Federal Office for the Safety of Nuclear Waste Management

Interdisciplinary research symposium on the safety of nuclear disposal practices

safeND 2025

Time as a safety factor in nuclear waste disposal

PRELIMINARY PROGRAM

Time	Tuesday, September 16th			
19:00 – 21:00	**Ice-Breaker**	*Radialsystem – Holzmarktstraße 33, 10243 Berlin*		
Time	**Wednesday, September 17th**			
08:30 – 08:35	**Welcome**	Christoph Hamann (Federal Office for the Safety of Nuclear Waste Management) *Plenary*		
08:35 – 09:00	**Opening**	Peter Hart (Federal Ministry for the Environment, Climate Action, Nature Conversation and Nuclear Safety) Christian Kühn (Federal Office for the Safety of Nuclear Waste Management) *Plenary*		
09:00 – 10:00	**Panel Discussion** **Time as a safety factor in nuclear waste disposal**	Kai Hämäläinen (STUK - Radiation and Nuclear Safety Authority Finland) Allison Macfarlane (University of British Columbia, Canada) Sönke Reiche (Federal Company for Radioactive Waste Disposal) Anna Storm (Linköping University, Sweden) *Plenary*		
10:00 – 10:30	***Coffee Break***			
	SESSION T6b **On the nuclear renaissance: memory, practices, futures** *Chaired by S. Novac & A. Storm* *Plenary*	**SESSION T5e** **Radio- and biogeochemical aspects of radionuclide mobility in a deep geological disposal** *Chaired by V. Brendler, K. Müller, T. Philipp & N. Mayordomo* *Seminar Ship*	**SESSION T5f** **Challenges and innovations in permeability assessment: from lab to digital twins of geological systems** *Chaired by B. Laurich, J. Schmatz, R. Jayne & C. Dietl* *Studio 2*	**WORKSHOP 01** *Organised by A. Gehrke, M. Johnen, L. Friedenberg & S. Tillmann* *Studio 1*
10:30 – 10:50	Technooptimism vs. Realities: The Nuclear Energy Paradox and Narratives *(F. Böse)*	Systematic evaluation of the state of knowledge on radionuclide sorption in the context of deep geological nuclear waste disposal *(T. Philipp)*	Twenty years of claystone transport research: Methods, challenges and lessons learned *(G. Gaus)*	Next Generation Networks and Possibilities - how to involve tomorrow's experts
10:50 – 11:10	Geological Knowledge, Institutions and Materiality in the Construction of the Promise of Safe Geological Disposal of Spent Nuclear Fuel in Finland *(M. Lehtonen, M. Kojo & T. Litmanen)*	PARFREI – A research project to determine parameters of release, sorption and solubility of radionuclides *(M. Altmaier)*	From outcrops and laboratory rock samples to three-dimensional fracture and flow pathway modelling *(N. Ovaskainen)*	

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11:10 – 11:30	Whose renaissance is it anyway? Rethinking the speculative futures of the nuclear renaissance within the Anthropocene *(T. Keating)*	Unveiling the role of Pseudodesulfovibrio aespoeensis in the immobilization of technetium-99 *(M. F. Martinez Moreno)*	Determining the physics of gas migration in Opalinus Clay; The Gas Transport (GT) project *(R. Cuss)*	Next Generation Networks and Possibilities - how to involve tomorrow's experts
11:30 – 11:50	The Viktoria Lake at Barsebäck: A radioactive sludge pond as material witness *(A. Storm)*	Leaching behaviour of medium and high burn-up spent UOX and (U, Pu) OX fuels under anoxic and reducing conditions – Release of fission gases and their impact on the instant release fraction and matrix dissolution *(T. König)*	Hydro-Mechanical Analysis of Packer Test in Opalinus Clay: Implications for Formation Pressure Estimation *(A. Madaschi)*	
11:50 – 12:10	-	A Reference Database of Radionuclide Sorption to Support the Safety Assessment of Deep Geological Repositories *(O. Marinich)*	Developing reference methods for measuring ultra-low permeability in Mercia mudrocks: implications for safe subsurface nuclear waste disposal *(Z. Jangda)*	
12:10 – 13:00		***Lunch***		

