Radiation Safety Information Computational Center

Oak Ridge National Laboratory
Post Office Box 2008
Oak Ridge, Tennessee 37831-6003
Managed by
UT-Battelle, LLC
for the U.S. Department of Energy
under contract DE-AC05-00OR22725

phone 865-574-6176 fax 865-241-4046
email PDC@ORNL.GOV
www http://rsicc.ornl.gov/

Timothy E. Valentine, Ph.D. - RSICC Director

No. 653 November 2019

"Science and technology revolutionize our lives, but memory, tradition and myth frame our response." – Arthur M. Schlesinger

TABLE of CONTENTS

CHANGES TO THE RSICC CODE AND DATA COLLECTION

There are no updates to the RSICC catalog this month.

FEE CHANGES

(*Last updated October 1, 2019*)

RSICC does not charge for the packages that we deliver; however, we are required by the Federal government to recoup the cost associated with our operations. This fee is based on the cost for RSICC to maintain its archive, update its archive and support customer requests and registrations. This cost includes the effort required to perform the background and export control compliance checks that are mandated by the Federal government.

The cost recovery fee for those individuals that require more extensive export control and nonproliferation reviews will be $1,250 while the cost recovery fee for those individuals that do not require the extensive reviews will be $1,000. For those individuals that are only approved for access to RSICC software on RSICC's secure cloud server the fee will be $1,823.30. These rates will be effective on October 1, 2019.

An invoice will be sent to you via email if you are required to pay the cost recovery fee. The cost recovery fee is payable via check written on a U.S. bank, postal money order, PayPal account or any method that PayPal provides including debit and credit card. **RSICC does not accept purchase orders or wire transfers.** If payment is received via wire/bank transfer, RSICC will deny future services to both you and your organization.

SINGLE USER MULTI-ORGANIZATION LICENSE AGREEMENT

(*Last updated July 1, 2018*)

In order to support the use of RSICC software by multi-national organizations and international collaborations, RSICC now offers our customers the option to request a Single User Multi-Organization Software License Agreement. The Single User Multi-Organization Software License Agreement addresses issues regarding the "re-export" of software and data packages obtained from RSICC because under Federal export control regulations our customers cannot "re-export" the code to another person in another country.

This agreement is intended to allow our customers to specify additional foreign locations for which they may be approved to utilize RSICC software. In general, the default option will be the standard single user license agreement for the country in which the customer resides and is employed. The following defines the requirements for use of this license agreement.

This SUMO software license agreement is only available for individuals that receive software directly from RSICC. In addition, the point of contact (host or system administrator) at the additional foreign location(s), must be licensed directly from RSICC and must agree to abide by the policies associated with host/server/cluster systems that are summarized following this announcement.

To apply for this license the customer must first register with RSICC and provide full and complete information. When submitting their request, the customer must provide the following information in the COMMENTS section of the request form for each applicable package:

- full name and email address of the point of contact (POC),
- the full name of the organization at which the software will be used, and
- the complete address (no post office boxes) of the organization under which additional access is being requested.

Individuals that would like to utilize this service must have a valid reason for needing this access and provide such justification to RSICC in the END USE statement as well. If this information is not included in the END USE statement, then the customer's request will only be considered for the standard single user license agreement.

When processing the request, RSICC staff will verify that the designated POC(s) has a valid license for the same version of software that is being requested by the applicant and verify that the POC obtained the package directly from RSICC. If the POC, did not obtain the package directly from RSICC, the POC will need to register with RSICC, apply and be approved for the package before the applicant's request can be processed.

The requests will be reviewed for each designated location and a decision will be rendered as to whether or not a license is granted. If an organization or location is denied, then the customer will be notified and may be limited to the standard single user license agreement for their own organization.

Exceptions:

Persons that have any citizenship of or are located in countries that are not listed in Appendix A of 10 CFR 810 are not permitted to utilize the Single User Multi-Organization License Agreement.

Fees:

The customer making the request for the single user multi-organization software license will be required to pay the cost recovery fee for each location at which they are approved. In addition, the POCs at the other foreign locations that have not obtained the software directly from RSICC will have to obtain the software from RSICC and pay the applicable fee.

