

Programme

16 – 20 April 2023

Antwerp, Belgium



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Conference venue: **Radisson Blu Astrid Hotel, Koningin Astridplein 7, Antwerpen, B-2018, Belgium**

All **Plenary Session** will take place in room **Esperanza 3+4**

All **Parallel Session I** will take place in room **Esperanza 3**

All **Parallel Session II** will take place in room **Esperanza 4**

All **Parallel Session III** will take place in room **Orlov**

The **Welcome Reception** will take place in room **Diamond and Aurora Private**

Coffee Breaks will take place in room **Diamond and Aurora Private**

Lunch will be served in room **Aurora and Aurora Private**

The **Conference Dinner** will take place at the **Art Nouveau Room of the Gran Café Horta, Hopland 2, 2000 Antwerpen**

Sunday 16 April 2023

5.00 pm – 7.00 pm Pre-registration

5.30 pm – 7.30 pm Welcome Reception

Monday 17 April 2023

9 am – 11 am Deep-dive insight session

Beating Cancer – turning the tide with medical isotopes

Every year 10 million patients in Europe benefit from nuclear medicine. In the past decade, research has made tremendous progress and medical isotopes are expected to become an even more vital tool in the treatment of many types of cancers.

In this session, we will learn about the use of medical isotopes for diagnosis and treatment. Our experts will give an update on increasingly effective therapeutics and the expected growth in medical nuclear procedures in line with these dynamic developments. We will identify what is needed to establish a robust supply chain in the EU and to ensure that all patients receive the care they need when they need it.

Speakers

Dr. WOUTER VOGEL, Antoni Van Leeuwenhoek Dutch Cancer Institute

Prof. MICHEL KOOLE, European Association of Nuclear Medicine (EANM)

RICHARD ZIMMERMANN, MEDraysintell, and SVEN VAN DEN BERGHE, Pantera

Charlotte ROSENBAUM, National Institute for Public Health and the Environment, The Netherlands

The session will be chaired by REMIGIUSZ BARANCZYK, European Supply Agency, and moderated by CORA BLANKENDAAL, NRG

This session is public and will be streamed.

Coffee break

11.30 am – 1.00 pm Official Opening of the Conference

Chair: S. Van Dyck, SCK-CEN, Belgium

Welcome Addresses

Opening addresses by

R. Grossi, Director General, IAEA

A.Fernandez Fernandez, Director Nuclear Applications, Belgian Ministry of Economy and Energy, Belgium

J. Chamberlin, Assistant Deputy Administrator, Office of Material Management and Minimization, National Nuclear Security Administration, US

Innovative initiatives for medical isotope applications

The contribution and support to the European Isotope Valley of NRG-Pallas
R. Schram, NRG, The Netherlands

Supply chain development for radioisotopes by SCK CEN
K. Hasaers, SCK-CEN, Belgium

Radioisotopes Production and Separation for Theragnostic Applications at PSI
A.Pautz, PSI, Switzerland

Lunch break

2.30 pm – 4.30 pm Parallel Sessions

Parallel session I: Research reactor fuel cycle I

Chair: S. Van Dyck, SCK-CEN, Belgium

High density U-Silicide fuel after irradiation at high performance conditions	Leeners, A. (1) 1--SCK-CEN, Belgium
Update on USHPRR Uranium-Silicide Fuel Qualification Activities	Robinson, A. (1); Keiser, D. (1); Cole, J. (1); Glagolenko, I. (1); Hanson, W. (1) 1 - Idaho National Laboratory, United States

High density fuel plate developments in EU QUALIFY Project	Stepnik, B. (1); Vanni, F. (1); Allard, D. (1); Rontard, C. (1); Gauche, F. (1); Baumeister, B. (2); Buducan, K. (2); Petry, W. (2); Wight, J. (3); Holmström, S. (3); Leenaers, A. (3); Valance, S. (4); Feredici, E. (4); Calzavara, Y. (5) 1 - FRAMATOME, France 2 - TUM - FRM II, Germany 3 - SCK-CEN, Belgium 4 - CEA, France 5 - ILL, France
High density fuel irradiations within the EU QUALIFY project	Holmstrom, S. (1); Wight, J. (1); Baumeister, B. (2); Leenaers, A. (1); Vallance, S. (3); Calzavara, Y. (4); Stepnik, B. (5); Rontard, C. (5) 1 - SCK CEN, Belgium 2 - Technische Universität München, Germany 3 - Institut Laue-Langevin, France 4 - CEA, France 5 - Framatome - CERCA, France
BR2 LEU Lead Test Assemblies and Status of LEU Conversion	Wight, J. (1); Van Dyck, S. (1); Leenaers, A. (1); Kalcheva, S. (1); Wols, F. (1) 1 - SCK CEN, Belgium
TOWARD AN ALTERNATIVE FUEL ASSEMBLY DESIGN FOR LVR-15 REACTOR	Romanello, V. (1); Hrehor, M. (1); Mala, M. (1); Jiska, P. (1); Dambrosio, A. (1); Huet, F. (2); Boyard, M. (2) 1 - Research Centre Rez (CVR), Czech Republic 2 - TechicAtome, France

Parallel session II: Utilisation I

Chair: P. Chakrov, IAEA

Lessons Learned During the LEU Conversion of radioisotope productions at IRE	Host V. (1); Dronneau, J.G. (1) 1 - Institute for Radioelements (IRE), Belgium
IAEA activities in support of utilization and applications of research reactors	Pessoa Barradas, N. (1); Swainson, I. (1); Gavello, M.-K. (1); Ridikas, D. (1) 1 - International Atomic Energy Agency, Austria