Time	Wednesday, September 17th			
13.00 – 13:40	**Keynote** **Nuclear Waste Disposal: What Does 'Timely' Really Mean? Examining Actors, Disciplines, and National Approaches**	Klaus-Jürgen Röhlig (Clausthal University of Technology, Germany)		
				Plenary
13:40 – 14:10		***Poster Pitch I (Sessions T5a, T5d, T5e, T5f, T6a, T6b)***		*Plenary*
14:10 – 15:30		***Poster Session I (Sessions T5a, T5d, T5e, T5f, T6a, T6b) and Art Exhibition (Workshop 8 – Studio 1)***		*Poster Area*
	SESSION T3c **Protecting against nuclear threats: safeguards and non-proliferation in waste disposal** *Chaired by F. Frieß, M. Englert & M. Dürr*	**SESSION T5d I** **Geomechanics of geological and geotechnical barriers in nuclear waste disposal: thermo-hydro-mechanical couplings, rock integrity and long-term safety** *Chaired by M. Ziegler, E. Crisci, C. Lüdeling, M. Drews & A. Madaschi*	**WORKSHOP 02 Part I** *Organised by C. Dietl & C. Pescatore*	**WORKSHOP 06 Part I** *Organised by U. Smeddinck & A. Eckhardt*
	Plenary	*Seminar Ship*	*Studio 2*	*Studio 1*
15:30 – 15:50	Safeguards Requirements for the Disposal of High Active Waste in Germany in a Geological Repository *(M. Dürr)*	From pointwise in-situ data to stress prediction in 3-D *(O. Heidbach)*		
15:50 – 16:10	The application of muon tomography to monitoring safety and safeguarding in nuclear waste storage and emplacement *(L. Thompson)*	3D geomechanical modeling of potential areas for nuclear waste storage in southern Germany: application of sub-modeling techniques *(V. Kuznetsova)*	Managing the radioactive waste legacy from the front end compared to the back end of the nuclear fuel chain	Accelerating the site selection process – what can be learnt from other environmental policy areas?
16:10 – 16:30	Antineutrino Detection for Safeguards: Concepts and Feasibility for Storage Facilities *(Y. Schnellbach)*	The Spatial Reach of Faults: How They Shape Regional Stress Fields *(L.S.A.R. Velagala)*		
16:30 – 17:00		***Coffee break***		

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	SESSION T6a **Alternative disposal methods: possibilities to simplify the need for a deep geological disposal?** *Chaired by A. Macfarlane*	**SESSION T5d II** **Geomechanics of geological and geotechnical barriers in nuclear waste disposal: thermo-hydro-mechanical couplings, rock integrity and long-term safety** *Chaired by M. Ziegler, E. Crisci, C. Lüdeling, M. Drews & A. Madaschi*	**WORKSHOP 02** **Part II** *Organised by C. Dietl & C. Pescatore*	**WORKSHOP 06** **Part II** *Organised by U. Smeddinck & A. Eckhardt*
	Plenary	*Seminar Ship*	*Studio 2*	*Studio 1*
17:00 - 17:20	State of play: Accelerator-driven Transmutation of High-level waste *(F. Frieß)*	Triggering of earthquakes by massive subsurface interventions: seismogenic index approach *(S. Shapiro)*	Managing the radioactive waste legacy from the front end compared to the back end of the nuclear fuel chain	Accelerating the site selection process – what can be learnt from other environmental policy areas?
17:20 – 17:40	The objectives and scope of the technical and safety options report for assessing the feasibility of shallow disposal on the Communauté of Communes of Vendeuvre-Soulaines (CCVS) site (France, dep. 10) *(B. Cordier)*	Molten Salts as Sealing Materials for a Repository in Rock Salt – The Feasibility Study SalVE *(A. Keller)*		
17:40 – 18:00	Opportunities and risks of partitioning and transmutation of the long-lived fission product I-129 *(G. Žerovnik)*	A systematic strategy for the calibration of crushed salt constitutive models *(L. Friedenberg)*		
18:00 – 18:15	***Closing***			*Plenary*
18:30 – 20:00	***Young safeND***		***Networking***	
	Studio 1			

