoliMi Calculations of Active Neutron Interrogation Measurements for A HEU Casting,": Transactions of the American Nuclear Society, vol. 98, Transactions of the American Nuclear Society and Embedded Topical Meetings: Isotopes for Medicine and Industry and Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors, NFSM, 2008, pp. 191–192 (2008).

B. W. Blackburn, J. L. Jones, C. E. Moss, J. T. Mihalczo, A. W. Hunt, P. A. Hausladen, S. A. Pozzi, F. J. Harmon, L. Waters, K. Inakiev, C. McCluskey, M. Fiaska, S. M. Watson, and J. T. Johnson, "Actively-Induced, Prompt Radiation Utilization in Nonproliferation Applications," IEEE Nuclear Science Symposium Conference Record, vol. 1, 2006 IEEE Nuclear Science Symposium—Conference Record, , pp. 314–315 (2007).

B. J. Blackburn, J. Jones, S. Watson, J. Johnson, D. Gerts, C. Moss, L. Waters, K. Ianakiev, J. T. Mihalczo, P. A. Hausladen, S. Pozzi, M. Flaska, S. Clarke, A. Hunt, S. Thompson, and M. Kinlaw, "Detection of Special Nuclear Material By Means of Promptly Emitted Radiation Following Photonuclear Stimulation," IEEE Nuclear Science Symposium Conference Record, vol. 1, IEEE Nuclear Science Symposium and Medical Imaging Conference, NSS-MIC, 2007, pp. 192–198 (2007).

K. D. Ianakiev, B. S. Alexandrov, B. W. Blackburn, P. A. Hausladen, A. W. Hunt, J. T. Johnson, J. L. Jones, C. W. McCluskey, J. T. Mihalczo, C. E. Moss, and R. B. Williams, "Electronics and Signal Processing for Prompt Radiation," IEEE Nuclear Science Symposium Conference Record, vol. 2, 2007

IEEE Nuclear Science Symposium and Medical Imaging Conference, NSS-MIC, 2007, pp. 1166–1169 (2007).

J. A. Mullens, P. A. Hausladen, P. Bingham, J. Neal, J. T. Mihalczo, M. Wright, and D. Archer, "Enhanced NMC&A by Tomographic Imaging," INMM 2006 Annual Meeting (Jul. 2006).

J. A. Mullens, P. A. Hausladen, P. R. Bingham, J. S. Neal, and J. T. Mihalczo, "Imaging Measurements with NMIS at ORNL," INMM 2006 Annual Meeting (Jul. 2006).

S. Clarke, S. A. Pozzi, E. Padovani, and T. J. Downar, "Simulation and Analysis of Correlated Neutron and Gamma-ray Detection from Photo Fission," Proceedings of the Institute of Nuclear Materials Management Annual Meeting, Jul. 16–20, 2006, Nashville, TN.

F. W. Blackburn, J. L. Jones, C. E. Moss, J. T. Mihalczo, A. W. Hunt, F. Harmon, S. M. Watson, J. T. Johnson, "Utilization of Actively-induced, Prompt Radiation Emission for Nonproliferation Applications," Conference: Conference on Accelerator Applications in Research and Industry, Fort Worth, TX, Aug. 21–25, 2006 (Aug. 2006). [OSTI #911908]

J. L. Jones, B. W. Blackburn, S. M. Watson, J. T. Johnson, C. E. Moss, L. Waters, J. T. Mihalczo, S. A. Pozzi, P. A. Hausladen, M. Flaska, A. W. Hunt, and F. J. Harmon, "Status of the Pulsed Photonuclear Assessment (PPA) Inspection System," *Proceedings of the IEEE Nuclear Science Symposium and Medical Imaging Conference*, Oct. 29–Nov. 4, 2006, San Diego, CA (2006).

D. P. Hutchinson, et al., "Prototype Large-Area Neutron/Gamma Detector," RN Program Initiation Meeting 2005, Livermore, CA, Mar. 30–31, 2005 (Mar. 2005).

S. E. Parkey, and J. T. Mihalczo, "Uranium (93.14) Metal Annuli with One-and Two-inch Graphite Reflectors," NCSD Topical Meeting (American Nuclear Society Nuclear Criticality Safety Division) (2005).

M. Monville, V. Padovani, S. A. Pozzi, and J. T. Mihalczo, "Simulation of the Photon Interrogation of Nuclear Materials," INMM Annual Meeting, Phoenix, AZ, INMM, Jul. 10–14, 2005 (Jul. 2005).

S. A. Pozzi, J. T. Mihalczo, L. Cartegni, P. Peerani, J. Loeshner, J. A. Mullens, and P. A. Hausladen, "Monte Carlo Simulations for Passive Measurements on Plutonium Oxide Samples," INMM 46th Annual Meeting, Phoenix, AZ, INMM, Jul. 10–14, 2005 (Jul. 2005).

J. A. Mullens, J. T. Mihalczo, and P.R. Bingham, "Neutron and Gamma Ray Imaging for Nuclear Materials Identification," Institute of Nuclear Materials Management 45th Annual Meeting, Orland, FL, Institute of Nuclear Materials Management, Jul. 18–22, 2004 (Jul. 2004).

S. Pozzi, J. S. Neal, J. D. Edwards, P. J. McClanahan, and J. T. Mihalczo, "Analysis of Scintillator Pulse Shapes for Neutron-Gamma Discrimination," INMM Annual Meeting, Orlando, FL, Jul. 18–22, 2004 (Jul. 2004).

J. A. Mullens, J. T. Mihalczo, and P.R. Bingham, "Neutron and Gamma Ray Imaging for Nuclear Materials Identification," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 18–22, 2004 (Jul. 2004).

S. A. Pozzi, J. S. Neal, and J. T. Mihalczo, "Fission Source Location from Passive NMIS Third Order Time Correlation Measurements," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 18–22, 2004 (Jul. 2004).

S. A. Pozzi and J. T. Mihalczo, "Simulation of Higher Order Statistics Measurements Using MCNP-POLIMI," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 18–22, 2004 (Jul. 2004).

J. S. Neal, J. T. Mihalczo, and C. C. Koltick, "Update on a ZnO:Ga Alpha Particle Detector for a Portable Neutron Generator for the Nuclear Materials Identification System (NMIS)," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 18–22, 2004 (Jul. 2004).

J. S. Neal, J. T. Mihalczo, M. S. Wyatt, J. D. Edwards, "Large Plastic Scintillation Detectors for the Nuclear Materials Identification System," Institute of Nuclear Materials Management, Northbrook, IL, INMM Jul. 18–22, 2004 (Jul. 2004).

P. A. Hausladen, J. S. Neal, and J. T. Mihalczo, "An Alpha-particle Detector for a Portable Neutron Generator for the Nuclear Materials Identification System (NMIS)," CAARI 2004 Conference, Fort Worth, TX, CAARI Oct. 11–15, 2004 (Oct. 2004).

J. S. Neal et al., "Evaluation of ZnO:Ga Alpha Particle Detectors for Use in Neutron Generators," IEEE Nuclear Science Symposium, Rome, Italy, IEEE, Oct. 15–22, 2004 (Oct. 2004).

J. A. Mullens, J. S. Neal, P. A. Hausladen, S. A. Pozzi, and J. T. Mihalczo, "Fast coincidence counting with active inspection systems," CAARI Conference, Fort Worth, TX USA, CAARI, Oct. 10–15, 2004 (Oct. 2004).

J. T. Mihalczo, J. S. Neal, and P. A. Hausladen, "Floor Reflection Effect Elimination with a DT Generator," INMM Fall Nuclear Nonproliferation Conference, Oak Ridge, TN, INMM, Nov. 17–18, 2004 (Nov. 2004).

M. E. Monville, V. Padovani, S. A. Pozzi, J. T. Mihalczo, "Towards the Simulation of Photo fission for Material Identification," INMM Central Region Chapter Conference, Oak Ridge, TN, INMM Nov. 17–18, 2004 (Nov. 2004).

S. Pozzi, I. Parzit, J. A. Mullens, and J. T. Mihalczo, "Monte Carlo Analysis of Multiplicity Measurements for the Characterization of Fissile Materials," INMM Central Region Chapter Conference, Oak Ridge, TN, INMM, Nov. 17–18, 2004 (Nov. 2004).

J. Mullens, S. Pozzi, and J. T. Mihalczo, "Tomographic Image and Detector Coincidence Measurements for HEU Object Inspection," Institute of Nuclear Materials Management (INMM) Central Region Fall 2004 Nuclear Nonproliferation Conference, Oak Ridge, TN, INMM Nov. 17–18, 2004 (Nov. 2004).

P. A. Hausladen, J.S. Neal, and J. T. Mihalczo, "Efficiency of Alpha Detector from Neutron Correlation Measurement," VNIIEF/ORNL WWSX Work Review Meting, Sarov, Russia, Dec. 14–16, 2004 (Dec. 2004).

J. T. Mihalczo, "Radiation Detection for Active Interrogation of HEU," VNIIEF/ORNL WWSX Work Review Meeting, Sarov, Russia, Dec. 14–16, 2004 (Dec. 2004).

Neal, J.S., P. A. Hausladen and J. T. Mihalczo, "NMIS Floor Reflection Effect Elimination with a DT Generator," VNIIEF/ORNL WWSX Work, Sarov, Russia, Dec. 14–16, 2004 (Dec. 2004).

P. A. Hausladen, and J. T. Mihalczo, "PSD Tests," VNIIEF/ORNL WWSX Work Review Meeting, Sarov, Russia, Dec. 14–16, 2004 (Dec. 2004).

J. A. Mullens and J. T. Mihalczo, "NMIS Processing Capability," VNIIEF/ORNL WWSX Workshop, Sarov, Russia, Dec. 14–16, 2004 (Dec. 2004).

S. A. Pozzi, J. K. Mattingly, J. T. Mihalczo, E. Padovani, "Validation of the MCNP-PoliMi Code for the Simulation of Nuclear Safeguards Experiments on Uranium and Plutonium Metal," Nuclear and Computational Sciences: A Century in Review, Gatlinburg, TN, ANS, Apr. 6–11, 2003 (Apr. 2003).

S. A. Pozzi and J. T. Mihalczo, "Monte Carlo Evaluation of the Use of a DT Generator for One-Sided Measurements on Highly Enriched Uranium Samples," *Proceedings of the Institute of Nuclear Materials Management 44th Annual Meeting*, Jul. 13–17, 2003, Phoenix, AZ (2003).

S. A. Pozzi, E. Padovani, J. K. Mattingly, and J. T. Mihalczo, "MCNP-PoliMi Monte Carlo Analysis for NMIS Nuclear Safeguards Measurements," Institute of Nuclear Materials Management, Central Region Chapter annual fall meeting, Oak Ridge, TN, Oct. 29–30, 2002 (Oct. 2002).

S. A. Pozzi, R. B Oberer, J. Mullens, J. K. Mattingly, and J. T. Mihalczo, "Use of Nuclear Materials Identification System's Higher Order Signatures (NMIS HOS) to Analyze Detector Interactions," Institute of Nuclear Materials Management 42nd annual meeting, Indian Wells, CA, INNM, Jul. 12–19, 2001 (Jul. 2001).

R. T. Kouzes, L Bratcher, T. Gosnell, D. Langer, J. T. Mihalczo, C. Pura, A. Riedy, P. Rexroth, M. Scott, and J. Spingarn, "Authentication Procedures—The Procedures and Integration Working Group," PNNL 13550. Paper at the 2001 INMM 42nd Annual Meeting (Jul. 2001). [OSTI #069754]

J. D. Edwards, S. A. Pozzi, and J. T. Mihalczo, "Calibration of Scintillation Detectors Using a DT Generator," *Proceedings of the 7th International Conference on Facility Operations: Safeguards Interface*, Charleston, SC, 2004, pp. 523–532 (2004).

J. A. Mullens, J. T. Mihalczo, S. A. Pozzi, and J. S. Neal, "Monitoring the flow of fissile liquids," *Proceedings of the 7th International Conference on Facility Operations: Safeguards Interface*, 2004, pp. 263–271 (2004).

W. L. Bryan, C. Britton Jr., J. T. Mihalczo, J. S. Neal, S. A. Pozzi, and R. W. Tucker, "Fast Neutron–Gamma Pulse Shape Discrimination of Liquid Scintillation Signals for Time Correlated Measurements," *2003 IEEE Nuclear Sciences Symposium Conference Record, Portland, OR USA, IEEE Nuclear and Plasma Sciences, IEEE, Portland, OR,* Oct. 20–24, 2003 (Oct. 2003).

