

ENTRIA

DISPOSAL OPTIONS FOR RADIOACTIVE RESIDUES:
INTERDISCIPLINARY ANALYSES AND
DEVELOPMENT OF EVALUATION PRINCIPLES

**Research on
Radioactive Waste Management
Ethics – Society – Technology**

Final ENTRIA Conference

Program Guide

September 26th - 30th, 2017

Braunschweig

**Steigenberger Parkhotel (Tue-Thu)
and
Haus der Wissenschaft (Fri/Sat)**

Preface

Final ENTRIA Conference – just one more symposium on nuclear waste disposal? Definitely not. Germany looks back at decades of rather unsuccessful attempts of solving the nuclear waste issue. Processes were deadlocked due to incompatible positions and requests of politics, stakeholders, NGOs and other involved groups. It became obvious, that this “wicked problem” could not be solved by developing technical solutions put into operation by classical forms of government, alone. However, it was just as obvious that little experience existed in Germany with alternative approaches, combining challenges of technical large-scale projects, such as building a repository for high level waste and modern forms of participation.

Based on this insight, in 2012 the German Federal Ministry of Education and Research (BMBF) and the two Lower Saxon Ministries for Science and Culture (MWK) as well as for Environment and Climate Protection (MU) proposed to address this issue by forming a true interdisciplinary research project including scientists of natural sciences, engineering, arts, law and social science - ENTRIA was born.

Shortly after and independently, a so called “new start” was proclaimed by German politics that led to introduction of the “site selection act”, establishment of the commission “storage of high level radiative waste” and restructuring and establishments of nuclear waste disposal operators and regulative bodies, particularly BfE and BGE. Working in parallel on the same topic, one from the scientific “slow” academic side, the other influenced by the necessities of day-to-day politics was an exciting experience. Interaction and exchange with each other, how to handle personal interweavings and flexible adaption of work programs characterized ENTRIA's work during the past five years.

During the Final ENTRIA Conference all aspects of this work will be presented and discussed. Starting from the initial struggle how to talk to each other over disciplinary borders. How to find a common language. The fruitful results of teaching each other basics of all participating disciplines being the foundation of true interdisciplinary work, often performed by teams including authors of various disciplines. Meeting the challenge of combining disciplinary science, e.g. for PhD thesis, with interdisciplinary aspects culminating in true interdisciplinary supervisions. Interactions with politics, NGOs and the interested public was also part of ENTRIA's work. A good reason to hold the

Preface

conference not only in English language as an “expert meeting”, but to dedicate Friday evening and Saturday to interact with the German public: “Radioaktiver Abfall – was nun? Befragen Sie ENTRIA!”

ENTRIA is not and never was a closed academic circle. ENTRIA teams collaborate with many players inside and outside Germany. Consequently, the final ENTRIA conference was very deliberately opened for international scientists to share their expertise with ENTRIA and communicate their unbiased views and perspectives on ENTRIA's work. ENTRIA warmly welcomes all participants “from outside”.

This book of abstracts presents the broad variety of topics and approaches from ENTRIA members as well as from scientists worldwide. ENTRIA is looking forward to having a fruitful conference in Braunschweig and experience five days of lively and fruitful academic exchange and valuable discussions.

Hannover, September 2017

Clemens Walther
(Conference Coordinator)