Poster Session I

Session	Title	Presenting Author
T5d	Testing and simulation of a large-scale Sandwich shaft sealing system	M. Hinze
T5d	Minimum number of stress magnitude data records for model calibration	L. Laruelle
T5d	A multi-scale approach for the investigation of crushed salt as long-term barrier in a rock salt repository (MEASURES)	L. Friedenberg
T5d	How the mesh controls accuracy in geomechanical-numerical models	K. Reiter
T5d	Embrace the uncertainty – Geomechanical example for the value of uncertainties	M. Ziegler
T5d	Numerical benchmarking of GREAT cell experiments: Poly-axial stress effects on fluid flow in fractured rock	M. Mollaali
T5d	Secondary creep of rock salt: mechanisms and challenges in determination	S. Mayr
T5d	Coupled THM modeling of a bentonite buffer in high temperatures conditions: from laboratory to field test	L. Zheng
T5d	Development of a numerical modeling strategy used to assess safe radioactive waste disposal in crystalline rock	C. G. Morel
T5d	Using data from geomechanical modeling for a slip tendency analysis of 3D faults in Germany	L. Röckel
T5d	ThORN - In-situ experimental investigation of the relevance of thermo-osmotic flow in clay for radioactive waste disposal	F. Kiszkurno
T5d	Combined experimental and numerical study on the fracture pattern of the system host rock and engineered barrier in deep geological repositories	Q. Zhou
T5d	Benchmarking for verification and validation of TH2M simulators: Current results from the BenVaSim II project	J. P. Kruse
T5d	SpannEnD 2.0 – New insights into the present-day stress of Germany by a new 3D geomechanical-numerical mode	S. Ahlers
T5d	Oscar: A software library for modelling THM coupled processes	C. Rücker
T5e	When time matters – accelerating the development of thermodynamic databases illustrated by the example of molybdenum	S. Hagemann
T5e	Technetium speciation in carbonate media and further developments on spectroelectrochemical methods	K. Müller
T5e	Cm(III) and Eu(III) complexation with aqueous phosphates: an experimental, thermodynamic, and ab initio study	N. Jordan
T5e	Sorption behavior of radionuclides in lamprophyre and granodiorite: implications for colloid-mediated transport in crystalline host rocks of Grimsel Test Site	A. Shelyug
T5e	Exploring competing surface reactions in radionuclide retention: Experimental and modelling insights	S. Britz
T5e	The DR-C Mont Terri Project: Inferring Effects of a Thermal Gradient on the Diffusion of Radionuclides in Opalinus Clay	F. Magri
T5e	THEREDA - Thermodynamic Reference Database	L. Wissmeier
T5d	Testing and simulation of a large-scale Sandwich shaft sealing system	M. Hinze
T5d	Minimum number of stress magnitude data records for model calibration	L. Laruelle
T5f	Two-phase flow characterization and modelling in bentonite at various temperatures	E. Crisci
T5f	Low Perm – Development of a calibration standard for evaluating permeability measurements of tight rocks	C. Dietl
T5f	KAFKA: Compartment model for flow dynamics and solute transport in a converging underground waste repository (Kompartimentmodell für die Ausbreitung und die Fluiddynamik in einer konvergierenden Untertageanlage für Abfälle)	L. Dietl
T6b	Nuclear nostalgia – Unveiling the sociotechnical imaginary of new nuclear power in Sweden	V. Ekström
T6b	Long-term documentation in Germany: steps towards a systemic strategy	D. Möller
T5a	Machine-learning enabled model optimization of an emplacement drift in the context of deep geological disposal	U. Fiaz
T6a	Impact of Electrochemical Partitioning & Accelerator-Driven Transmutation of HAW on the Necessity for Deep Geological Storage	G. Houben
T6a	iMAGINE – or why we need to know what influence new technologies can have on the final disposal	B. Merk
T6a	Modular Plasma Mass Separation System for Sustainable High-Level Radioactive Waste Management	N. Ganchev

