16th Information Exchange Meeting on Actinide and Fission Product Partitioning and Transmutation (16IEMPT)

OECD Nuclear Energy Agency
46 Quai Le Gallo,
92100 Boulogne-Billancourt
France

Auditorium

24-27 October 2023

PROGRAMME

Organised in collaboration with the International Atomic Energy Agency (IAEA)

Supported by the EU-funded PATRICIA project, MYRRHA, the Japan Atomic Energy Agency (JAEA) and the French Alternative Energies and Atomic Energy Commission (CEA)

Day 1 – Tuesday, 24 October 2023					
ID	**Item**	**Speaker**	**Start**	**End**	
	Registration		**08:15**	**9:15**	
	Introduction		**09:15**	**09:35**	**00:20**
	Welcome address from the NEA Welcome address from the Chair	DG William D. Magwood, IV Robin Taylor (NNL)			
SPS	**Special Panel Sessions**		**09:35**	**12:00**	**02:25**
SPS-I	**Panel Session I – "30th Anniversary + 3"** • Bernard Boullis (France) • Takehiko Mukaiyama (Japan) • Vincenzo Rondinella (European Commission) • Jan Uhlíř (Czech Republic)	Moderator: Christian Ekberg (Chalmers University of Technology)	09:35	10:35	01:00
	Coffee break		*10:35*	*11:00*	*00:25*
SPS-II	**Panel Session II – "Towards the Future"** • Hamid Aït Abderrahim (Belgium) • Kristine Madden (International Youth Nuclear Congress) • Ken Mardsen (United States) • Dan Mathers (United Kingdom) • Bertrand Morel (France)	Moderator: Sungyeol Choi (Seoul National University)	11:00	12:00	01:00
	Lunch break		***12:00***	***13:30***	***01:30***
S01	**Session 1 – Plenary Session: International organisations and national programmes** Chairs: Gabriele Grassi (NEA), Clément Hill (IAEA) *(15' presentation + 5' Q&A)*		**13:30**	**17:35**	**04:05**
S01.01	Nuclear Energy Agency (NEA)	Tatiana Ivanova (NEA)	13:30	13:50	00:20
S01.02	International Atomic Energy Agency (IAEA)	Clément Hill (IAEA)	13:50	14:10	00:20
S01.03	European Commission (EC)	Vincenzo Rondinella (JRC)	14:10	14:30	00:20
S01.04	Belgium	Hamid Aït Abderrahim (MYRRHA)	14:30	14:50	00:20
S01.05	China	Guoan Ye (CIAE)	14:50	15:10	00:20
	Group photo		15:10	15:20	00:10
	Coffee break		15:20	15:50	00:30
S01.06	France	François Sudreau (CEA)	15:50	16:10	00:20
S01.07	India	Smitha Manohar (BARC)	16:10	16:30	00:20
S01.08	Japan	Kenji Nishihara (JAEA)	16:30	16:50	00:20
S01.09	Republic of Korea	Jong-Hyuk Baek (KAERI)	16:50	17:10	00:20
S01.10	United Kingdom	Dan Mathers (NIRO)	17:10	17:30	00:20
S01.11	United States	Ken Mardsen (INL)	17:30	17:50	00:20
	Introduction to Poster Chair: Paul Schuurmans (SCK CEN)		17:50	18:00	00:10
Close Daye 1 – 18:00					