Host/Server/Cluster Guidance

Software obtained from RSICC is export controlled under the jurisdiction of the U.S. Department of Energy, 10 CFR 810, or the U.S. Department of Commerce, 15 CFR 730-744. Additionally, RSICC distributes this software under guidance issued by the U.S. Department of Energy's Office of Nonproliferation and Arms Control. The distribution and use of RSICC software is restricted and controlled under these regulations and guidelines. Individuals that request the software must be cleared through both an export control and a nonproliferation review process prior to the individual being granted a license to receive software for a specific end use.

The software distributed by RSICC is licensed to individual requestors (Licensee) under a single-user license agreement while employed at the organization listed on the license forms and cannot be transferred to any other individual or entity. The Licensee is responsible for the control, management and protection of the software. The Licensee is responsible for compliance with U.S. export control requirements (laws and regulations) and the terms of the license agreement. This includes preventing access to the software by any individual or entity (including IT staff) as such access may be deemed an export control violation. Individual Licensees should protect the software, documentation, and installation accordingly. Neither the software nor manuals should be posted to the Internet or otherwise be made publicly available. Any and all system administrators that are assisting with the installation and maintenance of a licensed code(s) or that would otherwise have access to a licensed code(s) that is placed on a stand-alone system and/or server/cluster must also be licensed for the exact version of the software that is placed on these systems. Individuals whose duties are only that of a System Administrator are not authorized to be users of the licensed codes(s).

System administrators and/or hosts should implement standard and customary account access and/or file permissions such that only the licensed individuals may access the program. This should include identity and access management, such as multi-factor authentication, to ensure software is kept secure from unauthorized access. Please note that the single-user license agreement is code and version specific. The Licensee must be licensed for the specific version to which they are granted access. For example, an individual with a license only for MCNP5 should not be permitted access to MCNP6.1. Additionally, some individuals are only licensed for the executable versions of the code(s), and the system administrator(s) must ensure that such individuals do not have access to the source code. Therefore, it is recommended that the source code be removed after installation of the program(s) and furthermore procedures must be implemented such that control software is not lost via decommissioned storage media.

Network, server, parallel, cluster, or similar installations outside of the United States may not be within a country NOT listed in Appendix A of 10 CFR 810 nor occur at facility identified as an entity under 15 CFR 744.

RSICC software may be hosted on a server, cluster or high-performance computing system with the following conditions:

1) Each server/cluster operator must designate one individual responsible for oversight of the use of RSICC software on the server/cluster. This individual will be responsible for communicating and reporting to RSICC on an annual basis regarding the users of the cluster/server.

2) Each and every system administrator that would have access to any form (source or executable) must register, request, **and** be approved for the software with RSICC for the version to which they would have access.

3) An authorized and approved system administrator may install and maintain the software and must ensure that the software is not distributed or shared with those who do not have a specific license for the version to which they would have access. System administrators are required to utilize protocols that limit access to the software. Users should only be granted access and use of software to which they

have a specific license, e.g. users that have a license for SCALE 6.1 should NOT be granted access to SCALE 6.0 or SCALE 6.2.

4) System administrators are not permitted to provide access to RSICC software to individuals **NOT** located within the same country as the server/cluster unless the Licensee has an approved Single User Multi-Organization License Agreement from RSICC.

5) Individuals with citizenship or multiple citizenships that include a country not listed in Appendix A of 10 CFR 810 **may be granted** access to RSICC software on a server/cluster, if the individual **has been approved** for access to the software by the U. S. Department of Energy's Office of Nonproliferation and Arms Control.

6) Under no circumstances should an individual with citizenship or multiple citizenships that include a country **NOT** listed in Appendix A of 10 CFR 810 be granted access to RSICC software on the server/cluster, if that individual has **NOT** been approved by the U.S. Department of Energy's Office of Nonproliferation and Arms Control. Additionally, under no circumstances should an individual located at an entity identified under 15 CFR 744 be granted access to RSICC software on the server/cluster.

7) Individuals that have been only granted access to RSICC's secure cloud server **MAY NOT** be granted access to any other server/cluster.

8) When a Licensee requests access to RSICC software on a server/cluster, the system administrator must follow the following process:

(a) The system administrator will require that the Licensee provide proof of a license by requiring that the Licensee provided an electronic copy of either the Single User License Agreement or the Single User Multi-Organization License Agreement. System administrators cannot provide access to anyone located in another country unless that individual has an approved Single User Multi-Organization License Agreement from RSICC and the organization of the system administrator is listed on the SUMO License Agreement.