Daily Schedule at a Glance

Monday		Lobby and Terrace	
18:00	Get-Together		
Tuesday		- Maschinenhalle -	- Nîmes -
09:00	Conference Opening		
09:10	Welcoming Address - Rüdiger Eichel -		
09:30	Advisory Board - Pius Krütli -		
09:50	Keynote Session 1 - Bernd Grambow -		
11:00	<u>COFFEE BREAK</u>		
11:30	Session 1	Session 2	
13:00	<u>LUNCH</u>		
14:15	Session 3	Session 2	
16:35	<u>COFFEE BREAK</u>		
17:00	Keynote - Ursula Heinen-Esser -		
18:00	Session 3		
19:30	Poster Session		
Wednesday		- Maschinenhalle -	- Nîmes -
09:00	Session 4	Session 5	
09:45	Session 4		
10:30	<u>COFFEE BREAK</u>		
11:00	Session 4 / Session 6	Session 5	
13:00	<u>LUNCH</u>		
14:15	Keynote Session 7 - Kristin Shrader-Frechette -		
15:30	<u>COFFEE BREAK</u>		
16:00	Session 7	Session 6	
20:00	Conference Dinner		
Thursday		- Maschinenhalle -	- Nîmes -
09:00	Session 8	Session 6	
10:45	<u>COFFEE BREAK</u>		
11:10	Session 8 / Session 9	Session 1	
13:30	<u>LUNCH</u>		
14:45	Session 9	Session 10	
16:45	<u>COFFEE BREAK</u>		
17:00	Session 9	Session 10	
18:00	Session 9		
19:00	Closing Remarks		

Daily Schedule at a Glance

Friday	
from 06:30	Excursions
20:00	<div style="background-color: #d3d3d3; padding: 2px; text-align: center;">Haus der Wissenschaft</div> Pleadings for each Key Disposal Option and Contradictions

Radioactive Waste – what next? Ask ENTRIA!

- Conference Language: German -

Saturday			
Haus der Wissenschaft			
10:00	Welcome and Introduction of ENTRIA		
10:40	Introduction of the Investigated Disposal Options		
11:25	Germany's New Start in the Search for a Final Disposal Site		
12:00	Poster Tour		
12:30	<u>LUNCH</u>		
13:30	Science-Speed-Dating		
15:00	<u>COFFEE BREAK</u>		
Parallel Sessions			
15:30	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-right: 1px solid black; padding: 5px; text-align: center;"> Session 1: Interdisciplinary Problem Solving </td> <td style="width: 50%; padding: 5px; text-align: center;"> Session 2: Norms and Values </td> </tr> </table>	Session 1: Interdisciplinary Problem Solving	Session 2: Norms and Values
Session 1: Interdisciplinary Problem Solving	Session 2: Norms and Values		
16:30	What Remains? What is About to Come?		

Session Overview

Session 1:

Addressing Technical and Societal Risks and Uncertainties

Aspects of risk and uncertainties are closely linked to nearly every part of radioactive waste management. This session focuses on the management of these aspects - ranging from the safety of technical systems over radiation protection to uncertainties concerning the societal evolution over the next decades.

Session 2:

Governance & Monitoring

Critical infrastructures are built to ensure the safety and security of e.g. dangerous wastes. These need to be at the center of attention of governmental regulation and authorities. If the protection of human health and the environment as much as the ethical question of a “Good Life” for current society and for future generations are considered a societal aim, then the state and its agencies have to build confidence in the decisions with robust management programs and public dialogue involving the often very concerned public. A screening of the state of the art for long-term monitoring and robust institutions in the scientific literature on dangerous wastes showed that plans for technological monitoring, long-term governance and also for public dialogue are not well-prepared. The concepts of reversibility and retrievability render these tasks even more challenging. The aim of this session is to discuss the challenges of and approaches to technical monitoring and long-term governance in an interdisciplinary manner. Scientists from radioactive waste management, spatial planning, political sciences, Science and Technology Studies, ethics, technology assessment and engineering with interest in interdisciplinary research will present their perspectives and results on this topic.

Session 3:

Substantiating the German Radioactive Waste Management (RWM) Pathway: Time Frames, Technical and Procedural Issues

This topic provides scientific support for further specifying details of the pathway “final disposal with reversibility” not yet defined in the recommendations by the German “Endlagerkommission” and the Site Selection Act. Examples include timeframes for several stages (e.g. “monitoring in advance to closure of the repository”), recoverability requirements and participation issues.

Session 4:

Experiences in Interdisciplinary Cooperation: Methods, Challenges, Outcome

Scientific cooperation in interdisciplinary research projects is challenging. There are only few books, journals and reports on the subject. This topic focuses on experiences in interdisciplinary cooperation between natural and technical scientists and researchers in social sciences and humanities.