Current status of the EU Research Reactor fleet and Assessment of Gaps and Opportunities in Individual RR Activities as Part of the TOURR Project	Pungerčič, A. (1); Cirillo, R. (2); Walkiewicz, J. (3); Novák, E. (4); Gajewski, J. (3); Szentmiklósi, L. (5); Van Puyvelde, L. (6); Starflinger, J. (7); Cano, D. (8); Pohlner, G. (7); Mikolajczak, R. (3); Pavel, G. (2); Snoj, L. (1) 1 - Reactor Physics Department, "Jozef Štefan" Institute (JSI), Slovenia 2 - European Nuclear Education Network (ENEN), Belgium 3 - Narodowe Centrum Badan Jadrowych (NCBJ), Poland 4 - Centrum výzkumu Řež (CVR), Czech Republic 5 - Energiatudományi Kutatóközpont, Centre for Energy Research (EK CER), Hungary 6 - Studiecentrum Voor Kernenergie, Centre D'etude de L'energie Nucleaire (SCK-CEN), Belgium 7 - Institute of Nuclear Technology and Energy Systems, University of Stuttgart (USTUTT), Germany 8 - Centro de Investigaciones Energeticas, Medioambientales y Technologicas-Ciem (CIEMAT), Spain
ONLINE PLATFORM TO OPTIMIZE THE USE OF RESEARCH REACTORS	Cirillo, R. (1); Pavel, G.-L. (1); Mikolajczak, R. (2); Gajewski, J. (2); Clarijs, T. (3); Tourr, C. (1); Secure, C. (2) 1 - European Nuclear Education Network - ENEN, Belgium 2 - NCBJ, Poland 3 - SCK CEN, Belgium
MARIA REACTOR MATERIAL IRRADIATION CAPABILITIES	Migdal, M. (1); Talarowska, A. (1); Lipka, M. (1); Ziembra, M. (1); Prokopowicz, R. (1) 1 - National Centre for Nuclear Research, Poland
Development and thermal optimization of the Irradiation train design for ITER windows irradiation experiment in MARIA Research Reactor.	Talarowska, A. (1) 1 - National Centre for Nuclear Research, Poland

Coffee break

5.00 pm – 6.00 pm Parallel Sessions

Parallel session I: New Projects I

Chair: C. Rontard, Framatome (CERCA), France

MYRRHA project and its role in the European P&T strategy for High Level Waste Management: step towards the realisation of the MYRRHA research infrastructure in Belgium	Kennedy, G. (1); Greco, M. (1); Fernandez, R. (1); Schyns, M. (1); Ait Abderrahim, H. (2) 1 - SCK-CEN, Belgium 2 - MYRRHA, Belgium
SMR as research reactors – concepts to support the need for neutrons	Reiter, C. (1); Novog, D. (1); Tucker, D. (1) 1 - McMaster University, Canada

Preconceptual Design of the NIST Neutron Source	<p>Şahin, D. (1); Shen, J. (2); Cook, J. C. (1); Çelikten, O. Ş. (1); Weiss, A. G. (1); Williams, R. E. (1); Gurgen, A. (1); Cheng, L.-Y. (3); Diamond, D. (1); Majkrzak, C. F. (1); King, H. E. (1); Newton, T. H. (1)</p> <p>1 - National Institute of Standards and Technology, United States 2 - University of Maryland, United States 3 - Brookhaven National Laboratory, United States</p>
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Parallel session II: Utilisation II

Chair: R. Cirillo, European Nuclear Education Network (ENEN)

IN-PILE FAST CALIBRATION OF ENEA TAPIRO TANGENTIAL CHANNEL NEUTRON SPECTRUM	<p>Lepore, L. (1); Falconi, L. (1); Fabrizio, V. (1); Santagata, A. (1); Burgio, N. (1); Cesaroni, M. (1); Bianchi, B. (1); Ricci, P. (1); Ratto, A. (1)</p> <p>1 - ENEA, the Italian national agency for new technologies energy and sustainable economic development, Italy</p>
Moroccan PGAA facility design and modelling using MCNP6 code	<p>Amsil, H. (1); Jalil, A. (2); Bounouira, H. (1); Didi, A. (1); Aarab, I. (1); Badague, A. (1); Laraki, K. (1); El Mokhtari, B. (3); El amri, L. (2); Kabach, O. (2)</p> <p>1 - National Centre for Nuclear Energy, Sciences and Technology, Morocco 2 - Mohammed V University, Faculty of Science, Nuclear Reactor and Nuclear Security Group Energy Centre, Physics Department, Morocco 3 - Clermont Auvergne University, CNRS, UMR 6620, Pascal Institute, France</p>
SOIL FERTILITY/GEOCHEMICAL DATA OF ARABLE LANDS IN NIGERIA FOR APPLICATIONS IN AGRICULTURE USING NIRR-1 AFTER CONVERSION TO LEU	<p>Jonah, S. (1); Ogunleye, P. (1); Oladipo, M. (1); Muhammad, T. (1); Abubakar, N. (1)</p> <p>1 - Centre for Energy Research and Training, Ahmadu Bello University, Zaria, Nigeria, Nigeria</p>