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09:00 – 09:05	**Opening**	Christoph Hamann (Head of Press and Public Relations, BASE)			*Plenary*
09:05 – 09:15	**Presentation of the research agenda of BASE**	Jochen Ahlswede (Head of Division General Research and Long-Term Documentation, BASE)			*Plenary*
09:15 – 09:55	**K e y n o t e**	Andrew Stirling (University of Sussex, UK)			*Plenary*
	Panel 01 *Organised by D. Orsini, V. Lagendijk, R. Dekker, R. Geysmans*		**SESSION T1a Decommissioning of nuclear facilities** *Chaired by B. Rehs & R. Köhler*	**Session T5g 2nd European Programme on Radioactive Waste Management: strategic studies** *Chaired by A. Göbel & L. Theodon*	**WORKSHOP 03 Part I** *Organised by C. Walther, A. Eckhardt & T. Hassel*
	Plenary		*Seminar Ship*	*Studio 2*	*Studio 1*
10:00 – 10:20			Digital Twins and Ontology for Robot Assisted Decommissioning Operations: DORADO project *(J. A. Ridao Cabrerizo)*	Overview of EURAD-2 Strategic Studies *(A. Göbel)*	
10:20 – 10:40	Time to Integrate the Social Sciences: Experiences, Lessons, Perspectives Speaker: *D. Orsini, V. Lagendijk, R. Dekker, R. Geysmans*		Validation of an innovative separation plant consisting of a sieve and magnetic filter for the reduction of radioactive waste for interim storage *(M. J. E. Chaudhry)*	Advancing Digital Twin Technology for Optimized Nuclear Waste Management: Bridging Disciplines and Enhancing Safety *(R. Szőke)*	Long-term projects outside the disposal of high-level waste - factors for sustained societal support and successful project management?
10:40 – 11:00			ZuMoBau-ZL – providing methods to ensure extended lifetime for structures in interim storage facilities *(S. Sperbeck)*	HERMES#DITOCO 2023: Integrating Process Modelling into Digital Twin Concepts *(O. Kolditz)*	

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11:00 – 11:30		*Coffee break*		
	SESSION T6c **Challenges regarding fusion energy** *Chaired by TBA* *Plenary*	**SESSION T4a** **Impact of climate events and processes on radioactive waste management** *Chaired by L. Peti, A. Göbel, A. Liebscher & W. Rühaak* *Seminar Ship*	**SESSION T5a** **Optimization of high-level radioactive waste repositories** *Chaired by P. Herold* *Studio 2*	**WORKSHOP 03** **Part II** *Organised by C. Walther, A. Eckhardt & T. Hassel* *Studio 1*
11:30 – 11:50	Fusion narratives *(W. Liebert)*	Climate Change in Central Europe and its Effects on External Hazards for Nuclear Facilities *(G. Thuma)*	Optimization in the context of high-level radioactive waste repositories *(P. Herold)*	Long-term projects outside the disposal of high-level waste - factors for sustained societal support and successful project management?
11:50 – 12:10	Nuclear Waste from Fusion Power Plants *(M. Englert)*	What matters more: Climate or parameters? A closer look at uncertainties in groundwater modelling *(M. Johnen)*	Preliminary design of a disposal facility for high-level radioactive waste in claystone, crystalline rock, and rock salt *(T. Lohser)*	
12:10 – 12:30	Innovation Dynamics in Nuclear Fusion: A Unexpected Nuclear Renaissance in the Making? *(C. Dering)*	Impact of Climate Change on Nuclear Waste Management *(L. Peti)*	The role of coupled hydro-chemo-mechanical modelling in the optimisation of a repository closure system *(A. Idiart)*	
12:30 – 13:30		***Lunch***		