(b) As of February 1, 2015, RSICC's single user and export control agreements were restricted to the specific end use provided in the request and to the Licensee's installation (employer, organization, or university) when making the request. The system administrator must ensure that the Licensee's current installation is the same as that on the license agreements.

(c) If the Licensee's current installation is NOT the same as that on license agreements, then access should be denied until the Licensee has updated license agreements with RSICC. This will require the Licensee to update their registration with RSICC and submit a new request with RSICC. The Licensee should not be granted access to the software until they have been authorized. Please note that some approvals are location and organization specific.

9) The system administrator will maintain records of the Licensees that are utilizing the server/cluster and send a record to RSICC (rsic@ornl.gov) that include the Licensee's full name, RSICC customer identification number, installation, and the codes to which the Licensee has access on the system. This information must be provided when the system administrator makes the first request to RSICC to provide such services and must be updated annually by sending updated information to RSICC no later than November 30 of each calendar year. The record should include the customer's full name, RSICC customer number, customer installation as well as request numbers and software package name and identifier for which they are accessing on the cluster.

Server/cluster operators that agree to comply with these conditions may install RSICC software on the server/cluster that are within their corporate/institutional ownership, physical control, and the individual country identified.

END USE STATEMENT

(*Last updated July 1, 2017*)

Customers are strongly encouraged to provide full and complete information regarding the intended end use of the software being requested. End use statements that specify that the code is for research, training or educational activities are not sufficient. RSICC's regulators need to know explicitly for what purpose you intend to use the codes and detail needs to be provided. Requests that lack sufficient detail will be rejected.

REGISTRATION REQUIREMENTS

(*Last updated January 1, 2015*)

RSICC does not permit individuals to "pre-register" or "pre-order" software for use at a temporary or alternate location. The single user license and export control agreements are specific to the individual's end use and the location at which the software will be used. During the registration process, individuals are required to provide the name of the institution at which they will use the software, an institutional mailing address and an institutional e-mail address. As an example, students that work at a location other than their university are required to update their registration with RSICC and submit a new request for any software that they intend to use after they have begun work at the new location.

SINGLE-USER LICENSE AGREEMENT REVISED

(*Last updated February 1, 2015*)

The single-user license agreement has been revised to address concerns regarding changes in end-use and/or employment of individuals that have received packages from RSICC. In some instances, individuals obtain approvals from our Federal regulators for use of software packages for very specific purposes or while employed or associated with specific organizations. To address this concern, the single-user license agreement has been modified to indicate that the license is only valid for the end-use as stated in the Licensee's request and only while associated with the organization under which the request is being made. After February 1, 2015, the individual's single-user license would no longer be valid if they change their end-use or are no longer associated with the organization for which they obtained the original license. In these cases, the individual would need to submit a new request to RSICC for the package for the new end-use or the new affiliation.

SCIENCE EDUCATION PROGRAMS AT

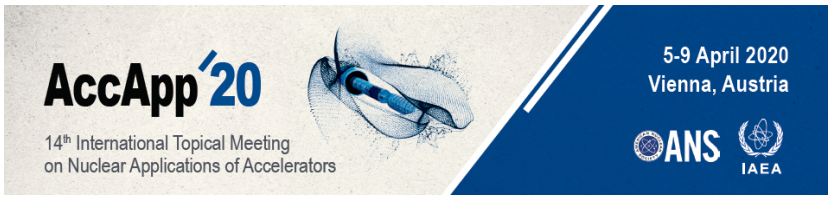
OAK RIDGE NATIONAL LABORATORY

Looking for an internship or post-graduate opportunity at Oak Ridge National Laboratory? The Science Education Programs at Oak Ridge National Laboratory provide paid opportunities for undergraduates, grad students, recent graduates, and faculty to participate in high-quality research alongside world-class scientists to solve real-world problems. Opportunities are available for internships and co-ops, research appointments, and sabbaticals. You can access all available opportunities through the website at http://www.orau.org/ornl. The Talent and Opportunity System allows you to create a profile, and then answer only 5 or 6 questions for each program or job posting for which you apply. All levels of participants from undergraduates to faculty are encouraged to publish research papers with their mentors. Please browse through the Research Profiles on the different participants and their research experiences at the right-hand side of the bottom of the web site listed above. Also, there is a video of research participants at ORNL sharing their thoughts on how access to world-class research facilities and staff has catapulted their careers in science and technology. You can find it on YouTube at http://ow.ly/2EQLz.