7.30 pm – 11.00 pm RRFM 2023 Conference Dinner

Tuesday 18 April 2023

9.00 am – 10.20 am Parallel Sessions

Parallel session I: Research reactor fuel cycle II – scheduled at 8.40

Chair: I. Glagolenko, Idaho National Laboratory, United States

UMo monolithic foil developments in Europe	Stepnik, B. (1); Vanni, F. (1); Allard, D. (1); Lorand, S. (1); Rontard, C. (1); Gauche, F. (1); Baumeister, B. (2); Buducan, K. (2); Petry, W. (2) 1 - FRAMATOME, France 2 - TUM - FRM II, Germany
Possibility of MARIA reactor power upgrading using high-density fuel elements.	Lipka, M. (1) 1 - National Centre for Nuclear Research, Poland
CONTINUED STUDY OF THE IRRADIATION BEHAVIOR OF URANIUM SILICIDE DISPERSION FUEL AT HIGH-POWER CONDITIONS	Hofman, G. (1); Ye, B. (1); Mei, Z.-G. (1); Kim, Y. S. (1); Park, G. (1); Keiser, D. (2); Robinson, A. (2); Yacout, A. (1) 1 - Argonne National Laboratory, United States 2 - Idaho National Laboratory, United States
Enhancing thermal conductivity measurements of dispersion fuels for HPRR	Mai, T. (1); Leenaers, A. (1); Wight, J. (1); Penneman, D. (1) 1 - SCK CEN, Belgium
A modeling informed processing approach to produce highly loaded silicide fuels	Huber, Z. (1); Conte, E. (1); Soulami, A. (1); Rossiter, M. (1); Joshi, V. (1); Choi, K. S. (1); Li, L. (1); Lavender, C. (1) 1 - Pacific Northwest National Laboratory, United States

Parallel session II: Utilisation III

Chair: S. Jonah, Centre for Energy Research and Training, Ahmadu Bello University, Nigeria

Asian Education Network for IAEA Internet Reactor Laboratory	Kim, M. (1); Park, H. (1); Lee, M. (1); Tayibov, L. (2); Byambajav, M. (3); Asuncion-Astronomo, A. (4); Tare, J. (4); Sitnikov, A. (5) 1 - Reactor Research & Education Center, Kyung Hee University, Korea, Republic of 2 - National Nuclear Research Center, Azerbaijan 3 - National University of Mongolia, Mongolia 4 - Philippine Nuclear Research Institute, Philippines 5 - Research Reactor Section, IAEA, Korea, Republic of
Status Update of UTR-KINKI: Response to COVID-19 and Future Conversion to LEU Fuel	Wakabayashi, G. (1); Sugiura, N. (1); Yamanishi, H. (1); Yamamoto, J. (2) 1 - Kindai University, Japan 2 - Setsunan University, Japan

Research Reactor Training for Novice Scientists and Engineers	Landsberger, S. (1); Charlton, W. (1); Balamash, M. A. (2); Al Ohali, B. A. (2); Alshamrani, B. (2); Shosho, S. (3) 1 - University of Texas, Nuclear Engineering Teaching Lab, United States 2 - King Abdulaziz City for Science and Technology (KACST), Saudi Arabia 3 - King Abdullah City for Atomic and Renewable Energy (K. A. Care), Saudi Arabia
THE BRAZILIAN TRIGA IPR-RI RESEARCH REACTOR AND THE CTORP (RESEARCH REACTOR OPERATOR TRAINING COURSE): 50 YEARS OF A SUCCESSFUL EXPERIENCE	Leal, A. (1); Souza, L. C. (1); Lage, A. (1); Felipe, A. (1); Campolina, D. (1) 1 - Nuclear Technology Development Center, CDTN, Brazilian Nuclear Energy Commission (CNEN), Brazil

Parallel session III: Safety and Security I

Chair: B. Commandeur, Pallasreactor, The Netherlands

Assessing Proliferation Resistance of Research Reactor Facilities using the INPRO Methodology	Scherer, C. (1); Dewes, J. (1); Poirier, S. (1); Boyer, B. (1); Ilhan, G. (1); Wang, Y. (1) 1 - International Atomic Energy Agency (IAEA), Austria
Analysis Framework for the Proliferation Resistance Optimization of Research Reactor Designs	Stratton, C. (1); Ozar, B. (1); Aliberti, G. (1); Lell, R. (1); Kalimullah, M. (1); Morman, J. (1); Rudolph, J. (1); Stevens, J. (1) 1 - Argonne National Laboratory, United States
INSTITUT LAUE-LANGEVIN – HIGH-FLUX REACTOR – LESSONS LEARNED FROM THE LAST RECENT 10-YEAR SAFETY REVIEW	Estrade, J. (1) 1 - INSTITUT LAUE LANGEVIN, France
The statistic and deterministic kettle	Shaposhnik, Y. (1); Weiss, A. (2); Sahin, D. (2) 1 - NRCN, Israel 2 - NIST, United States

Coffee break

10.50 am – 12.30 pm Parallel Sessions

Parallel session I: Research reactor fuel cycle III

Chair: B. Stepnik, Framatome, France

U.S. HIGH PERFORMANCE RESEARCH REACTOR LEU CONVERSION DESIGN, TESTING AND FABRICATION PROGRESS	Wilson, E. (1); Ravenhill, S. (2); Cole, J. (3); Lavender, C. (4); Fellingner, A. (5) 1 - Argonne National Laboratory, United States 2 - U.S. Department of Energy – National Nuclear Security Administration, United States 3 - Idaho National Laboratory, United States 4 - Pacific Northwest National Laboratory, United States 5 - Savannah River National Laboratory, United States
Progress on LEU U-10Mo Monolithic Irradiation Testing and PIE Activities to Support US High Power Research Reactor Conversions	Cole, J. (1); Marshall, M. (1); Giglio, J. (1); Robinson, A. (1); Hanson, W. (1); Jue, J.-F. (1); Schulthess, J. (1); Pavlov, T. (1) 1 - Idaho National Laboratory, United States