J. S. Neal, W. L. Bryan, C. Britton Jr., J. D. Edwards, and J. T. Mihalczo, "Pulse Shape Discrimination for the Nuclear Materials Identification System (NMIS)," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

S. A. Pozzi, E. Padovani, J. K. Mattingly, and J. T. Mihalczo, "MCNP-POLIMI Simulation of Active and Passive Measurements on Uranium and Plutonium Objects," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

S. A. Pozzi, and J. T. Mihalczo, "Monte Carlo Evaluation of the Use of a 14 MeV Associated Particle Sealed Tube Neutron Generator for One-Sided Measurements on Highly Enriched Uranium Samples," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

S. A. Pozzi and J. T. Mihalczo, "Monte Carlo Evaluation of Passive Correlation Measurements on Containerized Plutonium Shells," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

S. A. Pozzi and J. T. Mihalczo, "Use of the MCNP-POLIMI Code for the Evaluation of Cross Talk Events in Large Scintillation Detectors," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

J. S. Neal, et al., "NMIS Plus Gamma Ray Spectrometry for Verification of Water and B_4C Content of the Isolating Material for Storage at HEUMF," Institute of Nuclear Materials Management, Northbrook, IL, INMM, Jul. 13–17, 2003 (Jul. 2003).

J. S. Neal, S. A. Pozzi, J. D. Edwards, "Method for Verification of the Hydrogen and Boron Content of the RCSB for Storage of HEU at the HEUMF," Transaction, *Transactions of the American Nuclear Society*, vol. 88, 2003, pp. 105 (2003).

J. S. Neal, J. T. Mihalczo, J. D. Edwards, and S. A. Pozzi, "Neutron Counting Measurements of BoroBond (TM) Blocks," *Transactions of the American Nuclear Society*, vol. 88, 2003, pp. 103 (2003).

J. S. Neal, J. D. Edwards, and J. T. Mihalczo, “Gamma Spectroscopy Measurements of BoroBond (TM) Blocks,” *Transactions of the American Nuclear Society*, vol. 88, 2003, pp. 98 (2003).

J. S. Neal, S. A. Pozzi, J. D. Edwards, and J. T. Mihalczo, “Neutron Transmission Measurements of BoroBond (TM) Blocks,” *Transactions of the American Nuclear Society*, vol. 88, 2003, pp. 100 (2003).

J. T. Mihalczo, J. K. Mattingly, J. S. Neal, and J. A. Mullens, “NMIS Plus Gamma Spectroscopy for Attributes of HEU, PU, and HE Detection,” *Inst. of Nuclear Materials Management, Orlando, FL,* Jun. 23–27, 2002 (Jun. 2002).

R. H. Elwood Jr. and J. T. Mihalczo, “Delayed Critical Unreflected and Unmoderated Uranium Metal Single Cylinder and Interacting Cylinders (Two) for Evaluation of Neutron Transport Methods and Associated Cross-Section Data” Report: TANSAO, 086, 092-095 Conference/Journal: *Transactions of the American Nuclear Society Conference Session: Data, Analysis, and Operations for Nuclear Criticality Safety* (Jun. 2002)

S. A. Pozzi and J. T. Mihalczo, “Monte Carlo Evaluation of the Improvements in Nuclear Materials Identification System (NMIS) Resulting from a DT Neutron Generator,” *Inst. of Nuclear Materials Management, Orlando, FL,* Jun. 23–27, 2002 (Jun. 2002).

L. D. Phillips et al. 2002. “Hemispherical ^{252}Cf Fission Chambers for Better Discrimination of Alpha Particle Decay Products,” *Inst. of Nuclear Materials Management, Orlando, FL, INMM,* Jun. 23–27, 2002 (Jul. 2002).

S. A. Pozzi, E. Padovani, and J. T. Mihalczo, “MCNP-POLIMI Evaluation of Time Dependent Coincidence Between Detectors for Fissile Metal vs. Oxide Determination,” *Inst. of Nuclear Materials Management, Orlando, FL,* Jun. 23–27, 2002 (Jun. 2002).

J. T. Mihalczo, “DT Neutron Generator for Subcritical Source Driven Noise Analysis Measurements,” *Trans. American Nuclear Society* (2002).

J. A. Mullens, J. K. Mattingly, L. G. Chiang, R. B. Oberer, and J. T. Mihalczo, “Automated Template Matching Method for NMIS at the Y-12 National Security Complex,” Institute of Nuclear Materials Management Annual Conference, Indian Wells, CA, Jul. 15–18, 2001 (Jul. 20010.) [OSTI #782897]

J. K. Mattingly, L.G. Chiang, J. A. Mullens, and J. T. Mihalczo, “NMIS Experience for Facility to Facility Transfer,” Y-12 National Security Complex, Y/LB-16071, Institute of Nuclear Materials Management Annual Conference, Indian Wells, CA, Jul. 15–19, 2001 (Jul. 2001). [OSTI #782788]

J. A. Mullens, J. E. Breeding, J. A. McEvers, R. W. Wysor, L. G. Chiang, J. R. Lenarduzzi, J. T. Mihalczo, and J. K. Mattingly, “Computer Generated Inputs for NMIS Processor Verification,” Institute of Nuclear Materials Management Annual Conference, Indian Wells, CA, Jul. 15–19, 2001 (Jul. 2001). [OSTI #782895]

J. T. Mihalczo and R. G. Taylor, “Experimentally Critical 7-in.-diam Highly Enriched Metal Cylinder Partially Reflected by Beryllium,” *Trans of American. Nuclear Society*, San Diego, CA, vol 82 (Jun. 2000). [OSTI #20104482]

L. G. Chiang and J. T. Mihalczo, “Plutonium Test Plan ORNL-VNIIEF Collaboration,” Y-12 National Security Complex, Y/LB-16061 (Jun. 2000). [OSTI # 757335]

J. T. Mihalczo, “Prompt Neutron Decay for Delayed Critical Metal Spheres of Pu, and Depleted-Uranium Reflected Pu and Uranium,” Physor 2000, Pittsburgh, PA, American Nuclear Society, American Nuclear Society, May 7–11 2000 (May 2000).

J. T. Mihalczo and T. E. Valentine, Large Dimension Detectors for Passive NMIS Measurements,” Report at Workshop at VNIIEF, Snezhinsk, Russia, between VNIIEF, VNIITF, and ORNL (May 28–31, 2000).

T. E. Valentine et al. 1999. "Passive Multiplicity Counting with the Nuclear Materials Identification System for Plutonium," Institute of Nuclear Materials Management, Phoenix, AZ, Jul. 25–30, 1999 (Jul. 1999).

T. E. Valentine, R. B. Perez, J. A. Mullens, and J. T. Mihalczo, "Passive Multiplicity Counting with NMIS for Pu," Presentation at Inst. of Nuclear Materials Management, Phoenix, AZ, Jul. 25–29, 1999 (Jul. 1999).

P. Koehler and J. T. Mihalczo, "^{3}He Proportional Counters Operation in 250R Gamma Fields," Inst. of Nuclear Materials Management, Annul. Meet., Phoenix, AZ, Jul. 25–29, 1999 (Jul. 1999).

R. B. Perez et al. 1999. "Incorporation of Neutron and Gamma Multiplicity Measurements in the ORNL Nuclear Materials Identification System (NMIS): Passive and Active Measurements," Institute of Nuclear Materials Management, Phoenix, AZ, Jul. 25–30, 1999 (Jul. 1999).

T. E. Valentine, J. T. Mihalczo, R. C. Kryter, V. C. Miller, J. F. Zino, and T. G. Williamson, "Subcritical Noise Analysis Measurements with Fresh Research Reactor Fuel Elements," Report: ICNC'99, 1234-1242 Conference/Journal: Sixth International Conference on Nuclear Criticality Safety, Palais des Congres, Versailles, France (Sept. 20–24, 1999).

J. F. Zino, T. Williamson, T. E. Valentine, J. T. Mihalczo, C. Edwards, and W. Oladrian, "Subcritical Measurements Research Program for Fresh and Spent Material Test Reactor Fuels," Report: ICNC'99, 1223–1233 Conference/Journal: Sixth International Conference on Nuclear Criticality Safety, Palais des Congres, Versailles, France (Sept. 20–24, 1999).

T. G. Williamson, J. F. Zino, G. P. Kessle, T. E. Valentine, J. T. Mihalczo, R. C. Kryter, V. C. Miller, M. Pitts, and F. Rahnema, "Calculation of MCNP Bias for Steel Plates in a Subcritical Array," Report: ICNC'99, 1075–1084 Conference/Journal: Sixth International Conference on Nuclear Criticality Safety, Palais des Congres, Versailles, France (Sept. 20–24, 1999).

J. T. Mihalczo and R. G. Taylor, "Additional Information for Nuclear Criticality Experiments with Graphite Reflected and Moderated Highly Enriched Uranium Metal Annuli," Date: Report: ICNC'99, 0810-0817 Conference/Journal: Sixth International Conference on Nuclear Criticality Safety, Palais des Congres, Versailles, France (Sept. 20–24, 1999).

T. E. Valentine, J. K. Mattingly, and J. T. Mihalczo, "^{252}Cf Source Driven Noise Analysis with Annular High Enriched Metal Castings," International Conference on the Physics of Nuclear Science and Technology Long Island, NY (Feb. 1998). [Also, Y/LB-15963] [OSTI #290904]

J. T. Mihalczo, T. E Valentine, J. K. Mattingly, and J. A. Mullens, "Active Neutron Interrogation for Verification of Storage of Weapons Components," Y/LB-15964 (Feb. 1998). [OSTI #290902]

T. Uckan et al. "^{252}Cf-Source-Correlated Transmission Time-of-Flight Measurements for Uranyl Fluoride Deposits," Symp. on Radiation Measurements and Applications, Ann Arbor, MI, May 12–14, 1998 (May 1998).

T. Uckan, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, M. S. Wyatt, and T. F. Hannon, "(Sup 252) Cf-Source-Correlated Transmission Measurements for Uranyl Fluoride Deposit in a 24-in.-OD Process Pipe," Symp. on Radiation Measurements and Applications, Ann Arbor, MI, May 11–14,1998 (May 1998). (Also: *Nuclear Instruments & Methods in Physics Research A*, 422, 1999).

J. K. Mattingly, J. T. Mihalczo, and T. E. Valentine, "Verification of Cf Spontaneous Fission Detection in Ionization Chambers from Higher Order Correlations," Symp. on Radiation Measurements and Applications, Ann Arbor, MI (May 12–14,1998).

M. S. Wyatt, "In-Situ Characterization of a Large Enriched Uranyl Fluoride Deposit for Nuclear Criticality Safety Assessment," *Proc. Annul. Meet. Am. Nucl. Soc., Nashville, TN, Jun. 7–11,1998* (Jun. 1998).

D. L. Bentzinger, R. B. Perez, J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, “Design of a Californium Source-Driven Measurement System for Accountability of Material Recovered from the Molten Salt Reactor Experiment Charcoal Bed,” *Proc. Annul. Meet. Am. Nucl. Soc., Nashville, TN, Jun. 7–11, 1998*. (Jun. 1998).

M. S. Wyatt, T. Uckan, J. T. Mihalczo, T. E. Valentine, and T. F. Hannon, “Characterization of an Enriched Uranyl Fluoride Deposit in a Valve and Pipe Intersection Using Time-of-Flight Transmission Measurements with ^{252}Cf,” Inst. of Nuclear Materials Management Meet., Naples, FL, Jul. 26–30, 1998 (Jul. 1998).

J. March-Leuba, T. Uckan, J. Sumner, J. Mattingly, and J. T. Mihalczo, “Calibration measurements using the ORNL fissile mass flow monitor”, Institute of Nuclear Materials Management (INMM) Annual Meeting, Naples, FL (United States, (Jul. 26–30, 1998). [OSTI #290821]

D. Ginestar, R. B. Perez, T. E. Valentine, J. K. Mattingly, J. T. Mihalczo, and L. Weems, “Characterization of Active Neutron Signatures in the Time Domain” Int. Conf. on Physics of Nuclear Science and Technology, Long Island, NY, Oct. 5–8, 1998 (Oct. 1998).

T. Uckan, M. S. Wyatt, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, T. F Hannon, “Enriched Uranyl Fluoride Deposit Characterizations Using Active Neutron and Gamma Interrogation Techniques with ^{252}Cf,” 1st Int. Symp. on Detection and Analysis of Subsurface Objects and Phenomena, Naval Postgraduate School, Monterey, CA, Oct. 19–23, 1998 (Oct 1998).