CONFERENCES, TRAINING COURSES, SYMPOSIA

RSICC attempts to keep its customers and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email pdc@ornl.gov with "**Conferences for RSICC Newsletter**" in the subject line by the 15th of each month. Please include the announcement in its native format as an attachment to the message. Please provide a website address for the event if one is available. Every attempt is made to ensure that the links provided in the Conference and Calendar sections of this newsletter are correct; however, if the links become unavailable, please call the point of contact for the event.

CONFERENCES



14th International Topical Meeting on Nuclear Applications of Accelerators

The 14th International Topical Meeting on Nuclear Applications of Accelerators will be held 5-9 April 2020 at the Vienna International Center, of the International Atomic Energy Agency in Vienna, Austria. The meeting is being organized by the Accelerator Applications Division of the American Nuclear Society (ANS) in cooperation with the IAEA.

The purpose of the meeting is to provide an international forum for discussing the various applications of particle accelerators. Meetings are focused on the production and utilization of accelerator-produced neutrons, photons, electrons and other particles for scientific and industrial purposes; production or destruction of radionuclides significant for energy, medicine, defense, or other endeavors; safety and security applications; forensic science; and medical imaging, diagnostics, and therapeutic treatments.

The conference provides an opportunity for nuclear physicists, accelerator physicists, nuclear engineers and other experts in the international community to meet and discuss their research face-to-face. Those interested can find additional details at: http://accapp20.org

17th International Symposium on Reactor Dosimetry 2020

The Seventeenth International Symposium on Reactor Dosimetry will be held 10-15 May 2020 at École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland. The Symposium is being organized by EPFL and is jointly sponsored by the European Working Group on Reactor Dosimetry (EWGRD) and ASTM International Committee E10 on Nuclear Technology and Applications.

This Symposium is held approximately every three years to provide a forum for the interchange of state-of-the-art techniques, databases and standardization of radiation metrology. The Symposium will be of value to those involved in reactor dosimetry including researchers, manufacturers, and representatives from industry, utilities, and regulatory agencies.

The Symposium theme is dosimetry for the assessment of irradiated reactor materials and reactor experiments, featuring radiation metrology techniques, databases and standardization. The broad topic areas for the Symposium include the following:

- Experimental techniques, measurements and monitoring
- Calculational methods
- Reactor surveillance, plant life management and decommissioning
- Nuclear data, uncertainties and adjustments
- Benchmarks and inter-comparisons
- Dosimetry in test and research reactors, including accelerators and fusion

Those interested can find additional details at: www.reactordosimetry.org

BEST ESTIMATE PLUS UNCERTAINTY 2020 INTERNATIONAL CONFERENCE

BEPU is a leading international meeting on the use of best estimate and uncertainty analyses methodologies for nuclear reactor safety analyses. The last BEPU meeting was held in May 2018 in Lucca, Italy. The BEPU2018 conference demonstrated that:

- BEPU applications in licensing are limited and their increase is foreseen to be slow;
- there is a need for comprehensive guidelines for use of BEPU technologies, and the availability of mature tools was questioned;
- consistency in all steps of BEPU needs to be ensured, however it was identified that there is a need to reduce shortcuts in BEPU applications and to focus on exploitation of the full BEPU process;
- experimental data is central to the BEPU processes and methodologies; thus the use the available of experimental data in an efficient and consistent way is required; and
- BEPU is at first a methodology that increases the knowledge and understanding of uncertainties and biases embedded in any deterministic safety analysis.

Given the outcomes of the BEPU2018 conference, the community recognized the need to address some of the identified shortcomings and initiated the planning for BEPU2020. BEPU2020 will be held in Sicily, Italy from May 17-22, 2020.

Those interested can find additional details at http://www.nineeng.com/bepu2020/index.php.