Status and Perspective of the FRM II Conversion Project	Baumeister, B. (1); Reiter, C. (1); Pichlmaier, A. (1) 1 - Technische Universität München - FRM II, Germany
An LEU solution for the FRM II – the way towards an optimized design	Reiter, C. (1); Shehu, K. (1); Bonete-Wiese, D. (1); Schönecker, R. (1); Kirst, M. (1); Petry, W. (1); Bergeron, A. (2); Ozar, B. (2); Puig, F. (2); Licht, J. (2); Müller-Buschbaum, P. (1) 1 - Forschungs-Neutronenquelle Heinz Maier-Leibnitz, Germany 2 - Argonne National Laboratory, United States
Observations from the EMPIRE and SEMPER FIDELIS Experiments	Hanson, W. (1); Salvato, D. (1); Robinson, A. (1); Keiser jr., D. (1); Glagolenko, I. (1); Leenaers, A. (2); Ye, B. (3); Mei, Z.-G. (3); Jamison, L. (3); Hofman, G. (3); Yacout, A. (3); Stepnik, B. (4) 1 - Idaho National Laboratory, United States 2 - SCK-CEN, Belgium 3 - Argonne National Laboratory, United States 4 - Framatome (CERCA Division), France

Parallel session II: Utilisation IV

Chair: A. Pichlmaier, Research Reactor FRM II, Germany

Rapid, automated radionuclide separation with high yield – towards microfluidic solvent extraction for ⁶⁴ Cu, ⁶⁷ Cu and ⁶⁸ Ga production	De Kruijff, R. (1); Trapp, S. (1); Lammers, T. (1); Paulssen, E. (2) 1 - Reactor Institute, Delft University of Technology, Netherlands 2 - Department of Chemistry and Biotechnology, Aachen University of Applied Science, Germany
Application of a flexible lead shielded facility in the production of radionuclides	Denkova, A. (1); Yao, T. (1); Dezentje, J. (1); Terpstra, B. (1); Nijsen, F. (2) 1 - Delft University of Technology, Netherlands 2 - RadboudUMC, Netherlands
ISO-certification of the irradiation facilities for commercial applications at FRM II	Li, X. (1); Hutanu, V. (1); Schulz, H. (1); Jeschke, F. (1); Pichlmaier, A. (1) 1 - Research Reactor FRM II, Technical University of Munich, Germany
Advances in utilisation of the JSI TRIGA reactor	Snoj, L. (1); Radulovič, V. (1) 1 - Jozef Stefan Institute, Slovenia
Overview of the closed-water activation loop at JSI TRIGA research reactor	Kotnik, D. (1); Snoj, L. (1); Lengar, I. (1) 1 - Reactor Physics Department, Jožef Stefan Institute, Slovenia

Parallel session III: Operations & Maintenance I

Chair: C. Kaaijk, TU Delft, The Netherlands

Replacement of the voting logics of the reactor protection system at the HOR research reactor	Van Wijk, N. (1) 1 - Delft University of Technology, Netherlands
Lesson Learned First Periodic Safety Review for RSG GAS 30MW Indonesia	Sunaryo, G. R. (1); Jatmiko, D. T. (1); Hastuti, E. P. (1); Surbakti, T. (1); Butarbutar, S. L. (1); Sriyono, S. (1); Kusumastuti, R. (1) 1 - National Innovation and Research Agency, Indonesia

Options for the future of the Bandung research reactor	Wisnubroto, D. S. (1) 1 - National Research and Innovation Agency of Indonesia - BRIN, Indonesia
Determination of neutron flux spatial distribution along channel of the new fission chamber in the MARIA reactor	Prokopowicz, R. (1); Madejowski, G. (1); Ziemba, M. (1); Witkowski, T. (1); Januchta, M. (1); Murawski, L. (1) 1 - National Centre for Nuclear Research, Poland
COMPREHENSIVE NEUTRON FLUX MONITORING FOR TRIGA RESEARCH REACTORS	Liebhart, E. (1); Güldner, I. (1); Haque, A. (2) 1 - Mirion Technologies (MGPI H&B) GmbH, Germany 2 - Center for Research Reactor, Bangladesh Atomic Energy Commission, Bangladesh