Day 2 – Wednesday, 25 October 2023					
ID	**Item**	**Speaker**	**Start**	**End**	
S02	**Session 2 – Fuel cycle strategies and scenarios** Chairs: Francisco Álvarez-Velarde (CIEMAT), Kenji Nishihara (JAEA), Josh Turner (NNL) *(15' presentation + 5' Q&A)*		**09:00**	**11:45**	**02:45**
S02.01	PATRICIA: Partitioning and Transmutation Research Initiative in a Collaborative Innovation Action	Paul Schuurmans (SCK CEN)	09:00	09:20	00:20
S02.02	PUMMA, a European project devoted to Plutonium management in the whole fuel cycle	Nathalie Chauvin (CEA)	09:20	09:40	00:20
S02.03	MIMOSA: an EU funded project aiming at demonstrating multi-recycling strategies based on the use of molten salt reactors in European countries	Isabelle Morlaes (Orano)	09:40	10:00	00:20
S02.04	NEA Task Force on Demonstration of Fuel Cycle Closure including Partitioning and Transmutation (P&T) for Industrial Readiness by 2050	Hamid Aït Abderrahim (MYRRHA)	10:00	10:20	00:20
	Coffee break		*10:20*	*10:45*	*00:25*
S02.05	Fuel Cycle Requirements for Deployment of Demonstration Reactors for Achieving Net-Zero Emissions Economy in the United States	Jin Whan BAE (ORNL)	10:45	11:05	00:20
S02.06	Management of MOX spent fuel from LWR: Assessment of material flow	Kenji Nishihara (JAEA)	11:05	11:25	00:20
S02.07	Scenario Study on Sustainable Nuclear Energy Utilization using Dynamic Nuclear Fuel Cycle Simulator NMB4.0	Kenji Takeshita (Tokyo Institute of Technology)	11:25	11:45	00:20
	Lunch break		***11:45***	***13:15***	***01:30***
S03	**Session 3 – Advanced fuel recycling** Chairs: Pavel Souček (JRC), Tsuyoshi Murakami (CRIEPI), Iván Sánchez-García (CIEMAT) *(15' presentation + 5' Q&A)*		**13:15**	**15:55**	**02:40**
S03.01	Current status of R&D on MA separation process using solvent extraction technique for P&T technology	Tatsuro Matsumura (JAEA)	13:15	13:35	00:20
S03.02	Selective actinide(III) separation using 2,6-bis[1-(propan-1-ol)-1,2,3-triazol-4-yl]pyridine (PyTri-Diol) in the innovative-SANEX process: laboratory scale counter current centrifugal contactor demonstration	Andreas Wilden (FZJ)	13:35	13:55	00:20
S03.03	Neptunium behavior in advanced flowsheets	Billy Keywood (NNL)	13:55	14:15	00:20
S03.04	Rapid Photochemical Reduction of U(VI) for the Development of New Mixed Metal Oxide Fuel Production Processes	Colin Boxall (Lancaster University)	14:15	14:35	00:20
S03.05	Effects of metal complexation on radiolytic stability of important minor actinide extractants for advanced nuclear fuel cycles	Iván Sánchez-García (CIEMAT)	14:35	14:55	00:20
S03.06	Fluoride Partitioning Technologies Development in the Czech Republic	Jan Uhlíř (ÚJV Řež)	14:55	15:15	00:20
S03.07	Synthesis of actinide chlorides for Molten Salt Reactor fuels	Pavel Souček (JRC)	15:15	15:35	00:20
S03.08	Pyrochemical Reprocessing of Spent Fuel Salt of Molten Salt Fast Reactor	Tsuyoshi Murakami (CRIEPI)	15:35	15:55	00:20
	Coffee break		*15:55*	*16:20*	*00:25*
S04	**Session 4 – Waste management and innovative utilisations of actinides and fission products** Chairs: Sungyeol Choi (SNU), Rebecca Sanderson (NNL) *(15' presentation + 5' Q&A)*		**16:20**	**18:00**	**01:40**
S04.01	The Role of the NEA Expert Group in Fuel Recycling and Waste Technology Supporting the Development of Advanced Fuel Cycle Options	Robin Taylor (NNL)	16:20	16:40	00:20
S04.02	NEA "Treatment of Volatile Fission Products" Report	Josh Turner (NNL)	16:40	17:00	00:20
S04.03	Optimization study of high-level waste repository thermal design by response surface methodology on ANSYS Workbench software	Masahiko Nakase (Tokyo Institute of Technology)	17:00	17:20	00:20
S04.04	Separation of Americium-241 for Space Power Systems	Rebecca Sanderson (NNL)	17:20	17:40	00:20
S04.05	Recovery of Cesium-137 from fission products for Societal Applications	Rahul Tripathi (BARC)	17:40	18:00	00:20
Close Day 2 – 18:00					