Supercomputing in Nuclear Applications

Monte Carlo SNA+MC 2020, Japan

Joint International Conference on
Supercomputing in Nuclear Applications + Monte Carlo 2020
Tokyo Metropolitan Area (Chiba), Japan, 18-22 May 2020

Joint International Conference on Supercomputing in Nuclear Applications and Monte Carlo 2020

SNA+MC2020 will be held 18-22 May 2020 in Makuhari Messe, Chiba, Japan. The main topics of the conference are computational nuclear applications, high performance computing and visualization, and Monte Carlo simulation for radiation transport. Several special topics will also be a part of the conference including those related to the Fukushima recovery and decommissioning issues, virtual reactor technology, artificial intelligence technology for the nuclear field, and Monte Carlo simulation for medical and life sciences.

Those interested can find additional details at: http://snamc2020.jpn.org.

TRAINING COURSES

MCNP6

LANL MCNP6 Class Schedule

Website: https://laws.lanl.gov/vhosts/mcnp.lanl.gov/classes/classinformation.shtml

Nov 4-8, 2019 Los Alamos, NM	Unstructured Mesh with Attila4MC Non-US citizens must register by 2019-08-09 | Tues 12:30 - Fri 4:30	$1500 or $1200*

See the website for more information.

MCNP6 Training

Beginning/Advanced Visual Editor Training

For more information, see the website: http://mcnpvised.com/train.html

Date (Click Date for Info)	Workshop	Level of Difficulty	Workshop Content	Location
November 18-22, 2019	Beginning MCNP® using the Visual Editor		Detailed Description	Rio de Janeiro, Brazil
December 9-13, 2019	Beginning MCNP® using the Visual Editor		Detailed Description	Mactan Island, Philippines

NEA Training Courses / Workshops

https://www.oecd-nea.org/databank/training-courses/

Class size is limited, and workshop may be cancelled if minimum enrollment is not obtained one month prior to the workshop. Workshop fees paid are refundable up to one month before each class.

Please note that all attendees must be registered users.

Upcoming Workshops

Date	Class	Registration-Payment	Fees	Location

18-22 November 2019	FLUKA Advanced Course and Workshop	Registration closed	550 EUR	Paris, France
3-7 February 2020	Electron-Photon Transport Modelling with PENELOPE-2018	Registration open	1000 EUR	Barcelona, Spain

* The fee includes the training course, luncheons and coffee breaks.

SCALE Training Courses

Training is provided by developers and expert users from the SCALE team. Courses provide a review of theory, description of capabilities and limitations of the software, and hands-on experience running problems of varying levels of complexity.

All attendees for the SCALE training courses must be licensed users of SCALE 6.2, which is available from ORNL/RSICC, the OECD/NEA Data Bank in France, and the RIST/NUCIS in Japan. All currently scheduled SCALE training courses are described below.

Date	Course Name and Description	Location	Cost
February 3 - 7, 2020	**SCALE Criticality Safety and Radiation Shielding**	ORNL Oak Ridge, TN, USA	$2500*
February 10 - 14, 2020	**SCALE/ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis**	ORNL Oak Ridge, TN, USA	$2500*
February 17 - 21, 2020	**SCALE Sensitivity and Uncertainty Analysis for Criticality Safety Assessment and Validation**	ORNL Oak Ridge, TN, USA	$2500*
February 24 - 28, 2020	**SCALE/Polaris Lattice Physics, Depletion, and Uncertainty Analysis**	ORNL Oak Ridge, TN, USA	$2500*

**Full-time university students can register at a reduced rate of $1250. For each course over one, professional registration fees are discounted $250 and student registration fees are discounted $125.*

FOREIGN NATIONAL VISITORS TO ORNL - *Payment MUST be received at least one week prior to attending the training course. All foreign national visitors must register 40 days before the start date of the training course they plan to attend.*

For more information regarding these courses, visit the SCALE website at https://www.ornl.gov/scale/scale-training.

Models and Methods for Advanced Reactor Safety Analysis (MMARS)

http://www.nineeng.com/courses/index.php/mmars

Next Event: NINE Headquarters, LUCCA (Italy), **04-08 November 2019**
Registration Deadline: September 02, 2019

History and Experience
MMARS started in 2015 and the first editions were held at NINE headquarters in Italy with a total participation of about 70 participants. The courses' programs are provided by several lecturers coming from different organizations and who are experts in developing and applying models and methods for carrying out advanced safety analysis.