Lunch break

1.30 pm – 2.30 pm Plenary Session: Student Competition

Chair: S. Van Dyck, SCK-CEN, Belgium

SIMULATION OF FLOW REVERSAL EXPERIMENTS WITH THE CODE CATHARE	Occhiogrosso, F. (1); Ghione, A. (2) 1 - Politecnico di Bari, Italy 2 - Commissariat à l'énergie atomique et aux énergies alternatives, France
Neutron Data Benchmarking at the VENUS-F zero-power reactor for MYRRHA	Grimaldi, F. (1); Blaise, P. (2); Kochetkov, A. (1); Krasa, A. (1); Labeau, P. E. (3); Vittiglio, G. (1); Wagemans, J. (1) 1 - Belgian Nuclear Research Centre (SCK CEN), Belgium 2 - CEA Saclay, DES/Scientific Division Energies, France 3 - Service de Métrologie Nucléaire, Université libre de Bruxelles, Belgium
Development of a new algorithm to identify and model defected fuel assemblies in VVER-type nuclear reactors	Szarvas, C. (1); Radócz, G. (1); Gerényi, A. (1); Szalóki, I. (1) 1 - Institute of Nuclear Techniques, Budapest University of Technology and Economics, Budapest, Hungary, Hungary
Design optimization studies for Pu-238 production	Guillamot, J. C. (1); Romojaro, P. (1); Van den Eynde, G. (1); Acevedo, B. (1); Verwerft, M. (1); Van den Branden, G. (1); Newman, G. (1) 1 - Belgian Nuclear Research Centre (SCK CEN), Belgium
Conceptual Design Study to Develop High-Flux Subcritical Assembly for Radioisotope Production	Setiawan, Y. A. (1); Fynan, D. (1) 1 - Ulsan National Institute of Science and Technology (UNIST), Korea, Republic of
NEUTRONIC DESIGN OF RECYCLABLE COBALT SOURCES IN STICK FORMAT	De Almeida Caldeira, S. (1); Campolina, D. (1) 1 - CENTRO DE DESENVOLVIMENTO DA TECNOLOGIA NUCLEAR (CDTN), Brazil
Development of the calorimeter for low nuclear heating rates for the MARIA Research Reactor	Talarowska, A. (1) 1 - Universitat Politecnica de Catalunya, Spain
The Coupled Thermo Structural Analysis of TRIGA Research Reactor Fuel Element	Kutbay, F. (1); Senturk lule, S. (1); Colak, U. (1) 1 - Istanbul Technical University, Turkey
EXPERIMENTAL MEASURING AND MODELLING OF GAMMA RADIATION EMITTED FROM THE TRIGA MARK II REACTOR AT THE TU WIEN	Lindner, F. (1); Stummer, T. (1); Hainz, D. (1) 1 - Atominstitut, TU Wien, Austria

166Dy/166Ho radiolabelled nanoparticles as potential candidate for radionuclide therapy	Wang, R. (1); Wolterbeek, H. (1); Denkova, A. (1) 1 - Applied Radiation and Isotopes, Delft University of Technology, Netherlands
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2.30 pm – 3.30 pm Plenary Session: Poster Session

The development of U-10Mo swelling correlations based on mechanistic modeling and machine learning methods	Mei, Z.-G. (1); Ye, B. (1); Yacout, A. (1); Beeler, B. (2) 1 - Argonne National Laboratory, United States 2 - North Carolina State University, United States
THE BRAZILIAN TRIGA IPR-R1 RESEARCH REACTOR: APPLICATIONS FOR INDUSTRY AND SOCIETY	Leal, A. (1); Campolina, D. (1); Souza, L. C. (1) 1 - Nuclear Technology Development Center, CDTN, Brazilian Nuclear Energy Commission (CNEN), Brazil
Current status of IPR-R1 Triga Research Reactor Water Quality Management Program	Marques, J. G. (1); Mesquita, A. (1); Campolina, D. (1); Leal, A. (1); Palma, D. (2); Vilela, J. (1) 1 - Nuclear Technology Development Center, CDTN, Brazilian Nuclear Energy Commission (CNEN), Brazil 2 - Brazilian Nuclear Energy Commission (CNEN), Brazil
ACTIVATION CALCULATION METHODOLOGY BY CFD-MONTECARLO COUPLING	Mataloni, L. (1); Graffigna, M. (2); Meier, H. (1) 1 - INVAP S.E., Argentina 2 - Instituto Balseiro, Argentina
Nuclear Safety Evaluation of HANARO NTD Device for SiC Semiconductors	Park, B.-G. (1); Kim, M.-S. (1); Sun, G.-M. (1) 1 - KAERI (Korea Atomic Energy Research Institute), Korea, Republic of
Performance evaluation for irradiation tests of Accident Tolerant Fuel at HANARO	Na, Y.-E. (1); Choo, K.-N. (1); Park, S.-J. (1); Yang, S. (1) 1 - KAERI (Korea Atomic Energy Research Institute), Korea, Republic of
Defects Behavior in Neutron Transmutation Doped-SiC according to Thermal Annealing Temperature	Park, J. (1); Park, B.-G. (1); Kang, K.-D. (1); Sun, G. M. (1) 1 - KAERI (Korea Atomic Energy Research Institute), Korea, Republic of
Safety assessment of aged metal seals	Rolle, A. (1); Neumeyer, T. (1); Ballheimer, V. (1); Wille, F. (1) 1 - Bundesanstalt für Materialforschung und -prüfung (BAM), Germany
Determination of neutronic and hydraulic conditions in the four proposed positions of thermostatic irradiation rig in MARIA reactor	Madejowski, G. (1); Ziembra, M. (1); Migdal, M. (1); Prokopowicz, R. (1); Murawski, Ł. (1); Januchta, M. (1); Lipka, M. (1); Cybowska, J. (1) 1 - National Centre for Nuclear Research, Poland
Design optimization of fuel assemblies for RECH-1 Chilean Research Reactor	Olivares, L. (1); Barrera, M. (1); Lisboa, J. (1); Vargas, E. (1) 1 - Chilean Nuclear Energy Commission, Chile
46SC GAMMA-RAY SOURCE FOR IRRADIATING RARE-EARTH DOPED OPTICAL FIBERS	Chilian, C. (1); Hall, D. (1); Diep, C. (2); Haddad, E. (2) 1 - Polytechnique Montreal, Canada 2 - MPB Communications Inc., Canada