Day 3 – Thursday, 26 October 2023					
ID	**Item**	**Speaker**	**Start**	**End**	
S05	**Session 5 – Advanced fuels for plutonium management and minor actinide transmutation** Chairs: Nathalie Chauvin (CEA), Luca Capriotti (INL), Martina Di Gennaro (Polimi) *(15' presentation + 5' Q&A)*		**09:00**	**12:05**	**03:05**
S05.01	Effect of O/M, temperature, Pu and MA content, and irradiation on the oxygen potential of MOX fuels	Daniel Shepherd (NNL)	09:00	09:20	00:20
S05.02	Fabrication of Am-containing transmutation targets	Gamze Çolak (SCK CEN)	09:20	09:40	00:20
S05.03	Overview of US Postirradiation Examination of Transmutation Metallic Fuel Alloys	Luca Capriotti (INL)	09:40	10:00	00:20
S05.04	DIAMINO irradiation on (U0.85Am0.15)O2 transmutation targets : post irradiation examinations	Catherine Sabathier (CEA)	10:00	10:20	00:20
	Coffee break		*10:20*	*10:45*	*00:25*
S05.05	Advanced interpretation of the SPHERE irradiation experiment with neutronics and fuel performance codes	Marc Lainet (CEA)	10:45	11:05	00:20
S05.06	OpenFOAM-informed TRANSURANUS simulation of the fuel pin behaviour in the MYRRHA reactor during BPJ transient scenario	Martina Di Gennaro (Polimi)	11:05	11:25	00:20
S05.07	Preliminary assessment of GERMINAL V3 against homogeneous transmutation irradiations	Tommaso Barani (CEA)	11:25	11:45	00:20
S05.08	Study of the AM-1 homogeneous transmutation experiment using the GERMINAL V2 fuel performance code	Florian Marconi (CEA)	11:45	12:05	00:20
	Lunch break		***12:05***	***13:35***	***01:30***
S06	**Session 6 – Advanced systems and R&D infrastructures for advanced fuel cycles and P&T** Chairs: Andrea Salvatores (CEA), Takanori Sugarawa (JAEA), Gamze Çolak (SCK CEN) *(15' presentation + 5' Q&A)*		**13:35**	**16:15**	**02:40**
S06.01	LBE coolant chemistry research for MYRRHA	Alessandro Marino (SCK CEN)	13:35	13:55	00:20
S06.02	Material property determination of LBE exposed 15-15Ti steel in support of MYRRHA design	Stefan Holmström (SCK CEN)	13:55	14:15	00:20
S06.03	Overview of R&D Activities of J-PARC Center for the ADS Development	Fujio Maekawa (JAEA)	14:15	14:35	00:20
S06.04	Status of LBE/Gas Interaction Based Oxygen Concentration Control in JAEA	Hironari Obayashi (JAEA)	14:35	14:55	00:20
S06.05	PSi - Proton accelerator-driven subcritical virtual system project in JAEA	Takanori Sugarawa (JAEA)	14:55	15:15	00:20
S06.06	Molten Salt Thermophysical Examination Capability for Characterization of TRU and Irradiated Salts	Toni Karlsson (INL)	15:15	15:35	00:20
S06.07	Corrosion failure analysis in molten salt thermal convection loop using NaCl-MgCl2 salt mixture	Byung Gi Park (Soonchunhyang University)	15:35	15:55	00:20
S06.08	Development of Machine Learning Model for Estimating Electrode Surface Area via Cyclic Voltammetry	Sungyeol Choi (Seoul National University)	15:55	16:15	00:20
	Coffee break		*16:15*	*16:30*	*00:15*
PS	**Poster Session** Chair: Paul Schuurmans (SCK CEN)		**16:30**	**18:30**	**02:00**
Close Day 3 – 18:30					