Time	**Thursday, September 18th**			
	SESSION T1c Part I **Pasts, presents and futures of nuclear cultures and memories** *Chaired by W. Potter & G. Ruhland* *Plenary*	**SESSION T4b** **Safety across time – methods for evaluating the post-closure safety of a deep geological repository** *Chaired by J. Liakka, S. Peura & F. Magri* *Seminar Ship*	**SESSION T5b** **Containers for final disposal of high-level radioactive waste** *Chaired by A. Kömmling & S. Schöbel* *Studio 2*	**WORKSHOP 04 Part I** *Organised by J. Gräfje & G. Bracke* *Studio 1*
13:30 – 13:50	More Than a Half-Life? Communities, Heritage and Creative Participation in Nuclear Decommissioning *(L. Ross)*	Sensitivity analysis of the natural-barrier-based Swiss repository system: The safety is in the rock *(T. Vietor)*	ELBRock – Development of High-Level Radioactive Waste Container Concepts for Final Disposal in Crystalline Host Rock *(A. Wunderlich)*	Biting on Granite – the technical and natural science side of accelerating site selection in Germany
13:50 – 14:10	From Construction to Decommissioning: Memory, Community and Adaptation at Trawsfynydd Nuclear Power Station, North Wales *(W. Potter)*	Code development and verification for the review of long-term safety analyses *(J. Eckel)*	Enhancing Requirements for HLW Disposal Containers and Developing Transparent Safety Evaluation Concepts in Collaboration between BAM and BASE (Research Project KAnnE) *(A. Banerjee)*	
14:10 – 14:30	Post-nuclear landscapes – a landscape strategy for the transformation of decommissioned nuclear power plants *(S. v. Einsiedel)*	Long-Term Impact on Humans from a Repository for Radioactive Waste: Experimentally Verified Radioecological Biosphere Model *(V. Ustohalova)*	Innovative Disposal Container Materials: Improved Durability and Manufacturing Feasibility *(H. Völzke)*	
14:30 – 14:50	Beyond Dismantling: Exploring the Adaptive Reuse of Nuclear Power Plants *(M. Freund)*	Considerations of Future Human Actions for a Deep Geological Repository in Switzerland *(R. Wuest)*	Ceramic materials as innovative solutions for the HLW disposal containers: global overview and focus on Andra's R&D programme *(A. Debelle)*	
14:50 – 15:20	***Coffee break***			

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	SESSION T1c Part II **Pasts, presents and futures of nuclear cultures and memories** *Chaired by W. Potter & G. Ruhland* *Plenary*	**SESSION T3a** **Quantitative safety assessment of deep geological disposal: understanding and communicating model uncertainty** *Chaired by O. Kolditz, E. Stein & A. Bond* *Seminar Ship*	**SESSION T5c** **Stability and degradation phenomena of canister and barrier materials for high-level radioactive waste in deep geological repositories** *Chaired by C. Stephan-Scherb* *Studio 2*	**WORKSHOP 04 Part II** *Organised by J. Gräfje & G. Bracke* *Studio 1*
15:20 – 15:40	Between Memory and Forgetting: Following the History of Nuclear Residues in two French sites *(U. Felt)*	OpenWorkFlow - Open source software for the optimisation of the numerical process simulation of safety analyses in the process of site selection *(C. Lehmann)*	Approaches to modelling canister corrosion: from mass balance to coupled electrochemical models *(M. Pekala)*	Biting on Granite – the technical and natural science side of accelerating site selection in Germany
15:40 – 16:00	Path Dependencies and the Nuclear Cycle: Connections Between Proliferation, Disarmament, and Disposal *(E. Saar)*	Enhancing Comprehension through Interactive Visualization of Geological Simulation Results under Uncertainty *(M. Bittens)*	Comprehensive insights into corrosion processes of potential canister materials in bentonite suspension at elevated temperature *(L. Panjiyar)*	
16:00 – 16:20	Canticle of the Nuclear Sun: An Exploration of Rituals in Artistic Research to Address a Proposal for the Long-term Burial of Radioactive Waste in Sardinia *(A. Del Rio)*	ThermoBase: Characterization of the Thermal Field in the Sedimentary Sub-Areas of Germany *(S. Fuchs)*	Trust in corrosion analysis for canister materials: status and challenges *(C. Stephan-Scherb)*	
16:20 – 16:40	Interim Field Report: Nuclear Culture Deep Geologic Repository Workshop *(E. Carpenter)*	Including subsurface uncertainties in the early screening phase for a geological disposal facility for high-level nuclear waste *(C. Derer)*	-	
16:50 – 17:20	***Poster Pitch II (Sessions T1a-c, T2a, T3a, T3b, T4a-c, T5b, T5c, T5g, T6c)*** *Plenary*			
17:20 – 18:40	***Poster Session II (Sessions T1a-c, T2a, T3a, T3b, T4a-c, T5b, T5c, T5g, T6c) and art exhibition (Workshop 8 – Studio 1)*** *Poster Area*			
18:40 – 19:00	***Closing*** ***Video Statement from Harald Lesch (LMU – Ludwig-Maximilians-University Munich & science communicator)*** *Plenary*			
19:00	***Conference Dinner***			