M. S. Wyatt, T. Uckan, J. T. Mihalczo, T. E. Valentine, T. E. Hannon, “Physics of Enriched Uranyl Fluoride Deposit Characterizations Using Active Neutron and Gamma Interrogation Techniques with ^{252}Cf,” Int. Conf. on Physics of Nuclear Science and Technology, Long Island, NY, Oct. 5–8, 1998 (Oct. 1998).

J. K. Mattingly, T. E. Valentine, J. T. Mihalczo, R. B. Perez, “Multivariate High Order Statistical Signatures for Enhanced Analysis of Source-Driven Subcritical Measurements,” Int. Conf. on Physics of Nuclear Science and Technology, Long Island, NY, Oct. 5–8, 1998 (Oct. 1998).

M. S. Wyatt, “Physics of Enriched Uranyl Fluoride Deposit Characterizations Using Active Neutron and Gamma Interrogation Techniques with ^{252}Cf,” *Proc. Int. Conf. on Physics of Nuclear Science and Technology, Long Island, NY, Oct. 5–8, 1998* (Oct. 1998).

M. J. Paulus, J. T. Mihalczo, T. E. Valentine, J. A. Mullens, J. E breeding, T. Uckan, J. K. Mattingly, G. Turner, M. C. Smith, and J. A. McEvers, “A Novel Method for Determining Pulse Counting Circuitry Dead Time Using the Nuclear Weapons Identification System,” *IEEE Transactions on Nuclear Science*, vol. 45 no. 3, pp. 710–714 (1998).

T. E. Valentine, J. T. Mihalczo, R. B. Perez, and Mattingly, “Physics of the ^{252}Cf-Source-Driven Noise Analysis Measurement,” Report: CONF-970607-3 Conference/Journal: ARS '97: American Nuclear Society (ANS) International Meeting on Advanced Reactors Safety, Orlando, FL (Jun. 1–5, 1997).

J. T. Mihalczo, “Prompt Neutron Decay for Loosely Coupled Delayed Critical 38.1-cm.-diam Uranium (93.2) Metal Cylinders,” *Transactions of the American Nuclear Society*, vol. 75, Winter Meeting of the American Nuclear Society (ANS) and the European Nuclear Society (ENS) Washington, DC (Dec. 1997). [OSTI #426526]

J. T. Mihalczo and M. S. Wyatt, “Extrapolations to Critical for Systems with Large Inherent Sources,” American Nuclear Society Meeting, Albuquerque, NM (Nov. 16–20, 1997). [OSTI #633994]

J. T. Mihalczo and D. L. Bentzinger, “Two Delayed Critical Uranium (93.2) Metal Cylindrical Annuli with Central Be Moderation,” American Nuclear Society, 1997 Winter Meeting, Albuquerque, NM (Nov. 16–20, 1997). [OSTI #537358]

J. F. Zino, T. G. Williamson, and J. T. Mihalczo, “Proposed Subcritical Measurements for Fresh and Spent Highly Enriched Plate Type Fuel Assemblies,” Report: TANSAO, 077; WSRC-MS--97-0451 Conference/Journal: Transactions of the American Nuclear Society (Nov. 1997).

R. B. Perez, T. E. Valentine, J. T. Mihalczo, and R. K. Mattingly, “Determination of the Multiplication Factor and its Bias by the ^{252}Cf Source Technique,” Joint International Conference on Mathematical Methods and Super Computing for Nuclear Applications, Saratoga Springs (Oct. 1997). [OSTI #527891]

J. T. Mihalczo, W. T. King, and T. E. Valentine, “Subcritical Measurements with A Cylindrical Tank of Pu-U Nitrate,” American Nuclear Society, Chelan, WA, (Sept. 7–10, 1997). [OSTI #515564]

J. T. Mihalczo, T. E. Valentine, J. A. Mullens, and J. K. Mattingly, “Nuclear Weapons Identification System (NWIS),” War Head Signatures PRG Meeting, Albuquerque, NM (Aug. 5, 1997).

J. A. March-Leuba, J. K. Mattingly, J. A. Mullens, T. E. Valentine, J. T. Mihalczo, and R. B. Perez, “Methodology for Interpretation of Fissile Mass Flow Measurements,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997).

J. K. Munro Jr., T. E. Valentine, R. B. Perez, J. K. Mattingly, J. March-Leuba, and J. T. Mihalczo, “Fission Product Range Effects of HEU Fissile Mass Monitoring for HEU Blenddown,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997).

J. K. Mattingly, J. March-Leuba, T. E. Valentine, J. T. Mihalczo, and T. Uckan, “Physics Design of Fissile Mass Flow Monitoring System for Transparency in High-Enriched Uranium Blenddown,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997). [OSTI #517004]

J. T. Mihalczo, J. March-Leuba, T. E. Valentine, R. A. Abston, J. K. Mattingly, T. Uckan, and M. S. Wyatt, “UF_6 Fissile Mass Flow Simulation at the Oak Ridge National Laboratory,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997). [OSTI #516997]

M. J. Paulus, T. Uckan, R. Lenarduzzi, J. A. Mullens, K. N. Castleberry, D. E. McMillan, and J. T. Mihalczo, “Detector and Front-End Electronics of a Fissile Monitoring System for Transparency in High Enriched Uranium Blenddown,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ, (Jul. 20–24, 1997). [OSTI #516989]

T. E. Valentine, J. T. Mihalczo, and J. A. Mullens, “NWIS Signatures for Identification of Weapons Components at the Oak Ridge Y-12 Plant,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997).

T. E. Valentine and J. T. Mihalczo, “Evaluation of Plutonium Oxidation Analysis Using Pulsed Neutron Measurements With ^{252}Cf,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997). [OSTI #522712]

J. E. Breeding, J. A. Mullens, G. W. Turner, T. E. Valentine, J. A. McEvers, J. T. Mihalczo, and T. A. Gafford, “New NWIS Processor for Fissile System Verification,” Institute of Nuclear Materials Management Meeting, Phoenix, AZ (Jul. 20–24, 1997).

J. A. Mullens, T. E. Valentine, and J. T. Mihalczo, “Pattern Recognition Algorithms for Comparing NWIS Signatures for Weapons Components,” Institute of Nuclear Materials Management Meeting, Phoenix AZ (Jul. 20–24, 1997).

J. T. Mihalczo and M. S. Wyatt, “Potassium Reactivity Worth in a ^{235}U Fission Spectrum Critical Assembly,” American Nuclear Society 1997 Annual Meeting, Orlando, FL (Jun. 1–5, 1997).

T. E. Valentine, J. T. Mihalczo, R. B. Perez, and J. K. Mattingly,” Physics of the ^{252}Cf-Source-Driven Noise Analysis Measurement,” American Nuclear Society Annual Meeting, Orlando, FL (Jun. 1–5, 1997). [OSTI #515564]

J. T. Mihalczo, T. E. Valentine, J. A. Mullens, and J. K. Mattingly, "^{252}Cf-Source-Driven Time and Frequency Analysis Methods for Nuclear Control and Accountability," American Nuclear Society 1997 Annual Meeting, Orlando, FL (Jun. 1–5, 1997).

J. T. Mihalczo, T. E. Valentine, J. K. Mattingly, and R. B. Perez, "Subcriticality Measurements by ^{252}Cf-Source-Driven Frequency Analysis," 5th International Conference on Nuclear Engineering, Nice, France, May 26–30, 1997 (May 1997).

J. T. Mihalczo, T. E. Valentine, and J. A. Mullens, "Nonintrusive Nuclear Weapons/Component Identification System for International Inspections," 5th International Conference on Nuclear Engineering, Nice, France (May 26–30, 1997).

J. T. Mihalczo, T. E. Valentine, and J. A. Mullens, "Non-Intrusive 252Cf-Source-Driven Correlations for Verification of Nuclear Weapons Components in Storage," Russian International Conference on Nuclear Material Protection, Accounting, and Control, Obninsk, Russia (Mar. 9–14, 1997).

R. B. Perez, T. E. Valentine, J. T. Mihalczo, and J. K. Mattingly., "Determination of the Multiplication Factor and its Bias by the ^{252}Cf-Source Technique: A Method for Code Benchmarking at Subcritical Configurations," Proceedings Topical Meeting of the Am. Nucl. Soc., Saratoga, N. Y Conference/Journal: Joint International Conference on Mathematical Methods and Supercomputing in Nuclear Applications, Saratoga Springs, NY (Oct. 6–10, 1997)

J. T. Mihalczo, J. K. Mattingly, and T. E. Valentine, "Evaluation of ^{252}Cf-Source-Driven Frequency Analysis, Measurements for NDA of Dry Spent-Fuel Storage Casks," *Trans. Amer. Nucl. Soc*., vol. 75, pp. 98–100 (1996). [OSTI #395574]

J. T. Mihalczo, J. A. Mullens, J. E. Breeding, T. E. Valentine, V. K. Pare, D. E. McMillan, T. A. Gafford, R. R. Bentz, G. W. Turner, M. C. Smith, J. A. McEvers, J. K. Mattingly, R. I. Vandermolen, E. D. Blakeman, M. J. Paulus, and T. Uckan, "New Processor for Subcritical Fissile System Measurements for Nuclear Criticality Safety," *Trans. Amer. Nucl. Soc*., vol. 75, pp. 178–179 (1996).

J. T. Mihalczo, D. P. Hutchinson, J. A. Williams, and L. H. Thacker, "Criticality Evacuation Detectors That Locate the Accident Site," *Trans. Amer. Nucl. Soc*., vol. 75, pp. 184–186 (1996).

J. T. Mihalczo, "Prompt Neutron Decay for Very Loosely Coupled Delayed Critical 38.1-cm-diam Uranium (93.2) Metal Cylinders," *Trans. Amer. Nucl. Soc*., vol. 75, pp. 350–351 (1996).

Cao, Z., Miller, L. F., J. T. Mihalczo, "Total Cross-Section Neutron Time-Of-Flight Measurements with a ^{252}Cf Source as a Nuclear Engineering Laboratory Experiment," Report: TANSAO, 074, 026-027 Conference/Journal: *Transactions of the American Nuclear Society Conference Session: Innovations in Nuclear Engineering Educations and Training* (Jun. 1, 1996)

J. T. Mihalczo, "Oak Ridge Presentation to the Radiation Detector Panel (RDP) of DOE-DP-NN-20," RDP Meeting, Washington, DC (Sept. 1996).

J. T. Mihalczo, "Prompt Neutron Decay Constants for a Delayed Critical Configuration of the Oak Ridge Unreflected and Unmoderated Uranium Metal Sphere," PHYSOR '96 Conference, Mito, Japan, (Sept. 1996). [OSTI #378175]

J. T. Mihalczo, T. E. Valentine, E. D. Blakeman, and W. T. King, "^{252}Cf-Source-Driven Frequency Analysis Measurements with Subcritical Arrays of PWR Fuel Pins," PHYSOR '96 Conference, Mito, Japan (Sept. 1996).

T. E. Valentine and J. T. Mihalczo, "Time Delays Between Core Power Production and External Detector Response from Monte Carlo Calculations," PHYSOR '96 Conference, Mito, Japan (Sept. 1996). [OSTI #373764]

J. T. Mihalczo, J. A. Mullens, J. A. March-Leuba, T. E. Valentine, J. K. Mattingly, and R. A. Abston, "Source Modulation–Correlation Measurements for Fissile Mass Flow in Gas or Liquid Fissile Streams," accepted for presentation at the Institute of Nuclear Materials Management 37th Annual Meeting, Naples, FL (Jul. 1996).

J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, "Feasibility of Fissile Mass Assay of Spent Fuel Using ^{252}Cf Source Driven Frequency Analysis," Institute of Nuclear Materials Management 37th Annual Meeting, Naples, FL (Jul. 1996). [OSTI #391688]

T. E. Valentine, J. K. Mattingly, and J. T. Mihalczo, "Dry spent fuel cask monitoring by the 253 Cf-source-driven frequency analysis measurements," Institute of Nuclear Materials Management 37th. Annual Meeting, Naples, FL (Jul. 1996). [OSTI #395574]

J. T. Mihalczo, V. K. Paré, E. D. Blakeman, and T. E. Valentine, "Time and Frequency Analysis Measurements for a ^{242}Pu Metal Ring Using ^{252}Cf," Institute of Nuclear Materials Management 37th. Annual Meeting, Naples, FL (Jul. 1996). [OSTI #379407]

T. E. Valentine, J. K. Mattingly, and J. T. Mihalczo, "Dry Spent Fuel Cask Monitoring by ^{252}Cf Source Driven Frequency Analysis Measurements," Institute of Nuclear Materials Management 37th Annual Meeting, Naples, FL (Jul. 1996).