Application of Deep Learning-based support systems for reinforcing HANARO Concept of Defense-in-depth	Jeon, B. (1); Ryu, S. (1); Seo, H. (1); Kim, M. (1); Kim, S. (1); Kim, H. (1); Yu, Y. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
MEASUREMENT OF THE THERMAL CONDUCTIVITY OF AMORPHOUS U3SI2 AND U3SI2-AL INTERACTION LAYER FORMED DURING ION IRRADIATION WITH SUSPENDED-BRIDGE METHOD	Shu, S. (1); Miao, Y. (1); Ye, B. (1); Mo, K. (1); Jamison, L. (1); Bhattacharya, S. (1); Oaks, A. (1); Yacout, A. (1) 1 - Argonne National Laboratory, United States
SOURCE TERM REDUCTION USING SPECIALTY MACROPOROUS RESINS	Bailey, C. (1); Heller, T. (1) 1 - Purolite, An Ecolab Company, United States

Coffee break

4.00 pm – 5.00 pm Parallel Sessions

Parallel session I: Innovative Methods I

Chair: S. van den Berghe, SCK-CEN, Belgium

Preliminary validation of Serpent2/Subchanflow using the SPERT IV D-12/25 data	Almachi Nacimba, J. C. (1); Sanchez Espinoza, V. H. (1) 1 - Karlsruhe Institute of Technology, Germany
Sensitivity analysis of thermo-mechanical models for irradiation experiments	Brigante, F. (1); Baas, P. J. (1) 1 - Nuclear Research and Consultancy Group, Netherlands
ASYMMETRICAL CORE POWER OPERATION FOR HIGH-POWER RAMP TESTS IN THE JULES HOROWITZ REACTOR	Peng, Y. (1); Blanchet, D. (1); Jacquemin, R. (1); Julien, J. (1); Rosato, J. (2) 1 - CEA Cadarache, DES/IRESNE/DER, France 2 - Aix-Marseille University, CNRS, PIIM UMR

Parallel session II: Decommissioning

Chair: I. Vidovsky, Centre for Energy Research (CER), Hungary

One-stop-shop approach for Decommissioning and waste management of research reactors	Eichhorn, T. (1); Orilski, S. (1) 1 - GNS - Gesellschaft für Nuklear-Service mbH, Germany
Creation of a plant virtual model to optimize radiation exposure and to support decommissioning planning and cost estimation	Del Gatto, M. (1); Rinaldi, M. (1); Giacalone, G. (1); Di Lascio, I. (1); Cretoni, M. (1); Del Bene, C. (1); Gagliardi, F. (1); Gorello, E. (1); Meschini, L. (1); Pagliuca, M. (1); Mauro, E. (1) 1 - Nucleco S.p.a., Italy
Treatment of alpha-bearing historical waste	Grupa, J. (1); Van Gemert, M. (1); Houdijk, J. (1) 1 - NRG, Netherlands

Parallel session III: New Projects II

Chair: J. Lupiano, INVAP, Argentina

IAEA ACTIVITIES IN SUPPORT OF RESEARCH REACTOR OPERATION AND MAINTENANCE, FUEL CYCLE, AND NEW RESEARCH REACTOR PROGRAMMES	Chakrov, P. (1); Mazzi, R. (1); Sitnikov, A. (1); Dewes, J. (1) 1 - International Atomic Energy Agency, Austria
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RA-10 Reactor Project: Status report and next steps	Blaumann, H. (1); Cantero, P. (1); Ramirez, P. (1); Freijo, J. (1) 1 - National Atomic Energy Commission, Argentina
IRC MBIR – a Unique Platform for International Scientific Cooperation	Goncharuk, A. (1) 1 - IRC MBIR Consortium Leader, Russian Federation

Wednesday 19 April 2023

9.00 am – 10.40 am Parallel Sessions

Parallel session I: Research reactor fuel cycle IV

Chair: E. Wilson, Argonne National Laboratory, United States

MUSTANG-R BR2 Test Apparatus for Research Reactor Fuel Development and Qualification	Rossaert, B. (1); Wight, J. (1); Housley, G. (2); Marshall, T. (2) 1 - SCK CEN, Belgium 2 - INL, United States
The Latest Results of Scanning Electron Microscopy Characterization of Fuel Plates Irradiated in the EMPIRE Irradiation Experiment	Keiser, D. (1); Salvato, D. (1); Smith, C. (1); Trowbridge, T. (1); Hanson, W. (1); Robinson, A. (1); Glagolenko, I. (1); Ye, B. (2); Jamison, L. (2); Hofman, G. (2) 1 - Idaho National Laboratory, United States 2 - Argonne National Laboratory, United States
Thermomechanical Processing of U-10Mo Using Integrated Computational Materials Engineering	Joshi, V. (1); Soulami, A. (1); Xu, Z. (1); Li, L. (1); Choi, K.-S. (1); Fu, Y. (1); Frazier, W. (1); Lavender, C. (1) 1 - Pacific Northwest National Laboratory, United States
MIT REACTOR LEU FUEL ELEMENT DESIGN SPECIFICATIONS AND FABRICATION TOLERANCES IMPACT ASSESSMENT	Hu, L.-W. (1); Mascolino, V. (2); Yang, S. (2); Anderson, K. (2); Cowherd, W. (2); Wilson, E. (2) 1 - Nuclear Reactor Laboratory, MIT, United States 2 - Research and Test Reactors Department, Argonne National Laboratory, United States
Design of the University of Missouri Design Demonstration Element Test for Irradiation in the Advanced Test Reactor	Glagolenko, I. (1); Housley, G. (1); Gagnon, K. (1); Anderson, K. (1); Lower, J. (1); Hiruta, H. (1); Nielsen, J. (1); Hawkes, G. (1); Jesse, C. (1); Fishler, J. (1); Gilbreath, P. (1); Howell, T. (1) 1 - Idaho National Laboratory, United States