Poster Session II

Session	Title	Presenting Author
T1a	Modelling contaminant transport of soil and landfills: A benchmark study of three numerical Codes	M. Johnen
T1b	40 plus X years interim storage of high active waste	J. M. Neles
T1b	Long-term tests and numerical simulations on metal seals based on continuous force measurement in compressed state	I. Sagradov
T1c	A socio-historical analysis of a memory practice and corresponding regulatory work, through the lens of the “Centre de Stockage de la Manche” (CSM, La Hague, ANDRA, France).	O. Chanton
T1c	Dounreay - Transition from fishing village to atomic town: Experiences from past and present. A qualitative approach	E. Derrer-Merk
T2a	Implicit Assumptions in Radiotoxicity Plots for High-Level Nuclear Waste: Reference Values and Choice of Dose Coefficients	F. Frieß
T3a	Confidence building in the prediction of crushed salt as long-term barrier	L. Friedenberg
T3a	Two-phase reactive transport modelling of gas production and pressure build up over a gallery cross section in a low-level radioactive waste repository	F. Vehling
T3a	Computational Integrity Analysis: Approaches for Uncertainty Quantification and Visualization	J. Thiedau
T3a	Comparison of surface and subsurface data for the construction of a comprehensive DFN model	S. Perkams
T3a	Hydrogeochemical impacts on uranium migration in the Opalinus Clay at Mont Terri	T. Schöne
T3a	Assessment and Communication of Uncertainties in the Site Selection Procedure (BewUSt)	G. Frieling
T3b	The K.I.S.S. project – an overview	H. Seher
T3b	Unpacking Public Perceptions of Nuclear Waste Management: A Systematic Bibliometric Literature Review	L. Fongaro
T3b	Development and implementation of stakeholder engagement strategies from a governance perspective	C.-H. Pettersson
T4	Opportunities for accelerating the site selection process for a highlevel radioactive waste repository in Germany based on the Site Selection Act	G. Bracke
T4a	Evaluation of Volume Change Due to Freeze-Thaw Cycles in Nuclear Waste Repository Safety Assessment	H. Sheng
T4a	Depth of a potential repository with regard to the influence of subglacial overdeepenings and tunnel valleys in the representative preliminary safety assessments	M. Pfaff
T4b	Get the current state right first – lessons learnt from a groundwater modelling perspective	K. Brömme
T4b	Host rock-specific preliminary safety concepts for the representative preliminary safety assessments	E.-M. Gottron
T4b	Impact of processes and their qualitative evaluation on the safety functions in a repository system	Y. Messerschmidt
T4c	Towards an inclusive long-term sociotechnical approach of radioactive waste disposal – sustainability in the making	T. Flüeler
T4c	A Model-Based Assessment of Centralized and Decentralized Interim Waste Storage for HLW in Germany	A. Wimmers
T4c	From Concept Development to Disposal: Austria's Path to a Safe Repository	H. Herzog
T4c	BGE Repository Search Navigator – an interactive multimedia browser-based application for public information	K. Henning
T5b	Early anaerobic corrosion of potential canister material in compacted bentonite	L. Panjiyar
T5c	Innovative Ceramic-Based Solution for a Barrier in an EBS: Development, Mechanical Behaviour, and Ageing of a Tunnel Liner as a Test Case	A. Debelle
T5c	Quality Assurance of Bentonite - Prospects for Quality Assurance of Bentonite as a Geotechnical Barrier	W. A. Schmidt
T5g	Work package OPTI – A strategic study to develop a mutual understanding about optimisation	P. Herold
T5g	Development and improvement of thermodynamic understanding for use in nuclear waste disposal safety case	S. Brassinnes
T6c	Fusion and Nonproliferation	M. Englert