J. T. Mihalczo, V. K. Paré, E. D. Blakeman, and T. E. Valentine, "NWIS Signatures for Trainer Confirmation at the Oak Ridge Y-12 Plant," Institute of Nuclear Materials Management 37th Annual Meeting, Naples, FL (Jul. 1996).

J. T. Mihalczo, seminar at Bettis Atomic Power Laboratory on "Application of ^{252}Cf Noise Measurements to Naval Reactor Spent Fuel," Pittsburgh, PA (Jun. 25–26, 1996).

J. T. Mihalczo, J. March-Leuba, J. K. Mattingly, R. A. Abston, T. E. Valentine, R. B. Perez, J. A. Mullens, T. Uckan, and M. S. Wyatt, "Source Modulation Correlation Measurements for Fissile Mass Flow in UF_6 Blenddown," presentation to DOE Nuclear Energy, Germantown, MA (Jun. 7, 1996).

J. T. Mihalczo, "Oak Ridge Presentation to the Radiation Detector Panel (RDP) of DOE DP-NN-20," RDP Meeting, Richland, WA (May 1996).

Valentine, T. E., J. T. Mihalczo, Y. Naito, T. Yamamoto, T. Arakawa, K. Sakurai, "MCNP-DSP: Estimation of Subcriticality of TCA Using Indirect Estimation Method for Calculation Error," Conference/Journal: PHYSOR '96: International Conference on the Physics of Reactors, Mito, Japan Sept. 16–20, 1996 (Sept. 1996).

J. T. Mihalczo, "Interacting Delayed Critical 38.1-cm-diam Uranium (93.2) Metal Cylinders At large Distance," American Nuclear Society Annual Meeting, Reno, NV, *Trans. Amer. Nucl. Soc.*, vol. 74, no. 195 (1996).

T. E. Valentine, J. T. Mihalczo, W. T. King, and E. D. Blakeman, "Neutron Multiplication Factor and Calculational Bias from ^{252}Cf-Source-Driven Frequency Analysis Measurements with Subcritical Arrays of PWR Fuel Pins," American Nuclear Society Annual Meeting, Reno, NV, *Trans. Amer. Nucl. Soc.*, vol. 74, pp. 192–194 (1996).

Zhong Cao, L. F. Miller, and J. T. Mihalczo, "Total Cross Section Neutron Time-of-Flight Measurements with a Cf-252 Source as a Nuclear Engineering Laboratory Experiment," American Nuclear Society Annual Meeting, Reno, NV, *Trans. Amer. Nucl. Soc*., vol. 74, pp. 26–27 (1996).

J. T. Mihalczo, T. E. Valentine, and J. K. Mattingly, "Feasibility of Subcriticality and NDA Measurements for Spent Fuel by Frequency Analysis Techniques with ^{252}Cf," 883–891 in *Proceedings of the Topical Meeting on Nuclear Plant Instrumentation, Control and Human–Machine Interface Technologies*, University Park, Pennsylvania, American Nuclear Society, vol. II, pp. 883–891 (1996). [OSTI #228510]

J. T. Mihalczo, T. E. Valentine, and J. K. Mattingly, "Feasibility of Fissile Mass Assay of Spent Fuel Using ^{252}Cf-Source-Driven Frequency-Analysis," presented at the National Spent Fuel Program Non-Destructive Assay (NDA) Meeting, Idaho Falls, ID (Feb. 1996). [OSTI #228510]

J. T. Mihalczo, V. K. Pare, E. D. Blakeman, Valentine, T. E., Vessard, S., N. L. Pruvost, "Time and Frequency Domain Measurements for Plutonium Metal Rings," Report: CONF-960767-65 Conference/Journal: Annual Meeting of the Institute of Nuclear Materials Management, Naples, FL (Jul. 28–31, 1996).

T. E. Valentine and J. T. Mihalczo, "Validation Bias and Uncertainty from Subcritical Experiments with an HEU Storage Vault," American Nuclear Society 1995 Winter Meeting, San Francisco, CA, *Trans. Amer. Nucl. Soc.*, vol. 73, pp. 227–228 (1995).

J. K. Mattingly, T. E. Valentine, and J. T. Mihalczo, "Sensitivity of Calculations of the ^{252}Cf-Source-Driven Noise Analysis Measurements to Fission Product Content of Sandia Spent Fuel Experiment Assembly," American Nuclear Society 1995 Winter Meeting, San Francisco, CA, *Trans. Amer. Nucl. Soc*., vol. 73, pp. 228–229 (1995).

J. T. Mihalczo, "Heterogeneous Critical Assemblies of Enriched Uranium Metal Plates and Polyethylene," American Nuclear Society 1995 Winter Meeting, San Francisco, CA, *Trans. Amer. Nucl. Soc*., vol. 73, pp. 219–220 (1995). [OSTI #411655]

P. E. Koehler, J. A. March-Leuba, J. K. Mattingly, J. T. Mihalczo, J. A. Mullens, V. K. Paré, R. B. Perez, L. D. Phillips, J. A. Thie, T. Uckan, and T. E. Valentine, "Active Neutron Interrogation Using Noise Analysis Methods for UF_6 Flow and Enrichment in HEU Blenddown," presented to DOE NE at Oak Ridge National Laboratory (Oct. 13, 1995).

J. T. Mihalczo, T. E. Valentine, J. A. Mullens, J. March-Leuba, and J. K. Mattingly, "Source Modulation-Uranium Activation for Flow Measurement with UF_6," presented at the Central Region Chapter Annual Meeting of Institute of Nuclear Materials Management, Oak Ridge, TN, (Oct. 1995).

J. T. Mihalczo, "Oak Ridge Presentation to the Radiation Detector Panel (RDP) of DOE DP-NN-20, RDP Meeting, Los Alamos, NM (Oct. 1995).

T. E. Valentine, J. T. Mihalczo, and P. E. Koehler, "Calculated NWIS Signatures for Enriched Uranium Metal," *Proceedings of the 36th. Annual Meeting of Institute of Nuclear Materials Management*, Palm Desert, CA, vol. XXIV, pp. 388–393 (1995). [OSTI #225391]

J. T. Mihalczo, V. K. Paré, G. W. Turner, and J. R. Fisher, "A New Processor for NDA and Confirmatory Measurements Based on NWIS Signatures," *Proceedings of the 36th. Annual Meeting of Institute of Nuclear Materials Management*, Palm Desert, CA, vol. XXIV, pp. 836–831 (1995). [OSTI #225376]

J. T. Mihalczo and V. K. Paré, "NWIS Signatures for Confirmatory Measurements with B_{33} Trainers," *Proceedings of the 36th. Annual Meeting of Institute of Nuclear Materials Management*, Palm Desert, California, vol. XXIV, pp. 848–855 (1995). [OSTI #225377]

T. E. Valentine and J. T. Mihalczo, "Monte Carlo Verification of Point Kinetics for Safety Analysis of Nuclear Reactors," presented at the 7th. Symposium on Nuclear Reactor Surveillance and Diagnostics, Avignon, France (Jun. 1995). [OSTI #73014]

J. T. Mihalczo, "A Small Graphite-Reflected UO_2 Critical Assembly," *Proceedings of the ICNC '95, The Fifth International Conference on Nuclear Criticality Safety*, Albuquerque, NM, pp. 6.11–6.17 (1995). [OSTI #90207]

J. T. Mihalczo and T. E. Valentine, "Bias in Calculated keff from Subcritical Measurements by the ^{252}Cf-Source-Driven Noise Analysis Method," *Proceedings of the ICNC '95, The Fifth International Conference on Nuclear Criticality Safety*, Albuquerque, NM, pp. 13.42–13.50 (1995). [OSTI #95236]

T. E. Valentine and J. T. Mihalczo, "MCNP-DSP Calculations of the ^{252}Cf-Source-Driven Noise Analysis Measurements of High-Enriched Uranium Metal Cylinders," *Proceedings of the ICNC '95, The Fifth International Conference on Nuclear Criticality Safety*, Albuquerque, NM, 6.85–6.90 (1995). [OSTI #96845]

J. T. Mihalczo, T. E. Valentine, and L. D. Phillips, "Subcritical Measurements for Calculational Verification of HEU Tube Vault Storage at the Oak Ridge Y-12 Plant," *Proceedings of the ICNC '95, The Fifth International Conference on Nuclear Criticality Safety*, Albuquerque, NM, pp. 11.109–11.112 (1995). [OSTI #162496]

J. T. Mihalczo, "A Small Beryllium-Reflected UO_2 Critical Assembly," American Nuclear Society Meeting, Philadelphia, PA, *Trans. Amer. Nucl. Soc.*, vol. 72, pp. 196–198 (1995).

T. E. Valentine and J. T. Mihalczo, "MCNP-DSP: A Code for Calculations of Time and Frequency Analysis Parameters for Subcritical Systems," American Nuclear Society Meeting, Philadelphia, PA, *Trans. Amer. Nucl. Soc.*, vol. 72, pp. 164–165 (1995).

T. E. Valentine and J. T. Mihalczo, "Validation of the MCNP-DSP Monte Carlo Code for Calculating Source-Driven Noise Parameters of Subcritical Systems," American Nuclear Society Meeting, Philadelphia, PA, *Trans. Amer. Nucl. Soc.*, vol. 72, pp. 165–166 (1995).

J. T. Mihalczo et al., "^{252}Cf Use in Physics Measurements," Californium-252 Users Workshop, Oak Ridge, TN, April 17–20, 1995 (1995).

G. Hansen and J. T. Mihalczo "Central Reactivity Worth Measurements," 22 in *Proceedings of the Nuclear Criticality Technology and Safety Project Workshop,* Monterey, CA, April 16–20, 1993, LA-12672-C, Los Alamos National Laboratory, (Jan. 1994).

J. T. Mihalczo, "Pulsed Reactor Experiments at Oak Ridge," *Proceedings of the Topical Meeting on Physics, Safety, and Applications of Pulse Reactors*, American Nuclear Society, Washington, DC, Nov. 13–17, 1994, pp. 44–50 (1994). [OSTI #224570]

J. T. Mihalczo, L. D. Phillips. G. D. Ellis, and T. E. Valentine, "Neutron Transmission Properties of Concrete for an HEU Storage Vault from TOF Transmission Measurements with a ^{252}Cf Source," 1994 Winter Meeting of the American Nuclear Society, November 13–17, 1994, Washington, DC, *Trans. Am. Nucl. Soc.*, vol. 71, pp. 275–276 (1994). [OSTI #183135]

J. T. Mihalczo, L. D. Phillips, T. E. Valentine, and J. W. Potter, "Neutron Importance and Count Rate Distribution Measurements in a Highly Enriched Uranium (HEU) Metal Storage Vault," Annual Meeting of the American Nuclear Society, New Orleans, LA, Jun. 19–23, 1994, *Trans. Am. Nucl. Soc.*, vol. 70, pp. 193–194 (1994). [OSTI #75967]

H. L. Dodds, C. M. Hopper, J. T. Mihalczo, J. T. Thomas, and R. M. Westfall, "Nuclear Criticality Safety Courses at the University of Tennessee-Knoxville," Transactions of the American Nuclear Society; Journal Volume: 70; Conference: 35. Annual Meeting of the American Nuclear Society, New Orleans, LA (Jun. 1994). [OSTI #75754]

T. E. Valentine, J. March-Leuba, and J. T. Mihalczo, "Monte Carlo Verification of Point Kinetics for Safety Analysis of the Advanced Neutron Source Reactor," Annual Meeting of the American Nuclear Society, New Orleans, LA, Jun. 19–23, 1994, *Trans. Am. Nucl. Soc.*, vol. 70, pp. 366–368 (1994).

T. E. Valentine, J. T. Mihalczo, and J. W. Potter, "Sensitivity of Calculations of ^{252}Cf-Source-Driven Noise Analysis Measurements to Cross-Sections for Aqueous Fissile Plutonium Solutions," *Proceedings of the Topical Meeting on Advances in Reactor Physics*, Knoxville, TN, April 11–15, 1994, CONF-940407-7, pp. 385–392 (1994). [OSTI #10128614]

J. T. Mihalczo, A. W. Krass, T. E. Valentine, and E. P. Ficaro, *"Validation of Criticality Safety Calculations with Subcriticality Measurements by the ^{252}Cf-Source-Driven Noise Method,"* 35–49 in

Proceedings of the First Annual Nuclear Criticality Safety Technology Project, Gaithersburg, Maryland, May 12–14, 1992, LA-12556-C, Los Alamos National Laboratory (Sept. 1994).