Parallel session II: Utilisation V

Chair: J. Estrade, ILL, France

FUSERO: JHR's applicability to fusion research by neutron irradiation experiments	Colin, C. (1); Hardie, C. (2); Aleska, A. (2); Gabieli, A. (3); Edwards, B. (2); Bamber, R. (2); Organ, E. (2); Allison, J. (2); Bignan, G. (3) 1 - CEA, DES/IRENE/DEC, Centre de Cadarache, France 2 - UKAEA, Culham Science Centre, Abingdon, Oxfordshire, United Kingdom 3 - CEA, DES/IRENE/DER, Centre de Cadarache, France
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Automation of temperature control system for the capsule irradiation of JRR-3	Ushijima, H. (1); Okada, Y. (1); Mitsui, K. (1); Inoue, S. (1); Nakamura, T. (1) 1 - Japan Atomic Energy Agency, Japan
Conceptual Design and Verification of Power Ramp Testing Technology for PCI Research at HANARO	Yang, S. (1); Park, S. J. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of
Reactor Institute Delft 2.0	Plomp, J. (1) 1 - Faculty of Applied Sciences, Delft University of Technology, Netherlands

Parallel session III: Innovative Methods II

Chair: C. Reiter, Technical University Munich, Germany

Nuclear data uncertainty propagation to selected BR2 safety parameters	Alhassan, E. (1); Newman, G. (1); Van den Branden, G. (1) 1 - Belgian Nuclear Research Centre (SCK CEN), Belgium
High-fidelity neutronic analysis of highly localized power peaking near water gaps in the reactor core	Abu Zlf, H. (1); Castagna, C. (1); Neder, I. (2); Makmal, T. (2); Gilad, E. (1) 1 - Ben-Gurion University of the Negev, Israel 2 - Soreq Nuclear Research Centre, Israel
Investigate the impact of using different lattice code libraries on the neutronic cross section values.	Alfaki, R. (1); Alfaki, A. (2) 1 - Nuclear & Radiation Safety Institute - Sudan Atomic Energy Commission, Sudan 2 - Chemistry and Nuclear Physics Institute - Sudan Atomic Energy Commission, Sudan
NEW METHODOLOGY FOR KINETIC PARAMETER CALCULATION ON RESEARCH REACTOR	Villarino, E. (1); Sarabia, G. (1); Olivares, D. (2) 1 - INVAP SE, Argentina 2 - Instituto Balseiro, Argentina
A Comparative Study of the Calculation of Critical Heat Flux with Thermal-Hydraulic Codes	Alcaro, F. (1); Bertocchi, F. (1) 1 - NRG, Netherlands

Coffee break

11.00 am – 12.20 pm Parallel Sessions

Parallel session I: Research reactor fuel cycle V

Chair: J.F. Valery, Orano, France

Measured recrystallization kinetics in EMPIrE plates	Mei, Z.-G. (1); Hofman, G. (1); Kim, Y. S. (1); Ye, B. (1); Jamison, L. (1); Yacout, A. (1); Hanson, W. (2); Robinson, A. (2); Keiser, D. (2) 1 - Argonne National Laboratory, United States 2 - Idaho National Laboratory, United States
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Thermophysical property characterization of irradiated EMPIRE plates	Pavlov, T. (1); Salvato, D. (1); Tan, C. (1); Hisle, E. (1); Poudel, N. (1); Hanson, W. (1); Robinson, A. (2); Winston, A. (1); Giglio, J. (1); Ye, B. (3); Jamison, L. (3); Hofman, G. (3) 1 - Idaho National Laboratory, Characterization and Advanced PIE, United States 2 - Idaho National Laboratory, Fuels and Materials Division, United States 3 - Argonne National Laboratory, United States
Advanced electron microscopy characterization of UMo dispersion fuel irradiated in the EMPIRE test	Salvato, D. (1); Pavlov, T. (1); Robinson, A. (1); Smith, C. (1); Keiser, D. (1); Bachhav, M. (1); Henley, J. (1); Winston, A. (1); Giglio, J. (1); Yacout, A. (2); Ye, B. (2); Jamison, L. (2); Hofman, G. (2); Hanson, W. (1); Glagolenko, I. (1) 1 - Idaho National Laboratory, United States 2 - Argonne National Laboratory, United States
PIE results of the HAMP-2 irradiation test fuels	Park, J. M. (1); Jeong, Y. J. (1); Kim, S. H. (1); Cho, T. W. (1); Kim, H. (1); Yoo, B. O. (1); Jung, Y. H. (1); Seo, C. G. (1); Tahk, Y. W. (1) 1 - KAERI, Korea, Republic of

Parallel session II: Innovative Methods III

Chair: A. Leenaers, SCK-CEN, Belgium

Modeling Approach for the Design of the NIST Neutron Source	Weiss, A. (1); Celikten, O. (1); Shen, J. (1); Gurgun, A. (1); Şahin, D. (1) 1 - National Institute of Standards and Technology, United States
NUMERICAL SIMULATION OF THE HYDRAULIC CHARACTERISTICS AND STRUCTURAL RESPONSE OF THE UNIVERSITY OF MISSOURI RESEARCH REACTOR LOW-ENRICHED URANIUM FUEL ELEMENT	Wang, G. (1); Bojanowski, C. (1); Feldman, E. (1); Cowherd, W. (1); Mohamed, W. (1); Pinilla, M. (2); Wilson, E. (1) 1 - Argonne National Laboratory, United States 2 - University of Missouri Research Reactor, United States
On expanding the experimental capabilities of the WWR-K reactor	Gizatulin, S. (1); Shaimerdenov, A. (1); Sairanbayev, D. (1); Aitkulov, M. (1); Romanova, N. (1); Kisselyov, K. (1) 1 - The Institute of Nuclear Physics, Kazakhstan
Analysis on the Cherenkov Radiation Distribution of Hybrid Low Power Research Reactor	Kim, K.-O. (1); Yoo, H. J. (1); Kim, H. I. (1); Yu, Y. (1) 1 - Korea Atomic Energy Research Institute, Korea, Republic of