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09:00 – 09:05	**Opening**		Christoph Hamann (Head of Press and Public Relations, BASE) *Plenary*	
09:05 – 09:45	**Keynote** **"The legal framework on how to accompany the timely nuclear waste disposal: Challenges and Opportunities – an overview"**		Dörte Fouquet (Leuphana University Lüneburg, Germany) *Plenary*	
	SESSION T4c Part I Sustainability-related challenges in geological disposal of radioactive waste – socio-technical perspectives *Chaired by G.S. Schneider & A. Tiggemann* *Plenary*	**Session T3b Part I Social Sciences and Humanities: Current Issues in Research on Radioactive Waste** *Chaired by TBA* *Seminar Ship*	**Session T1b Safety of interim storage and final disposal – interrelationships?** *Chaired by G. Bracke & L. Maerten* *Studio 2*	**WORK-SHOP 7** *Organised by U. Maurer-Rurack & M. Schilling* *Studio 1*
10:00 – 10:20	Sustainability and long-term processes: a cultural perspective *(C. Holtorf)*	Getting future generations involved: the inter-generational challenges of long-term citizen participation in radioactive waste management *(R. Geysmans)*	OBSERVE – A comprehensive dose rate and temperature measurement programme for long-term interim storage (J. H. Klingen)	Uncertainties in geological 3D-Modells: A Challenge in the nuclear waste repository site selection procedure
10:20 – 10:40	Analyzing socio-technical conflicts: characteristics, dimensions and their potential for nuclear waste governance *(S. Enderle)*	Regional development in the context of major infrastructure projects: implementation, regional application and conditions for success *(F. Sperfeld)*	Challenges for Environmental Impact Assessment in the Context of Extended Interim Storage of High-Level Radioactive Waste in Germany *(J. Neugebauer)*	
10:40 – 11:00	Paradoxes of Ignorance: The Role of 'Not Knowing' in the Repository Search for Nuclear Waste *(A. Hirn)*	Including stakeholder participation in the regulatory mission after licensing: an exploratory research on the Swedish case. *(A. Bergmans)*	Results of the world's first long-term large-scale dry storage bundle experiment with fuel rod simulators *(S. Weick)*	
11:00 – 11:20	Designing management systems in accordance with the StandAG *(O. Straeter)*	Creative destruction? Learning from decommissioning to build for the end *(E. Ahlström)*	Interim Storage and Final Disposal: Overview on hypothetical measures from a Study on Interrelationships *(G. Bracke)*	

Time	Friday, September 19th			
11:20 – 11:45		*Coffee break*		
	SESSION T4c **Part I** **Sustainability-related challenges in geological disposal of radioactive waste – socio-technical perspectives** *Chaired by G.S. Schneider & A. Tiggemann*	**Session T3b** **Part II** **Social Sciences and Humanities: Current Issues in Research on Radioactive Waste** *Chaired by TBA*	**SESSION T2a** **Characterisation of spent nuclear fuel and radioactive waste for interim and final disposal** *Chaired by H. Völzke & G. Žerovnik*	**WORKSHOP 05** *Organised by T. Cajuhi, T. Hennig & V. Lay*
	Plenary	*Seminar Ship*	*Studio 2*	*Studio 1*
11:50 – 12:10	Assessing the Long-Term Funding Adequacy and Generational Equity of State Funds under Uncertainty: A Stochastic Model for the German Nuclear Waste Fund KENFO *(M. Awawda)*	Making the Bedrock Valuable: (Re)Producing Conditions for Taxation and Branding within the Final repository Landscape in Finland *(A. Sievers)*	Control of the eligibility of waste packages to the Belgian near surface disposal for short lived LL&ILW *(R. Sghir)*	Early career researchers, knowledge retention and future developments in nuclear waste disposal and radiation protection
12:10 – 12:30	Use of innovative technologies to support RWMO knowledge management, the GRS approach *(H. Seher)*	Between pride and burden: The dissonance between nuclear heritage and nuclear inherited situations in French nuclear culture *(A. Pottin)*	Experiences and perspectives for the design evaluation of Konrad containers *(A. Kömmling)*	
12:30 – 12:50	Lessons learned as one of the key aspects of intergenerational knowledge management at BGE *(P. Feuker)*	Italy's Experience in the Decommissioning of Fuel Cycle Plants: The historian's Perspective (M. Elli)	Strategies for numerical verification of nuclear waste packages of compliance with the permissible activity release during a postulated damaging fire *(A. Glindkamp)*	
12:50 – 13:10	Evaluation and optimisation of the long-term durability of digital storage media - current results from the 'Labest Digital' research project *(C. Melzer)*	-	How to stand the test of time - Waste Package Characterisation for final disposal *(S. Pudollek)*	
13:15 – 13:30	***Closing of the symposium and outlook to safeND 2027***			*Plenary*
13:30 – 14:00	***Takeaway lunch***			