T. E. Valentine and J. T. Mihalczo, "^{252}Cf-Source-Driven Noise Analysis Measurements for Characterization of Concrete Highly Enriched Uranium (HEU) Storage Vaults," *Trans. Am. Nucl. Soc*., vol. 69, 246–249 (1993).

J. T. Mihalczo, J. J. Lynn, J. R. Taylor, and G. E. Hansen, "Measurements with an Unreflected Uranium (93.2%) Metal Sphere," *Proceedings of the Topical Meeting on Physics and Methods in Criticality Safety, Nashville, Tennessee, September 19–23*, American Nuclear Society, 26–33 (1993). [OSTI #10157031]

T. E. Valentine and J. T. Mihalczo, "Sensitivity of Calculations of ^{252}Cf-Source-Driven Noise Analysis Measurements to Cross Sections for Aqueous Fissile Solutions," *Proceedings of the Topical Meeting of the American Nuclear Society, Nashville, Tennessee, September 19–23, 1993*, CONF-930907-12 (1993).

J. T. Mihalczo and G. E. Hansen, "Measurements on an Unreflected Uranium (93.2%) Metal Sphere," Topical Meeting of the American Nuclear Society, Nashville, TN September 19–23 (1993).

J. T. Mihalczo, E. P. Ficaro, and T. E. Valentine, "Validating Criticality Safety Calculations with ^{252}Cf-Source-Driven Subcriticality Measurements," Topical Meeting of the American Nuclear Society, Nashville, TN September 19–23, (1993).

J. T. Mihalczo, "Use of Noise Analysis Methods in Process Monitoring of Future Fuel Cycles," *Proceedings of Global '93: Future Nuclear Systems—Emerging Fuel Cycles and Waste Disposal Options, Seattle, September 12–17, 1993,* CONF-930913-24 (1993). [OSTI #10183449]

M. L. Simpson, L. A. Boatner, D. E. Holcomb, S. A. McElhaney, J. T. Mihalczo, J. D. Muhns, M. R. Roberts, and N. W. Hill, "Passive Sensor Systems for Nuclear Material Monitoring," *Proceedings of the 34th Annual Meeting of Institute of Nuclear Materials Management, Scottsdale, AZ, Jul. 18–21, 1993* CONF-930749-73 (1993). [OSTI #10187820]

J. T. Mihalczo, "Uranium Metal Enrichment from Time Correlation Measurements with ^{252}Cf," *Proceedings of the 34th Annual Meeting of the Institute of Nuclear Materials Management, Scottsdale, AZ, Jul. 18–21, 1993,* CONF-930749-73 (1993).

J. T. Mihalczo, "Portable Nuclear Weapons and Fissile Material Identification System," *Proceedings of the 34th Annual Meeting of the Institute of Nuclear Materials Management, Scottsdale, Arizona, Jul. 18–21, 1993*, CONF-930749-73 (1993).

J. T. Mihalczo, J. J. Lynn, J. R. Taylor, T. E. Valentine, and V. K. Pare´, "The Central Worth in an Enriched Uranium (93.2) Metal Sphere," Annual Meeting of the American Nuclear Society, San Diego, Jun. 20–24, 1993, *Trans. Am. Nucl. Soc*., vol. 68(Pt. A), 441–442 (1993). [OSTI #10157031]

T. E. Valentine and J. T. Mihalczo, "Coupling of External Detector to the Advanced Neutron Source Reactor Core," Annual Meeting of the American Nuclear Society, San Diego, Jun. 20–24, 1993, *Trans. Am. Nucl. Soc*., vol. 68(Pt. A), pp. 437–438 (1993).

T. E. Valentine and J. T. Mihalczo, "Coupling of an External Detector to the Advanced Neutron Source Reactor Core," *Trans. Am. Nucl. Soc*., vol. 67, 437–438 (Jun. 1993).

S. A. McElhaney, J. T. Mihalczo, and M. L. Simpson, "Dual Neutron Flux/Temperature Measurement Sensor," Nuclear Plant Instrumentation, Control, and Man-Machine Interface Technologies, Oak Ridge, TN (April 18–21,1993).

T. E. Valentine and J. T. Mihalczo, "Subcriticality of Advanced Neutron Source Reactor Fuel Elements During Fueling," American Nuclear Society Meeting, Chicago, November 15–20, 1992, *Trans. Am. Nucl. Soc*. vol. 66, pp. 289–291 (1992).

J. T. Mihalczo, "Accelerator Source Driven Noise Analysis for Subcriticality Monitoring of Multipliers for Transmutation of LWR Waste," American Nuclear Society Meeting, Chicago, Nov. 15–20, 1992, *Trans. Am. Nucl. Soc.*, vol. 66, pp. 528–529 (1992).

T. E. Valentine and J. T Mihalczo, "Feasibility of Monitoring Subcriticality During Fueling of the Advanced Neutron Source Reactor," American Nuclear Society Meeting, Chicago, Nov, 15–20, 1992, *Trans. Am. Nucl. Soc.* vol. 66, pp. 451–453 (1992).

M. M. Chiles, J. T. Mihalczo, and C. E. Fowler, "Small, Annular, Double-Contained ^{252}Cf Fission Chamber for Source-Driven Subcriticality Measurements," Institute of Electrical and Electronics Engineers Nuclear Science Symposium, Orlando, FL, Oct. 27–31, 1992, *IEEE Trans. Nucl. Sci*. 40, 816–818 (1993). [OSTI #10162993]

S. A. McElhaney, D. D. Falter, R. A. Todd, M. L. Simpson, and J. T. Mihalczo, "Passive (Self-Powered) Fiber-Optic Sensors," vol. 1, pp. 101–103, in *Institute of Electrical and Electronics Engineers Nuclear Science Symposium, Orlando, FL, October 27–31, 1992*, IEEE, (1993). [OSTI #10187920]

J. T. Mihalczo, "Validation of Calculations with Subcritical Experiments by the ^{252}Cf Source Driven Noise Analysis Method," Nuclear Criticality Safety Meeting, Breckenridge, CO (Aug. 27–28, 1992). [OSTI #10180603]

J. T. Mihalczo, A. W. Krass, and T. E. Valentine, "Validating Criticality Calculations for Spent Fuel with ^{252}Cf-Source Driven Noise Measurements," *Proceedings of the 33rd Annual Meeting of the Institute of Nuclear Materials Management, Orlando, FL, Jul. 19–22, 1992,* CONF-9207102-49 (1992). [OSTI #10170877]

A. W. Krass, T. E. Valentine, and J. T. Mihalczo, "Sensitivity of the ^{252}Cf-Source-Driven Noise Analysis Method to Fission Product Content of Spent LWR Fuel," Annual Meeting of the American Nuclear Society, Boston, Jun. 7–12, 1992, *Trans. Am. Nucl. Soc*., vol. 65, no. 252 (1992).

T. E. Valentine and J. T. Mihalczo, "High Sensitivity of the Neutron Noise Analysis Method to Presence of Cd in HFIR Fuel Storage Racks," Annual Meeting of the American Nuclear Society, Boston, Jun. 7–12, 1992, *Trans. Am. Nucl. Soc*., vol. 65, pp. 252 (1992).

J. T. Mihalczo, E. D. Blakeman, V. K. Paré, and T. E. Valentine, "Validation of Monte Carlo Calculations for Two Interacting Slab Tanks by Simulation of ^{252}Cf Source Driven Noise Measurements," Topical Meeting on Advances in Reactor Physics, Charleston, SC (Mar. 8–11, 1992).

J. T. Mihalczo, V. K. Paré, and T. E. Valentine, "Monte Carlo Simulations of Detection Effects in ^{252}Cf-Source-Driven Subcriticality Measurements," American Nuclear Society 1991 Winter Meeting, San Francisco, Nov. 12–14, 1991, *Trans. Am. Nucl. Soc.* vol. 64, pp. 541–41 (1991).

J. T. Mihalczo, E. D. Blakeman, and T. E. Valentine, "Modal Correction Factors for ^{252}Cf-Source-Driven Subcriticality Measurements with Uranyl Nitrate," American Nuclear Society 1991 Winter Meeting, San Francisco, Nov. 12–14, 1991, *Trans. Am. Nucl. Soc.*, vol. 64, no. 543 (1991).

T. E. Valentine and J. T. Mihalczo, "Calculation Validation with Monte Carlo Simulations of ^{252}Cf-Source-Driven Subcriticality Measurements," American Nuclear Society 1991 Winter Meeting, San Francisco, Nov. 12–14, 1991, *Trans. Am. Nucl. Soc.*, vol. 64, pp. 360–362 (November 1991).

J. T. Mihalczo, V. K. Paré, and E. D. Blakeman, "The ^{252}Cf-Source-Driven Noise Measurements of Unreflected Uranium Hydride Cylinders," *Trans. Am. Nucl. Soc.* vol. 63, no. 221 (1991).

J. T. Mihalczo, V. K. Paré, and E. D. Blakeman, "Fission Chain Length Effects on Californium-Source-Driven Subcriticality Measurements," *Adv. Math. Comput. React. Phys.* 1, vol. 5.1, pp. 1.1–1.8 (1991).

V. K. Paré, E. D. Blakeman, J. T. Mihalczo, C. W. Ricker, and T. E. Valentine, "Portable Subcriticality Measurement System with Calculational Validation Capacity," *Proceedings of the ICNC '91*

International Conference on Nuclear Criticality Safety, Oxford, England, Sept. 9–13, 1991, vol. 2, pp. VI.1–VI (1991).

J. T. Mihalczo and B. L. Broadhead, "Feasibility of Spent LWR Fuel Subcriticality Measurements by the Cf Noise Method," *Trans. Am. Nucl. Soc.*, vol. 62, no. 322 (1990).

J. T. Mihalczo and E. D. Blakeman, "Safer Fuel Loading and Initial Reactor Startup Using the ^{252}Cf Source Driven Noise Analysis Method," *Trans. Am. Nucl. Soc.*, vol. 61, no. 244 (1990).

J. T. Mihalczo, N. W. Hill, and E. D. Blakeman, "Detection System Characteristics Using Cf Ionization Chambers," *Proceedings of the 7th Symposium on Radiation Measurements and Applications,* University of Michigan (May 1990).

J. A. Williams, J. T. Mihalczo, C. W. Ricker, F. L. Glesius, and T. A. Kniss, "A High Sensitivity Position Sensitive Fission Chamber for Subcriticality Measurement of Spent Fuel," *Proceedings of the 7th Symposium on Radiation Measurements and Applications,* University of Michigan (1990).

J. T. Mihalczo, E. D. Blakeman, and V. K. Paré, "Detector Effects in ^{252}Cf-Source-Driven Noise Analysis Measurements," *Proceedings of the International Topical Meeting on Safety Margins in Criticality Safety,* American Nuclear Society, San Francisco, CA (1989).

J. T. Mihalczo, E. D Blakeman, and V. K. Paré, "Subcriticality of the Uranyl Nitrate Slab Tanks Spaced in Air by the ^{252}Cf-Source-Driven Noise Analysis Method," *Proceedings of the International Topical Meeting on Safety Margins in Criticality Safety,* American Nuclear Society, San Francisco, CA (1989).

J. T. Mihalczo, "Development of Portable Subcriticality Measurement System for Spent Fuel Shipping and Transportation Casks," *Proceedings of the Workshop on the Use of Burnup Credit in Spent Fuel Transport Casks,* Feb. 1988, SAND 890018, 285-301, Sandia National Laboratories (1989).

J. T. Mihalczo, "The ^{252}Cf Noise Analysis Method for In-Plant Criticality Safety," *Trans. Am. Nucl. Soc.,* vol. 56, pp. 334–335 (1988).

J. T. Mihalczo, E. D. Blakeman, and G. E. Ragan, "^{252}Cf-Source-Driven Noise Analysis Measurements for Six Interacting Safe Bottles of Aqueous Uranyl Nitrate," *Trans. Am. Nucl. Sci.* vol. 57, pp. 133–134 (1988). [OSTI #5523047]

J. T. Mihalczo, G. E. Ragan, and E. D. Blakeman, "A Portable Measurement System for Subcriticality Measurements by the Cf-Source-Driven Noise Analysis Method," *IEEE Trans. Nucl. Sci.*, vol. 35, no. I (Suppl.: 1987 IEEE Nuclear Science Symposium, San Francisco, CA, Oct. 21–23, 1987), pp. 12–23 (1988). [OSTI # 6219878]

M. M. Chiles, J. T. Mihalczo, and E. D. Blakeman, "High-Efficiency Scintillation Detector for Thermal and High-Energy Neutrons and Gamma Radiation," *IEEE Trans. Nucl. Sci.* 35(I) (Suppl.: 1987 IEEE Nuclear Science Symposium, San Francisco, CA, Oct. 21–23, 1987, pp. 110–111 (1988).