Day 4 – Friday, 27 October 2023					
ID	**Item**	**Speaker**	**Start**	**End**	
S07	**Session 7 - Modelling and data** Chairs: Luca Fiorito (SCK CEN), Maxime Fache (DTU & JRC) *(15' presentation + 5' Q&A)*		**09:00**	**11:30**	**02:30**
S07.01	Monte Carlo nuclear data uncertainty propagation in inventory calculations	Francisco Álvarez-Velarde (CIEMAT)	09:00	09:20	00:20
S07.02	Evaluating Spent Fuel Characteristics Based on Lattice Physics Calculations of Hydrogen Moderated High Temperature Gas-cooled Reactors with Uranium and Plutonium Annular Fuel	Daniel Wojtaszek (CNL)	09:20	09:40	00:20
S07.03	NEA Task Force on Dose Rate Calculations for Irradiated Assembly	Francisco Álvarez-Velarde (CIEMAT)	09:40	10:00	00:20
	Coffee break		*10:00*	*10:30*	*00:30*
S07.04	Thermophysical properties of the molten salt fuel NaF-KF-UF4: an experimental and modelling study	Maxime Fache (DTU & JRC)	10:30	10:50	00:20
S07.05	Modelling of the distribution of Technetium between nitric acid solutions and TBP-in diluent in the presence of uranium	Hongyan Chen (University of Manchester)	10:50	11:10	00:20
S07.06	Experimental Program on Nuclear Data for Accelerator-Driven Systems Using FFAG Accelerator	Hiroki Iwamoto (JAEA)	11:10	11:30	00:20
	Lunch break		***11:30***	***13:00***	***01:30***
S08	**Summary Session** Chair: Robin Taylor (NNL)		**13:00**	**15:30**	**02:30**
	Chairpersons' reviews	Session Chairs	13:00	13:35	00:35
	Poster review	Poster Chair	13:35	13:55	00:20
	Discussion	All	13:55	15:10	01:15
	Closing remarks	Chair	15:10	15:30	00:20
Close Meeting – 15:30					

List of posters

ID	Title	First author
P01	A nuclear fuel cycle analysis for a small and sustainable electricity mix	Iván Merino (Universidad Católica del Maule)
P02	Management of MOX Spent Fuel from LWR: (1) Thermal design of direct disposal	Takumi Abe (JAEA)
P03	Multifaceted Assessment of P&T Technologies to Current LWR Fuel Cycle	Masahiko Nakase (Tokyo Institute of Technology)
P04	Optimization of Reprocessing Capacity Deployment under Parametric Uncertainty	Jin Whan Bae (ORNL)
P05	NEA-coordinated online catalogue of tools for nuclear fuel cycle simulation	Francisco Álvarez-Velarde (CIEMAT)
P06	Decay heat prediction for the irradiated MOX fuel of MYRRHA	Federico Di Croce (SCK CEN)
P07	Implementation status of MYRRHA phase 1 (MINERVA) and its accelerator reliability demonstration approach	Ulrich Dorda (SCK CEN)
P08	Molten Salts and Pyrochemical Processing Capabilities at the UK's National Nuclear Laboratory	Moya A. Hay (NNL)
P09	Acoustic Monitoring of Pyroprocessing Equipment	Luis A. Ocampo Giraldo (INL)
P10	Drafting Zero-Power Reactor Core Configurations for a Multi-Purpose Molten Salt Reactor Experiment	Bruno Merk (University of Liverpool)
P11	Flowsheet design for the AmSEL process using TODGA and SO3-Ph-BTBP	Vincent Vanel (CEA)
P12	Process simulation study on a hybrid process combining solvent extraction and low pressure loss extraction chromatography for a reasonable MA(III) recovery process	Yuichi Sano (JAEA)
P13	Chromatographic Reprocessing Process with Nuclide Separations in Hydrochloric Acid Solution System	Tatsuya Suzuki (Nagoaka University of Technology)
P14	Adsorption/Elution Performance of TEHDGA/SiO2-P for Am/Cm Recovery from Genuine HLLW	Daisuke Sato (JAEA)
P15	Redox Reactions of Fe(III) and Hydroxamic Acids in Nitric Acid Solutions in the Context of an Advanced PUREX Process	Suzanne Jones (Lancaster University)
P16	Studies into the effect of insoluble fission products on the generation of Ag(II) for the dissolution of MOx fuel	Nick Bramah (Lancaster University)
P17	The Role of Mass Transfer and Chemical Kinetics in Advanced Nuclear Fuel Partitioning and Reprocessing	Stephen Ogezo (Lancaster University)
P18	Development of a TRUEX Digital Twin for Minor Actinide Recycling using Spectral Data Acquisition	Justin T. Cooper (INL)
P19	Advanced Analytical Chemical Separation Techniques for Highly Radioactive Nuclear Fuel Analyses	Jacob Brookhart (INL)
P20	US Heavy Actinide Production at Oak Ridge National Laboratory— Ongoing Actinide Partitioning and Transmutation Programs	Emory D. Collins (ORNL)