Parallel session III: Operations & Maintenance II

Chair: N. van Wijk, TU Delft, The Netherlands

HFR – AGEING MANAGEMENT PROGRAM AND EFFECTIVENESS ASSESSMENT	Hasa, L. (1); Stefanini, L. (1); Wouters, O. (1) 1 - Nuclear Research and Consultancy Group, Netherlands
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20 years of experience in research reactor I&C system upgrades	Juříček, V. (1); Rataj, J. (2); Sikora, J. (3); Reisner, L. (3) 1 - CVŘ Řež near to Prague, Czech Republic 2 - CTU in Prague, Czech Republic 3 - dataPartner s.r.o., Czech Republic
Modeling and simulations for enhanced safety and improved maintenance: the case of control rods	Sahray, Z. (1); Spizzichino, A. (2); Iluz, I. (2); Amar, S. D. (2); Shaposhnik, Y. (2) 1 - Israel Atomic Energy Commission, Israel 2 - Nuclear Reactor Center Negev, Israel
FRM II: Update on the status and outlook	Pichlmaier, A. (1); Jeschke, F. (1); Schätzlein, R. (1) 1 - Technical University of Munich, FRM II, Germany

Lunch break

1.20 pm – 3.00 pm Parallel Sessions

Parallel session I: Research reactor fuel cycle VI

Chair: B. Ozar, Argonne National Laboratory, United States

The Role of Shielding in Enabling the Transport of Nuclear Fuel	Holland, L. (1); Cooper, A. (1); Williams, C. (1); Fleurot, F. (1) 1 - Nuclear Transport Solutions, United Kingdom
Reducing effluents from research reactor fuel production in Brazil	Garcia, R. (1); Urano, E. (1); Conturbia, G. (1); Riella, H. (2); Schaffer, D. (3); Durazzo, M. (1); Sakata, S. (1); Kodama, Y. (1) 1 - Nuclear and Energy Research Institute, Brazil 2 - University of Santa Catarina, Brazil 3 - University of Houston, United States
Comprehensive Measurements of the IRR-1 Spent Fuel Inventory using the Advanced Experimental Fuel Counter	Steinitz, U. (1); Gabrieli, G. (1); Zilberman, I. (1); Zilberfarb, L. (1); Ben-Meir, K. (1); Ozeri, O. (1); Neder, I. (1); Krakovich, A. (1); Makmal, T. (1); Levy, I. (2); Pesach, A. (2); Rivin, O. (2); Trahan, A. C. (3); Long, G. R. (3); Rael, C. D. (3); Watson, M. M. (3); Ruch, M. L. (3); Martinez, I. J. (3) 1 - Soreq Nuclear Research Centre, Israel 2 - Nuclear Research Centre-Negev, Israel 3 - Los Alamos National Laboratory, United States
DEFECTED FUEL RODS IDENTIFICATION IN TRIGA REACTORS: THE EXPERIENCE CARRIED OUT AT THE ENEA CASACCIA RC-1 REACTOR	Lepore, L. (1); Falconi, L. (1); Fabrizio, V. (1); Roberti, A. (1); Formenton, D. (1); Iorio, M. G. (1) 1 - ENEA, the Italian national agency for new technologies energy and sustainable economic development, Italy
PRODUCTION OF A CEMENTITIOUS WASTE FORM FOR IRRADIATED GRAPHITE FUEL	Batyrbekov, E. (1); Baklanov, V. (1); Koyanbayev, Y. (1); Baklanova, Y. (1); Bukina, O. (1); Bateman, K. (2); Bolshinsky, I. (2); Tozser, S. (2); Dewes, J. (3); Chakrov, P. (3); Robbins, R. (3) 1 - National Nuclear Center of the Republic of Kazakhstan, Kazakhstan 2 - Idaho National Laboratory, United states 3 - International Atomic Energy Agency, Austria

Parallel session II: Safety & Security II

Chair: H. Conaway, Argonne National Laboratory, United States

Development of Hazards Probabilistic safety assessment (PSA) screening criteria based on maximum credible events and low radiological risk	Commandeur, A. (1); Molenaar, C. (2) 1 - PALLAS Foundation, Netherlands 2 - Nuclear Research Group, Netherlands
EVALUATION OF THREE-DIMENSIONAL HEAT CONDUCTION DURING LOCA TRANSIENT IN SUPPORT OF NATIONAL BUREAU OF STANDARDS REACTOR LOW-ENRICHED URANIUM CONVERSION	Cetinbas, F. (1); Yoon, D. (1); Mohamed, W. (1); Wilson, E. (1) 1 - Argonne National Laboratory, United States
The importance of the reactor reassessment to ensure safety.	Mohamed, M. (1) 1 - Egyptian Atomic Energy Authority, Egypt

3.00 pm – 3.30 pm Plenary Session: Closing

Announcement of the winner of the RRFM 2023 Student Competition and of the RRFM 2023 Poster Competition

Thursday 20 April 2023

8.00 am – 3.30 pm Technical Tours



EUROPEAN NUCLEAR SOCIETY