J. T. Mihalczo, E. D. Blakeman, and G. E. Ragan, "Subcritical Interaction Experiments with Four Safe Storage Bottles Containing Aqueous Uranyl Nitrate," *Proceedings of the International Seminar on Nuclear Criticality Safety,* Tokyo (Oct. 19–23, 1987).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, R. C. Robinson, H. Seino, T. Matsumoto, and H. Yamane, "^{252}Cf-Source-Driven Neutron Noise Measurements of Subcriticality for a Slab Tank Containing Aqueous Pu-U Nitrate," *Proceedings of the International Seminar on Nuclear Criticality Safety,* Tokyo (Oct. 19–23, 1987). [OSTI #6048203]

J. T. Mihalczo, E. D. Blakeman, and G. E. Ragan, "Subcritical Interaction Experiments with Four and Six Storage Bottles of Uranyl Nitrate Solution," *Proceedings of the International Seminar on Nuclear Criticality Safety,* Tokyo (Oct. 19–23, 1987).

J. T. Mihalczo, "Evaluation of the ^{252}Cf-Source-Driven Neutron Noise Analysis Method for Measuring the Subcriticality of LWR Fuel Storage Casks," Meeting of the American Nuclear Society, Los Angeles, *Trans. Am. Nucl. Soc.* (1987).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, R. C. Kryter, H. Seino, and R. C. Robinson, "^{252}Cf-Source-Driven Neutron Noise Measurements of Subcriticality for an Annular Tank Containing Aqueous Pu-U Nitrate," Fall Meeting of the American Nuclear Society, Los Angeles, *Trans. Am. Nucl. Soc.* (1987).

J. T. Mihalczo and G. E. Ragan, "A Portable Measurement System for Subcriticality Measurements by the Cf-Source-Driven Neutron Noise Analysis Method," *Proceedings of the Institute of Electrical and Electronics Engineers Nuclear Science Symposium,* San Francisco, CA (1987).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, and E. B. Johnson, "Dynamic Subcriticality Measurements Using the Cf Neutron Noise Methods," videotape for Meeting of the American Nuclear Society, Dallas, TX (1987).

J. T. Mihalczo, E. D. Blakeman, and G. E. Ragan, "^{252}Cf-Source-Driven Neutron Noise Measurements for Three Interacting Tanks of Uranyl Nitrate Solution," Meeting of the American Nuclear Society, Dallas, TX, Jun. 7–11, 1987, *Trans. Am. Nucl. Soc.*, vol. 54, pp. 208–209 (1987).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, E. B. Johnson, and H. Seino, "Dynamic Subcriticality Measurements Using the ^{252}Cf-Source-Driven Neutron Noise Method," Annual Meeting of the American Nuclear Society, Dallas, *Trans. Am. Nucl. Soc.*, vol. 54, pp. 207–208 (1987).

S. D. Scott, S. L. Halsted, J. F. Lyon, J. T. Mihalczo, G. H. Neilson, and J. A. Rome, "Ripple Studies in ISX-B," 22nd Annual Meeting of the American Physical Society, Division of Plasma Physics, San Diego, *Bull. Am. Phys. Soc.* (1986).

J. T. Mihalczo and W. T. King, "Noise Equivalent Source for Frequency Domain Measurements from the Spontaneous Fission of ^{252}Cf," Meeting of the American Nuclear Society, Washington, DC, *Trans. Am. Nucl. Soc.*, vol. 53, pp. 475–476 (1986). [OSTI #6685818]

G. E. Ragan and J. T. Mihalczo, "Prompt Neutron Decay Constant for the Oak Ridge Research Reactor with 20 wt. % ^{235}U Enriched Fuel," Meeting of the American Nuclear Society, Washington, DC, *Trans. Am. Nucl. Soc.* (1986).

J. T. Mihalczo, E. D. Blakeman, G. E. Ragan, and R.C. Kryter, "Subcritical Measurements Using the ^{252}Cf Source-Driven Neutron Noise Analysis Method," *Proceedings of the Topical Meeting of the American Nuclear Society, Reactor Physics and Safety*, Saratoga, NY, *Trans. Am. Nucl. Soc.* (1986).

J. T. Mihalczo, E. D. Blakeman, and W. T. King, "Subcriticality Measurements for Two Coupled Uranyl Nitrate Solution Tanks Using ^{252}Cf-Source-Driven Neutron Noise Analysis Methods," Meeting of the American Nuclear Society, Reno, NV, *Trans. Am. Nucl. Soc.*, vol. 52, pp. 640–642 (1986).

G. E. Ragan and J. T. Mihalczo, "Prompt Neutron Decay Constant for the Oak Ridge Research Reactor with 20 wt. % 235U Enriched Fuel," *Proceedings of the American Nuclear Society Topical Meeting on Reactor Physics and Safety,* Saratoga, NY, Sept. 17, 1986, NUREG/CP-0080 vol. 2, pp. 1139–1144, (Sept. 1986).

J. T. Mihalczo, W. T. King, and E. D. Blakeman, "Decoupling of Uranium Metal with Borated Plaster Using Cf-252 Noise Analysis Methods," *Trans. Am. Nucl. Soc.*, vol. 50, pp. 307–309 (1985).

J. T. Mihalczo, W. T. King, and E. D. Blakeman, "Cf-252-Source-Driven Neutron Noise Analysis Measurements for Coupled Uranium Metal Cylinders," Meeting of the American Nuclear Society, Boston, *Trans. Am. Nucl. Soc.*, vol. 49, pp. 241–243 (1985).

J. T. Mihalczo, W. T. King, and E. D. Blakeman, "^{252}Cf-Source-Driven Neutron Noise Analysis Method," Proceedings of the Subcriticality Reactivity Measurements Workshop, Albuquerque, NM, Aug. 26–29, 1985, CONF 8508105, pp. 254–285, (1985).

W. T. King, J. T. Mihalczo, and E. D. Blakeman, "Preliminary Investigation of the Cf-252-Source Driven Noise Analysis Method of Subcriticality Measurement in LWR Fuel Storage and Initial Loading Applications," Meeting of the American Nuclear Society, Washington, DC, *Trans. Am. Nucl. Soc.*, vol. 47, pp. 239–240 (1984).

J. T. Mihalczo and W. T. King, "Absolute Subcriticality Measurement Without Calibration and Detection Efficiency Dependence by the Cf-252 Source-Driven Noise Method," IEEE Nuclear Science Symposium, Orlando, FL, *IEEE Trans. Nucl. Sci.*, vol. NS-32, pp. 1012–1015 (1984).

J. T. Mihalczo, "Benchmarking Criticality Safety Calculations with Subcritical Experiments," Meeting of the American Nuclear Society, New Orleans, LA, *Trans. Am. Nucl. Soc.*, vol. 46, pp. 451–452 (1984). [OSTI #6648364]

J. T. Mihalczo, W. T. King, G. Verdu-Martin, and J. T. Munoz-Cobo, "Spatial Effect Corrections to Subcriticality Measurements by the Cf-252-Source-Driven Neutron Noise Analysis Method," Meeting of the American Nuclear Society, New Orleans, LA, *Trans. Am. Nucl. Soc.*, vol. 46, pp. 452–453 (1984).

J. T. Mihalczo, W. T. King, E. B. Johnson, and E. D. Blakeman, "Subcriticality Measurements for a Fuel Solution Tank with Changing Fuel Concentration using the CF-252-Source-DrivenNoise Analysis," Meeting of the American Nuclear Society, San Francisco, *Trans. Am. Nucl. Soc.*, vol. 45, pp. 337–338 (1983).

L. F. Miller, J. T. Mihalczo, E. G. Bailiff, N. D. Woody, and G. D. Gardner, "Nuclear Engineering Laboratory Self-Regulated Power Oscillation Experiments at the Health Physics Research Reactor," Meeting of the American Nuclear Society, Detroit, *Trans. Amer. Nucl. Soc.*, vol. 44, pp. 290–291 (1983). [OSTI #6895287]

W. T. King and J. T. Mihalczo, "Application of Cf-252-Source-Driven Neutron Noise Analysis Measurements for Subcriticality of HFIR Fuel Elements," Meeting of the American Nuclear Society, Detroit, *Trans. Am. Nucl. Soc.*, vol. 44, pp. 290–291 (1983).

J. T. Mihalczo and W. T. King, "Cf-252-Driven Neutron Noise Method for Measuring the Subcriticality of Submerged HFIR Fuel Elements," Meeting of the American Nuclear Society, Washington, DC, *Trans. Am. Nucl. Soc.*, vol. 43, pp. 408–409 (1982).

S. C. Bates, A. Carnevali, S. D. Scott, S. L. Halsted, J. F. Lyon, and J. T. Mihalczo, "Neutron and Charge Exchange Measurements of Ion Temperature in ISX-B," 24th Annual Meeting of the American Physical Society, Division of Plasma Physics, New Orleans, LA, *Am. Phys. Soc.* (1982).

J. T. Mihalczo, W. T. King, and J. A. Renier, "Calculated Ratios of Spectral Densities for Cf-252-Driven Neutron Noise Subcriticality Measurements with a 5%-U-235-Enriched Uranyl Fluoride Solution," Meeting of the American Nuclear Society, Los Angeles, *Trans. Am. Nucl. Soc.*, vol. 41, pp. 588–589 (1982).

J. T. Mihalczo and W. T. King, "Evaluation of an Alternate Three Detector Spectral Density Measurement for Determination of Subcriticality," Meeting of the American Nuclear Society, Washington, D.C., *Trans. Am. Nucl. Soc.*, vol. 43, pp. 702–703 (1982).

J. T. Mihalczo, W. T. King, and J. A. Renier, "Feasibility of LWR Subcritical Reactivity Monitoring Using the Cf-252-Driven Neutron Noise Method," Meeting of the American Nuclear Society, Los Angeles, *Trans. Am. Nucl. Soc.*, vol. 41, pp. 619–621 (1982).

M. Murakami et al., "Energy Confinement in Beam-Heated ISX-B Plasmas," 23rd Annual Meeting of the American Physical Society, Division of Plasma Physics, New York, *Bull. Am. Phys. Soc.*, vol. 267, no. 895 (1981).

J. T. Mihalczo, S. D. Scott, G. R. Dayer, S. L. Halsted, J. F. Lyon, and G. H. Neilson, "Neutron and Charge Exchange Measurements of Ion Temperature in ISX-B," 23rd Annual Meeting of the American Physical Society, Division of Plasma Physics, New York, *Am. Phys. Soc.* (1981).

D. L. Selby, J. T. Mihalczo, "Calculations of the CRBR Initial Loading Mockup Experiments," *Trans. Amer. Nucl. Soc*., vol. 39, pp. 930–931 (1981).

J. T. Mihalczo, R. C. Kryter, and W. T. King, "Analysis for Subcritical Fuel Solution Systems," Meeting of the American Nuclear Society, Miami, FL, *Trans. Am. Nucl. Soc.*, vol. 38, 359–360 (1981).

E. A. Lazarus and J. T. Mihalczo, "Scaling Studies of Beta on ISX-B," 23rd Annual Meeting of the American Physical Society, Division of Plasma Physics, New York, *Bull. Am. Phys. Soc.*, vol. 26, no. 895 (1981).

J. F. Lyon, S. D. Scott, S. C. Bates, S. L. Halsted, J. T. Mihalczo, G. H. Neilson, and J. A. Rome, "Studies of Periodic Toroidal Field Ripple Effects on Tokamak Plasmas," 23rd Annual Meeting of the American Physics Society, Division of Plasma Physics, New York, *Bull. Am. Phys. Soc.* (1981).

J. T. Mihalczo, "A Review of Subcriticality Measurements using Cf-252-driven power spectral density measurements," *Transactions of the American Nuclear Society*, vol. 39, 517–518 (1981).

J. T. Mihalczo and S. D. Scott, "Velocity Filter-Electrostatic Analyzer for Charge Exchange Diagnostics on ISX-B," 3rd American Physical Society Topical Conference, High Temperature Plasma Diagnostics, Los Angeles (Mar. 17–19, 1980).