Federal Office
for the Safety of
Nuclear Waste Management

Interdisciplinary research symposium
On the safety of nuclear disposal practices

Time as a safety factor

safeND 2025

Overview	Room		Time
Topic 1: Past, presence and future of nuclear sites			
T1a: Decommissioning of nuclear facilities	Seminar Ship	Thu	10:00 – 11:00
T1b: Safety of interim storage and final disposal – interrelationships?	Studio 2	Thu	17:20 – 18:40
T1c: Pasts, presents and futures of nuclear cultures and memories	Plenary	Thu	13:30 – 16:40
Topic 2: Characterization of waste streams and related aspects			
T2a : Various aspects to interim storage, conditioning and transport	Studio 2	Fri	11:50 – 13:10
Topic 3: Exploring contexts of site selection			
T3a: Quantitative safety assessment of deep geological disposal: understanding and communicating model uncertainty	Seminar Ship	Thu	15:20 – 16:40
T3b: Social Sciences and Humanities: Current Issues in Research on Radioactive Waste	Seminar Ship	Fri	10:00 – 13:10
T3c: Protecting against nuclear threats: safeguards and non-proliferation in waste disposal	Plenary	Wed	15:30 – 16:30
Topic 4: Time related perspectives on waste disposal			
T4a: Impact of climate events and processes on radioactive waste management	Seminar Ship	Thu	11:30 – 12:30
T4b: Safety across time – methods for evaluating the post-closure safety of a deep geological repository	Seminar Ship	Thu	13:30 – 14:50
T4c: Sustainability-related challenges in geological disposal of radioactive waste – socio-technical perspectives	Plenary	Fri	10:00 – 13:30
Topic 5: Deep geological disposal of radioactive waste			
T5a: Optimization of high-level radioactive waste repositories	Studio 2	Thu	11:30 – 12:30
T5b: Containers for final disposal of high-level radioactive waste	Studio 2	Thu	13:30 – 14:50
T5c: Stability and degradation phenomena of canister and barrier materials for high-level radioactive waste in deep geological repositories	Studio 2	Thu	15:20 – 16:40
T5d: Geomechanics of geological and geotechnical barriers in nuclear waste disposal: thermo-hydro-mechanical couplings, rock integrity and long-term safety	Seminar Ship	Wed	15:30 – 18:00
T5e: Radio- and biogeochemical aspects of radionuclide mobility in a deep geological disposal	Seminar Ship	Wed	10:30 – 12:10
T5f: Challenges and innovations in permeability assessment: from lab to digital twins of geological systems	Studio 2	Wed	10:30 – 12:10
T5g: 2nd European Programme on Radioactive Waste Management: strategic studies	Studio 2	Thu	10:00 – 11:00
Topic 6: Shaping the future: strategies, possibilities and temporalities			
T6a: Alternative disposal methods: possibilities to simplify the need for a deep geological disposal?	Plenary	Wed	17:00 – 18:00
T6b: On the nuclear renaissance: memory, practices, futures	Plenary	Wed	10:30 – 12:30
T6c: Challenges regarding fusion energy	Plenary	Thu	11:30 – 12:30
Workshops			
W1: Next Generation Networks and Possibilities - how to involve tomorrow's experts	Studio 1	Wed	10:30 – 12:10
W2: Managing the radioactive waste legacy from the front end compared to the back end of the nuclear fuel chain	Studio 2	Wed	15:30 – 18:00
W3: Long-term projects outside the disposal of high-level waste - factors for sustained societal support and successful project management?	Studio 1	Thu	10:00 – 12:30
W4: Biting on Granite – the technical and natural science side of accelerating site selection in Germany	Studio 1	Thu	13:30 – 16:40
W5: Early career researchers, knowledge retention and future developments in nuclear waste disposal and radiation protection	Studio 1	Fri	11:50 – 13:10
W6: Accelerating the site selection process – what can be learnt from oth-er environmental policy areas?	Studio 1	Wed	15:30 – 18:00
W7: Uncertainties in geological 3D-Modells: A Challenge in the nucleare waste repository site selection procedurer	Studio 1	Fri	10:00 – 11:20
W8: Visuals and Visibility of the Nuclear Renaissance	Studio 1	Wed Thu	14:10 – 15:30 17:20 – 18:40
Panel-Discussion			
P1: Time to Integrate the Social Sciences: Experiences, Lessons, Perspectives	Plenary	Thu	10:00 – 11:00