Objective
The MMARS Platform provides a set of parallel Courses to transfer the experience and know-how of recognized experts in applying computational tools for carrying out safety analysis. Best practice and advanced methods for building, assessing and finally exploiting the Evaluation Models constitute the main subjects of the MMARS courses. The courses cover several aspects of the safety analysis with the goal to demonstrate how the computational tools/evaluation models can simulate phenomena expected in thermal-hydraulics (system and core), fuel performance and severe accident. In addition, MMARS platform offers advanced course on "Scaling Analysis", "Best Estimate Plus Uncertainty", "Risk Quantification and PSA", "Preparation and Review of Safety Related Documentation" and "Radiological Consequence Analysis". Each course consists of 35 hours.

Expected Products
The Training Courses provide a transfer of experience and know-how from recognized

experts in the respective fields. It thus contributes to maintaining and increasing technical competence and to ensuring the sustainable development of nuclear technology. All Lectures and Exercises are distributed to the participants. A certificate of attendance is released.

Available Courses:

- System Thermal-hydraulics Analysis: Phenomenology and Computational Evaluation Model
- Thermal-Hydraulics Core Analysis: Phenomenology and Computational Tools
- Fuel Behavior Analysis: Phenomenology and Computational Tools
- Severe Accident Analysis: Phenomenology and Computational Tools
- Scaling Analysis
- Best Estimate Plus Uncertainty
- Advanced Course on Key Elements of Risk Quantification and PSA
- Preparation and Review of Licensing Documentation (FSAR)
- Radiological Consequence Analysis
- Decommissioning, Waste Management and Environmental Site Remediation
- Regulatory Fundamentals and Best Regulatory Practices
- Digital I&C Training

Safety Analysis Report for Packaging (SARP)

Shielding/Criticality Safety Analyst Course
Developed and Conducted by Oak Ridge National Laboratory
Radiation and Nuclear Criticality Analysis of RAM Packages

The **SARP Analyst Course** (NP 607 Radiation and Nuclear Criticality Analysis of RAM Packages, UNLV Course) provides detailed instruction on the radioactive material package shielding analyses and NCS evaluation fundamentals needed by analysts/practitioners to prepare and/or review technical analyses for the SARP documentation. Please find more information about the course at https://sarp.ornl.gov/
The next SARP Analyst course will be held **March 2 – 6, 2020** at Oak Ridge National Laboratory in Oak Ridge, TN. The registration fee for all students is $2000. Those interested in the course can register at the following website, https://utconferences.eventsair.com/2020-sarp-analyst-course/sarp/Site/Register. Participants who successfully complete the course and pass an exam may be eligible for graduate credit as part of the University of Nevada, Reno (UNR) Graduate Certificate in Nuclear Packaging program.

SYMPOSIA

2019 CALENDAR

November

2019 – ANS Winter Meeting and Nuclear Technology Expo, November 17-21, 2019, Washington D.C. Website: http://answinter.org

2020 CALENDAR

January

53rd Midyear Meeting of the Health Physics Society, January 26-29, 2020, Bethesda, Maryland. Website: http://hps.org/meetings/meeting50.html

April

14th International Topical Meeting on Nuclear Applications of Accelerators (AccApp '20), April 5-9, 2020, Vienna, Austria. Website: http://accapp20.org

Technology of Fusion Energy (2020), April 20-23, 2020, Phoenix, Arizona. Website: http://tofe.ans.org

May

2020 Best Estimate Plus Uncertainty (BEPU) International Conference, May 17-22, 2020, Sicily, Italy. Website: http://www.nineeng.com/bepu2020/index.php.

June

2020 American Nuclear Society (ANS) Annual Meeting, June 7-11, 2020, Phoenix, Arizona. Website: not yet available.

July

65th Annual Meeting of the Health Physics Society, July 5-9, 2020, National Harbor, Maryland. Website: not yet available.

August

Utility Working Conference and Vendor Technology Expo, Marco Island, Florida. Website: not yet available.

September

ICRS 14/RPSD 2020, Seattle, Washington. Website: https://icrs14.ans.org.

November

2020 – ANS Winter Meeting and Nuclear Technology Expo, November 15-19, 2020, Chicago, Illinois. Website: not available yet.