J. L. Lyon et al., "High-Beta Stability Studies on the ISX-B Tokamak," Invited paper, *Proceedings of the International Conference on Plasma Physics*, Nagoya, Japan, April 7–11, 1980, vol. II (1980).

J. Sheffield et al., "High Beta Studies on ISX-B with Neutral Beam Injection," *Proceedings of the 2nd Joint Grenoble Varenna International Symposium, Heating in Toroidal Plasmas,* Como, Italy, September 3-12, 1980, EUR 7424 EN, vol. II, pp. 745–759 (1980).

D. N. Fry, N. E. Clapp Jr., W. H. Sides Jr., J. T. Mihalczo, and W. T. King, "Advances in Noise Analysis for Nuclear Plant Surveillance and Diagnostics," 8th Water Reactor Safety Research Information Meeting, U.S. Nuclear Regulatory Commission (Oct. 27–31, 1980).

J. T. Mihalczo, R. E. Worsham, and J. F. Lyon, "Velocity Filter Electrostatic Analyzer for Charge Exchange Diagnostics on ISX-B," 20th Annual Meeting of the American Physical Society, Division of Plasma Physics, Colorado Springs, CO, October 30–November 3, 1980 (1980).

J. T. Mihalczo, S. D. Scott, G. H. Neilson, J. F. Lyon, and S. Halsted, "Discrepancies Between Neutron and Charge Exchange Measurements of the Ion Temperature in ISX-B," 22nd Annual Meeting of the American Physical Society, Division of Plasma Physics, San Diego (Nov. 10–14, 1980).

G. H. Neilson, J. F. Lyon, S. D. Scott, and J. T. Mihalczo, "Comparison of Measured and Calculated Fast Ion Charge Exchange Spectra in ISX-B," Meeting of the American Physics Society, Division of Plasma Physics, San Diego (Nov. 10–14, 1980).

S. D. Scott, J. L. Dunlap, R. H. Fowler, V. E. Lynch, J. F. Lyon, J. T. Mihalczo, G. H. Neilson, and J. A. Rome, "Magnetic Ripple Studies Using ISX-B Ripple Coils," Meeting of the American Physics Society, Division of Plasma Physics, Boston, *Bull. Am. Phys. Soc.* vol. 24 no. 8, pp. 937 (1979).

J. T. Mihalczo, "ISX Objectives and Physics," Meeting of the American Nuclear Society, San Francisco, Nov. 11–15, 1979, *Trans. Am. Nucl. Soc.*, vol. 33, pp. 26–27 (1979). [OSTI # 5478474]

J. T. Mihalczo, J. F. Lyon, and G. H. Neilson, "Deuterium Displacement by Hydrogen Neutron Beam Injection from Neutron Measurements on ISX-B," Meeting of the American Physics Society, Division of Plasma Physics, Boston, *Bull. Am. Phys. Soc.*, vol. 24, no. 8, pp. 937 (1979).

W. T. King and J. T. Mihalczo, "Power Spectral Density Measurements with Californium-252 for a Light Water Moderated Research Reactor," Meeting of the American Nuclear Society, San Francisco, Nov. 11–15, 1979, *Trans. Am. Nucl. Soc.*, vol. 33, pp. 796–798 (1979).

J. T. Mihalczo, D. L. Selby, and H. E. Knee, "Theoretical Evaluation of Ex-Vessel Monitoring for Initial Fuel Loading of a Liquid-Metal Fast Breeder Reactor," *Trans. Amer. Nucl. Soc.*, vol. 32, pp. 787–789 (1979).

J. T. Mihalczo and V. K. Paré, "Feasibility of Reactivity Determination from Neutron Noise Spectral Density with Cf-252 in the Initial Loading of Light-Water-Moderated Reactors," *Trans. Am. Nucl. Soc.*, vol. 28, no. I, pp. 799–800 (1979). [OSTI #7011789]

S. D. Scott et al., "Magnetic Ripple Studies Using ISX-B Ripple Coils," *Bull. Am. Phys. Soc.*, vol. 24, no. 8, pp. 937 (1979).

J. T. Mihalczo, J. F. Lyon, and C. H. Neilson, "Deuterium Displacement by Hydrogen Neutral Beam Injection from Neutron Measurements on ISX-B," *Bull. Am. Phys. Soc.*, vol. 24, no. 8, pp. 938 (1979).

J. T. Mihalczo, "ISX Objectives and Physics," *Trans. Am. Nucl. Soc.*, vol. 33, pp. 26–27 (1979).

J. T. Mihalczo, D. L. Shelby, and H. E. Knee, "Transport Theory Calculations of the Proposed Initial Loading for the CRBR," Meeting of the American Nuclear Society, Washington, DC, Nov. 12–16, 1978, *Trans. Am. Nucl. Soc.* (1978).

J. T. Mihalczo, G. H. Neilson, J. F. Lyon, and R. E. Worsham, "Perpendicular Charge Exchange Diagnostic for ISX-B," 2nd American Physical Society Topical Conference on High Temperature Plasma Diagnostic, Santa Fe, NM, *Bull. Am. Phys. Soc.* (1978).

H. E. Ketterer, J. T. Mihalczo, and A. C. England, "Neutron Measurements on ISX-A," 20th Annual Meeting of the American Physics Society, Division of Plasma Physics, Colorado Springs, CO, *Bull. Am. Phys. Soc.*, vol. 23, no. 7, pp. 790 (1978).

J. B. Wilgen, J. T. Mihalczo, and G. H. Neilson, "Details of Confinement Experiments in ISX-A: Charge-Exchange," Proceedings of the 20th Annual Meeting of the American Physical Society, Division of Plasma Physics, Colorado Springs, CO, Oct. 30—Nov. 3, 1978, *Bull. Am. Phys. Soc.*, vol. 23, no. 7, pp. 798 (1978).

J. Kim, W. K. Dagenhart, H. H. Haselton, M. M. Menon, J. T. Mihalczo, W. L. Stirling, and C. C. Tsai, "D-D Neutron Yields from the ORNL 40-keV 60-A Neutral Beam Injector," *Proceedings of the International Electrical and Electronics Engineers International Conference on Plasma Science,* Monterey, CA, May 15–18, 1978.

J. B. Wilgen, G. H. Neilson, and J. T. Mihalczo, "Details of Confinement Experiments in ISX-A: Charge Exchange," *Bull. Am. Phys. Soc.*, vol. 23, no. 7, pp. 789 (1978).

M. Murakami et al., "Plasma Confinement and Impurity Flow Reversal Experiments in the ISX-A Tokamak," *Proceedings of the 7th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Innsbruck, Austria,* Aug. 23–30, Paper IAEA-CN-37-N-4 (1978).

A. C. England, R. H. Fowler, H. C. Howe, J. T. Mihalczo, and J. A. Rome, "Neutron Time Behavior Due to Deuterium Neutral Beam Injection into a Hydrogen Plasma," Meeting of the American Physical Society, Division of Plasma Physics, San Francisco, *Bull. Am. Phys. Soc.*, vol. 22, no. 9, pp. 1072 (1977).

R. V. Neidigh, J. F. Lyon, J. T. Mihalczo, R. W. McGaffey, and G. H. Neilson, "Absence of Beam-Induced Toroidal Rotation in Tokamaks," Meeting of the American Physical Society, Division of Plasma Physics, Atlanta, *Bull. Am. Phys. Soc.* (1977).

R. A. Lillie, R. G. Alsmiller Jr., and J. T. Mihalczo, "Design Calculations for a Neutron Collimator for the TFTR," Meeting of the American Nuclear Society, San Francisco, Nov. 27, 1977, *Trans. Am. Nucl. Soc.*, vol. 27, 797–798 (1977). [OSTI #5183130]

J. F. Lyon et al., "Relation of Neutral Beam Injection to Impurity Behavior and Extension of Plasma Parameters in ORMAK," 8th European Conference on Controlled Fusion and Plasma Physics, Prague, Czechoslovakia (Sept. 19–23, 1977).

J. F. Lyon, G. H. Neilson, R. W. McGaffey, J. T. Mihalczo, and J. B. Wilgen, "Interpretation of Charge-Exchange Measurements of ORMAK," 2nd Conference on Hot Plasma Diagnostics, Kharkov, USSR, Sept. 22–27, 1977.

J. F. Lyon et al., "Radial Distribution of Fast Ions from Beam Injection in ORMAK," *Bull. Am. Phys. Soc.*, vol. 22, no. 9, pp. 1148 (1977).

L. A. Berry et al., "Confinement and Neutral Beam Injection Studies in ORMAK," *Proceedings of the 6th International Conference on Plasma Physics and Controlled Nuclear Fusion Research Berchtesgaden, Federal Republic of Germany,* Oct. 6–13, 1976, vol. 1, pp. 49–68, IAEA, Vienna (1977).

J. F. Lyon et al., "Relation of Neutral Beam Injection to Impurity Behavior and Extension of Plasma Parameters in ORMAK," *Proceedings of the 8th European Conference on Controlled Fusion and Plasma Physics, Prague, Czechoslovakia,* Sept. 19–23, 1977, 23, Czechoslovakia Academy of Sciences, Institute of Plasma Physics, Prague (1977).

P. H. Edmonds et al., "The Evolution of Plasma Profiles due to Cold Gas Injection Experimental Observations," *Phys. Soc.*, vol. 22, no. 9, pp. 1171 (1977).

J. T. Mihalczo, G. L. Ragan, and G. C. Tillett, "Power Spectral Density Measurements with Cf-252 for Unreflected 17.77-cm-diam Uranium (93.2 wt. % U-235) Metal Cylinders," Meeting of the American Nuclear Society, Toronto, Canada, Jun. 14–18, 1976, *Trans. Am. Nucl. Soc.*, vol. 23, pp. 521–522 (Jun. 1976). [OSTI #7348294]

C. A. Foster, P. H. Edmonds, A. C. England, J. T. Mihalczo, and M. Murakami, "The Evolution of Plasma Profiles due to Cold Gas Injection Experimental Observations," Annual Meeting of the American Physical Society, Division of Plasma Physics, San Francisco (Nov. 15–19, 1976).

L. A. Berry et al., "Confinement and Neutral Beam Injection Studies on ORMAK," *Proceedings of the 6th International Conference on Plasma Physics and Controlled Nuclear Fusion Research, Berchtesgaden, Federal Republic of Germany,* IAEA, Vienna, (Oct. 6–13, 1976).

J. T. Mihalczo, "Prompt Alpha and Reactivity Measurements on Fast Metal Assemblies," *Proceedings of U.S./Japan Seminar on Fast Pulse Reactors, University of Tokyo, Tokyo, Japan*, (Jan. 1976).

J. T. Mihalczo, M. V. Mathis V. K. Pare, G Ragan, G Tillett, N. J. Ackerman, "Shutdown Reactivity Monitoring for U.S. LMFBRs," Paper II-C Design and Utilization of Safety Related Instrumentation, US/USSR Seminar on FBR Safety, Jan. 1976. (Jan. 1976).

J. T. Mihalczo, G. Ragan Jr., and G. C. Tillett, "Power Spectral Density Measurements with Cf-252 for Unreflected Uranium (93.2 wt. % U-235) Metal Sphere," Meeting of the American Nuclear Society, San Francisco, Nov. 1975, *Trans. Am. Nucl. Soc.*, vol. 22, no. 691 (Jun. 1975).

J. T. Mihalczo, G. C. Tillett, and D. L. Selby, "Critical Experiments with a Mockup Core," Meeting of the American Nuclear Society, New Orleans, LA, Jun. 8–13, 1975, *Trans. Am. Nucl. Soc.* (1975).

J. T. Mihalczo, V. K. Paré, and M. V. Mathis, “Power Spectral Density Measurements with Cf-252 for a Mockup of the FFTF,” Meeting of the American Nuclear Society, New Orleans, Jun. 8–13, 1975, *Trans. Am. Nucl. Soc.*, vol. 21, pp. 449–450 (Jun. 1975).

M. V. Mathis, J. T. De Lorenzo, J. T. Mihalczo, and M. M. Chiles, “Nuclear Detection Instrumentation for RSP Measurements with the FFTF Engineering Mock-Up Core,” IEEE *Trans. Nucl. Sci.*, vol. 22, no. 1, 691–695 (1975).

J. T. Mihalczo and V. K. Paré, “Reactivity from Power Spectral Density Measurements,” *Trans. Am. Nucl. Soc.*, vol. 19, no. 418 (1974).

J. W. Allen, J. T. Mihalczo, J. C. Robinson, and N. J. Ackerman, “Correction for Detection Efficiency Changes and Detector Counting Loss in a Three-Point IKRD Reactivity Measurement,” *Trans. Am. Nucl. Soc.*, vol. 19, no. 417 (1974).

J. T. Mihalczo and M. V. Mathis, “Multiplication Measurements for Initial Startup with the Mock-Up Core for the FFTF,” *Trans. Am. Nucl. Soc.*, vol. 19, no. 368 (1974).

F. Shahrokhi, J. C. Robinson, J. T. Mihalczo, and N. J. Ackerman, “Proposed Nondestructive Assay Instrumentation for the LMFBR Reprocessing Plant,” *Trans. Am. Nucl. Soc.*, vol. 19, no. 216 (1974).

N. W. Hill, J. W. Allen, and M. M. Chiles, “Optimization of Nanosecond Fission Ion Chambers for Reactor Physics Applications,” IEEE *Trans. Nucl. Sci. Symp*. (Dec. 1974).

J. B. Bullock, J. T. Mihalczo, and M. V. Mathis, “IKRD Measurements with a Mock Up of the CRBR Shield,” *Trans. Am. Nucl. Soc.*, vol. 18, no. 347 (1974).

G. F. Flanagan, D. L. Selby, J. T. Mihalczo, and D. B. Simpson, “Transport Calculations for Reactivity Measurements in Subcritical Configurations of the FFTF Engineering Mock-Up Core, *“Trans. Am. Nucl. Soc.*, vol. 18, no. 268 (1974).

J. T. Mihalczo, M. V. Mathis, and V. K. Paré, “Source Multiplication Measurements for Subcritical Configurations of the FFTF Engineering Mock-Up Core,” *Trans. Am. Nucl. Soc.*, vol. 18, no. 344 (1974).

J. T. Mihalczo, V. K. Paré, and M. V. Mathis, “IKRD Measurements for Subcritical Configurations of the FFTF Engineering Mock-Up Core,” *Trans. Am. Nucl. Soc.*, vol. 18, no. 345 (1974).

J. T. Mihalczo, V. K. Pare, M. V. Mathis, and F. Shahroki, “Break frequency noise measurements for subcritical configurations of the FFTF engineering mock-up core,” *Trans. Am. Nucl. Soc.*, vol. 18, pp. 346–47 (1974).

J. T. Mihalczo, V. K. Paré, and R. C. Kryter, “Experience with a Digital Noise Analysis System in Subcriticality Measurements on a Mock-up of the FFTF,” IEEE *Trans. Nucl. Sci. Symp.*, vol. 21, no. 767 (1974).

J. T. Mihalczo, V. K. Paré, and M. V. Mathis, “Noise Analysis at Delayed Criticality for a Mock-Up of the FFTF,” *Trans. Am. Nucl. Soc.*, vol. 17, no. 454 (1973). [OSTI #4376677]

J. T. Mihalczo, V. K. Pare, M. V. Mathis, N. J. Ackerman, “Noise Analysis at Delayed Criticality for a Mockup of the FFTE,” *Trans. Amer. Nucl. Soc.*, vol 17, pp. 454–455 (1973).

J. C. Robinson, J. T. Mihalczo, and J. W. Allen, “Adequacy of the LLFM Detector for IKRD Application in the FTR,” *Trans. Am. Nucl. Soc.*, vol. 17, no. 446 (1973).

J. T. Mihalczo, J. E. Mott, M. Churchich, M. V. Mathis, J. C. Robinson, and N. J. Ackerman, “A Digital On-Line Reactivity Analysis System,” *Trans. Am. Nucl. Soc.*, vol. 17, no. 445 (1973).

J. T. Mihalczo, “Neutron Importance in Spherical Plutonium Metal Assemblies,” *Trans. Am. Nucl. Soc.*, vol. 16, no. 281 (1973).

J. T. Mihalczo, “Comparison of Source-Sample Fission Coincidence Method with the Random Driver Method,” *Trans. Am. Nucl. Soc.*, vol. 16, no. 62 (1973).

J. T. Mihalczo and D. R. Ward, “Self-Regulated Damped Power Oscillations of the Health Physics Research Reactor,” *Trans. Am. Nucl. Soc.*, vol. 15, no. 895 (1972). [OSTI #4583528]

J. T. Mihalczo, “Neutron Importance and Fission Density in Spherical Uranium Metal Assemblies,” *Trans. Am. Nucl. Soc.*, vol. 15, no. 948 (1972).

J. T. Mihalczo, “Beta-eff for a Normal-Uranium-Reflected 93, ^{235}U-Enriched Uranium Sphere,” *Trans. Am. Nucl. Soc.*, vol. 15, no. 488 (1972).

J. T. Mihalczo, “Prompt Neutron Decay in Plutonium Metal Using ^{252}Cf as a Randomly Pulsed Neutron Source,” *Trans. Am. Nucl. Soc.*, vol. 15, no. 471 (1972).

J. T. Mihalczo, “Randomly Pulsed Neutron Measurements for Safeguards Interrogation,” *Trans. Am. Nucl. Soc.*, vol. 15, no. 156 (1972).

J. T. Mihalczo, “A Highly Enriched Uranium Metal Sphere Assembly,” *Trans. Am. Nucl. Soc.* 14, 675 (1971).

J. T. Mihalczo and N. W. Hill, “Simple Time-of-Flight Transmission Measurement for Incorporation in Nuclear Engineering Curricula,” *Trans. Am. Nucl. Soc.*, vol. 14, no. 1 pp. 60–61 (1971). [OSTI #4023365]

J. T. Mihalczo, “The Use of ^{252}Cf as a Randomly Pulsed Neutron Source for Prompt Decay Measurements,” paper presented at the Reactor Physics Division Informal Session, American Nuclear Society Meeting, Los Angeles (Jun. 1970).

J. T. Mihalczo, “Comparison of Fast Pulsed Reactor Calculations with Experiment,” *Proceedings of the National Topical Meeting of the American Nuclear Society on Fast Burst Reactors at University of New Mexico,* pp. 9–29 (Dec. 1969). [OSTI #4711735]

J. T. Mihalczo, “Oak Ridge National Laboratory Repetitively Pulsed Experiment,” *Proceedings of the National Topical Meeting of the American Nuclear Society on Fast Burst Reactors at University of New Mexico,* pp. 9–29, (Dec. 1969).

J. T. Mihalczo, “Monte Carlo Calculations of Two-Core Delayed Critical Assemblies,” *Trans. Amer. Nucl. Soc.*, vol. 11, pp. 603–604 (Nov. 1968). [OSTI #4828819]

J. T. Mihalczo and S. J. Raffety, “Neutron Age and Infinite-Medium Neutron Multiplication Factor for UF4 Paraffin Mixtures with Low ^{252}U Enrichment,” *Trans. Am. Nucl. Soc.*, vol. 11, no. 676 (1968).

J. T. Mihalczo, “Calculated Fission Yield from Reactivity Additions to an Assembly of Long Thin Fuel Rods,” *Trans. Am. Nucl. Soc.*, vol. 11, no. 669 (1968). [OSTI #4828726]

J. T. Mihalczo, “Monte Carlo Calculations of Two Core Delayed Critical Assemblies,” *Trans. Am. Nucl. Soc.*, vol. 11, no. 603 (1968).

J. T. Mihalczo, “Multiplication Factor of Fissile Components Isolated and in Delayed Critical Arrays” Report: CONF-680909, 079 Conference/Journal: Livermore Array Symposium (Sept. 23–25, 1968)

J. T. Mihalczo, “Monte Carlo Calculations of Thick Graphite Reflected Uranium-Metal Critical Assemblies,” *Trans. Am. Nucl. Soc.*, vol. 11, no. 385 (1968).

J. T. Mihalczo, J. J. Lynn, J. E. Watson, and R. W. Dickinson, “Superprompt Critical Behavior of a Uranium-Molybdenum Assembly,” *Trans. Am. Nucl. Soc.*, vol. 10, no. 611 (1967).

J. T. Mihalczo, “Prompt Neutron Decay in Delayed Critical Assemblies of Three Interacting Cores,” *Trans. Am. Nucl. Soc.*, vol. 10, no. 242 (1967). [OSTI #4273797]

J. T. Mihalczo, "Rossi-Alpha and Pulsed Neutron Measurements" National Topical Meeting of American Nuclear Society on Coupled Reactor Kinetics at Texas A&M, pp. 484–505 (January 1967).

J. T. Mihalczo, "Sensitivity of Neutron-Spectrum-Dependent Quantities in Uranium (93.2 235U) Metal Assemblies to Inelastic Scattering Models for ^{235}U," *Trans. Am. Nucl. Soc.*, vol. 9, no. 489 (1966). [OSTI #4468499]

J. T. Mihalczo, "Prompt Neutron Time Behavior in Delayed Critical Coupled Uranium Metal Cylinders," Proceedings of the International Conference on Fast Critical Experiments and Their Analysis, ANL-7320, pp. 237–241 (Oct. 1966).

G. Kistner and J. T. Mihalczo, "Critical Experiments with a Mock-Up of the Repetitively Pulsed Reactor SORA," Proceedings of the International Congress on Fast Critical Experiments and Their Analysis, ANL-7320, pp. 586–589 (Oct. 1966).

J. T. Mihalczo and G. Kistner, "The SORA Critical Experiments," *Trans. Am. Nucl. Soc*., vol. 9, no. 184 (1966).

J. T. Mihalczo, "Rossi-Alpha Measurements in Subcritical Uranium-Metal Cylinders," *Trans. Am. Nucl. Soc.*, vol. 9, no. 175 (1966). [OSTI #4522016]

J. T. Mihalczo, "Critical Uranium-Metal Annuli Reflected with Polyethylene and Graphite," *Trans. Am. Nucl. Soc.*, vol. 8, no. 442 (1965). [OSTI #4583985]

J. T. Mihalczo, "One-Velocity Monte Carlo Calculations of Uranium-Metal Critical Geometries," *Trans. Amer. Nucl. Soc.*, vol. 8, no. 1, pp. 201 (1965).

J. T. Mihalczo and D. C. Irving, "Monte Carlo Calculations for Enriched Uranium Metal Assemblies," *Trans. Am. Nucl. Soc.*, vol. 7, no. 287 (1964).

J. T. Mihalczo, "Prompt-Neutron Lifetime in Critical Enriched-Uranium Metal Cylinders," *Trans. Am. Nucl. Soc.,* vol. 7, no. 48 (1964). [OSTI #4045443]

J. T. Mihalczo, "Critical Experiments and Calculations with Annular Cylinders of U (93.2) Metal," *Trans. Am. Nucl. Soc.*, vol. 6, no. 217 (1963). [OSTI #4138081]

J. T. Mihalczo, "Neutron Age and Nonleakage Probability for a 2% U235 Enriched of UF_4 Paraffin Mixture with a H:U-235 Ratio of 404," *Trans. Am. Nucl. Soc.*, vol. 3, no. 74 (1963).

J. T. Mihalczo, "Prompt-Neutron Decay in a Two-Component Enriched Uranium Metal Critical Assembly," *Trans. Am. Nucl. Soc.*, vol. 6, no. 60 (1963).

J. T. Mihalczo, "Prompt Neutron Lifetime in Hydrogen-Moderated 3% 235U Enriched Uranium Critical Assemblies," *Trans. Am. Nucl. Soc.*, vol. 5, no. 387 (1962).

J. T. Mihalczo, "Super-Prompt Critical Behavior of an Unreflected, Unmoderated Uranium-Molybdenum Alloy Assembly," *Trans. Am. Nucl. Soc.*, vol. 5, no. 175 (Jun. 1962).

J. T. Mihalczo and W. E. Kinney, "Experiments and Calculations on Unmoderated Uranium Molybdenum Alloy Critical Assembly," *Trans. Am. Nucl. Soc.*, vol. 4, no. 1, pp. 302 (Jun. 1961).

J. T. Mihalczo, "Neutron Age and Nonleakage Probability for a 2% U-235 Enriched UF_4-Paraffin Mixture with a H:U-235 Ratio of 404," *Trans. Am. Nucl. Soc.*, vol. 3, no. 1 (Jun. 1960).

J. T. Mihalczo, J. J. Lynn, Multiplication Measurements with Slabs of Enriched Uranium," *Trans. Am. Nucl. Soc.*, vol. 2, no. 1 (Jun. 1959).

J. T. Mihalczo, "Determination of Infinite Medium Multiplication Factor for 2% Uranium-235 Enriched UF_4 in Paraffin," *Trans. Am. Nucl. Soc.*, vol. 2, no. 1 (Jun. 1959).