Session 5:

Education & Training in RWM: Interdisciplinary and Disciplinary Aspects

This session covers disciplinary and interdisciplinary education and vocational training of all topics related to nuclear waste disposal and presentations on interdisciplinary cooperative projects and national programs. The session shall comprise short topical presentations followed by a panel discussion.

Session Overview

Session 6:

Geoscientific and Geotechnical Aspects of High-Level Radioactive Waste Disposal

Most nations dealing with the disposal of high-level nuclear waste are aiming for a deep geological repository. This topic is directed at researchers in geology, mining and geotechnics. Scientific results and recent research in the field of deep geological disposal will be presented.

Session 7:

Ethical and Juridical Challenges in RWM

The political and the scientific debates on RWM are both loaded with normative issues. This disciplinary section includes papers addressing challenges faced in ethical reflection and juridical inquiry of the legal codifications needed as guidelines for storage and disposal.

Session 8:

Research Needs in Technical and Non-Technical Disciplines — How Good is Good Enough?

This session collects existing deficits for realization of a disposal strategy, both from the technical viewpoint and concerning procedural challenges. In an open discussion, we address the question whether one should aim at the best conceivable solution or rather – by a more pragmatic approach – at a solution of “only” adequate safety.

Session 9:

Governance & Participation

New Governance with early modes of public participation and integration of stakeholders has been a promising approach in the last decade, especially in contested policy fields. In the case of critical infrastructures like nuclear waste disposal sites the potential for human intrusion and the uncontrolled distribution of radionuclides was scandalized by NGOs, pressure groups of the anti-nukes movement and a number of political parties. Governmental organizations and international institutions were willing to integrate the interested public in decision-making, e.g. in Switzerland, Sweden and in the last years also in Germany. In this section the theoretical and conceptual aspects of governance in nuclear waste management and the embeddedness of conflicts at concrete sites are discussed. Furthermore, experiences with participation in the context of radioactive waste management in specific countries are addressed.

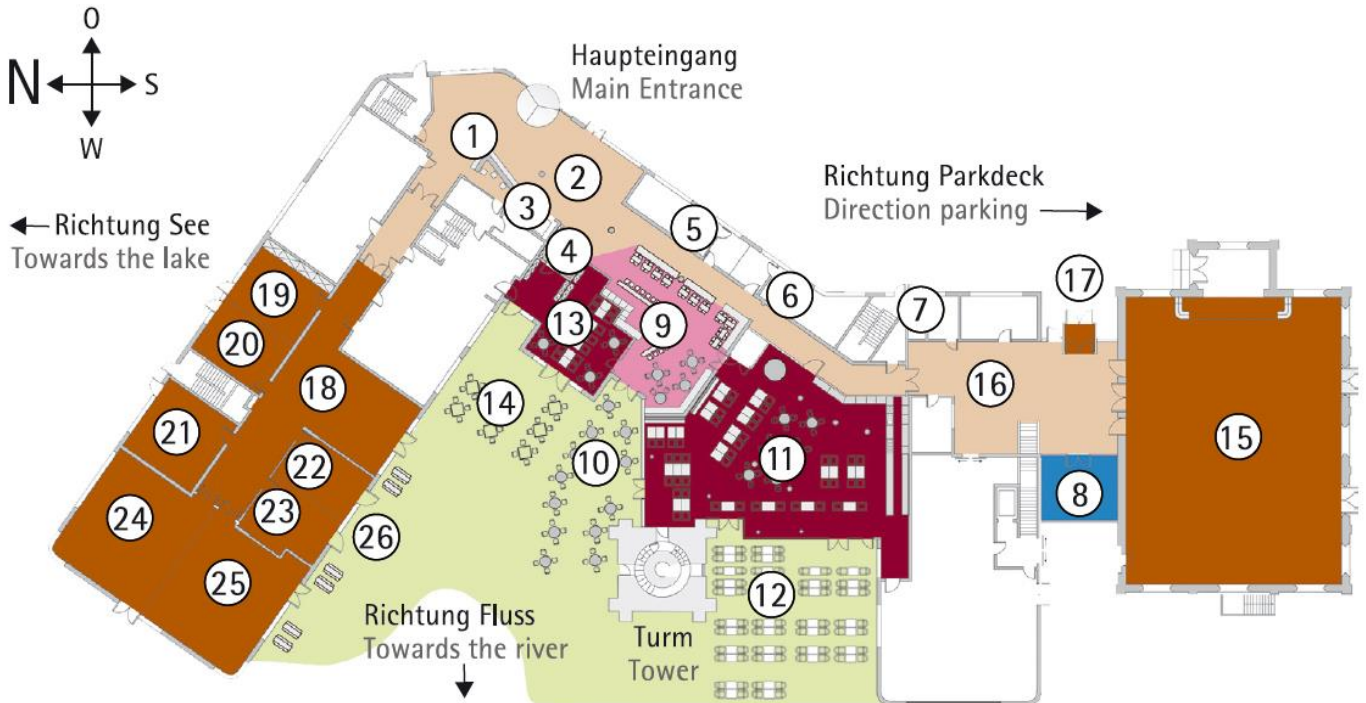
Session 10:

Technical Criteria and Normative Values for Long-Term Interim Storage of SNF and HLW

Considering the estimated schedules for any disposal of HLW and SNF, it has become clear that interim storage will be practiced longer than most of the current facilities are designed for. Furthermore, the desired scientific and political paradigm to dispose of the waste as quickly and definitively as possible was put under some scrutiny. This session aims at combining interdisciplinary research and approaches on long-term interim storage as a necessary step in RWM-strategies, addressing technical and normative challenges to be taken into account.

Orientation

ZUR ORIENTIERUNG FOR ORIENTATION



ÖFFENTLICHER BEREICH PUBLIC AREA

- | | |
|--|--|
| 1 Rezeption Reception | 9 Bar Bar |
| 2 Eingangsbereich Lobby | 10 Bar-Terrasse
Terrace bar |
| 3 Fahrstuhl Lift | 11 Restaurant
Restaurant |
| 4 PC & Drucker Business Corner | 12 Restaurant-Terrasse
Terrace restaurant |
| 5 WC Damen Toilets Women | 13 Vinothek Enoteca |
| 6 WC Herren Toilets Men | 14 Vinothek-Terrasse
Terrace Enoteca |
| 7 Wickeltisch Baby changing table
and WC Toilets ♿ | |
| 8 Raucherbereich, Zigarettenautomat
Smoking area, cigarette machine | |

VERANSTALTUNGSSÄLE FUNCTION ROOMS

- | | | |
|--|--------------------|--|
| 15 "Historische Maschinenhalle" | 20 Salon "Sousse" | 24 Saal Nîmes I |
| 16 Foyer "Historische Maschinenhalle" | 21 Salon "Kasan" | 25 Saal Nîmes II |
| 17 Eingang Entrance "Historische Maschinenhalle" | 22 Salon "Bandung" | 26 Terrasse Terrace
"Conference Center" |
| 18 Foyer "Conference Center" | 23 Salon "Omaha" | |
| 19 Salon "Bath" | | |

Tuesday, September 26th

- Maschinenhalle -		- Nîmes -		
09:00	Clemens Walther Conference Opening			
09:10	Rüdiger Eichel Welcoming Address			
09:30	Pius Krütli Role of the Advisory Board within ENTRIA			
S1: Addressing Technical and Societal Risks and Uncertainties Session Chairs: Clemens Walther and Moritz Riemann				
09:50	Bernd Grambow Keynote: Geological Disposal of Nuclear Waste			
11:00 <i>C O F F E E B R E A K</i>				
S1 (continued): Addressing Technical and Societal Risks and Uncertainties Session Chairs: Clemens Walther and Moritz Riemann		S2: Governance & Monitoring Session Chairs: Ulrich Smeddinck and Sophie Kuppler		
11:30	Luis Apricio Addressing Future Uncertainties in the French Cigéo Project	Karl-Heinz Lux Multiphysical Process Simulation and Participation	11:30	
11:50	Open Discussion	Open Discussion	11:50	
12:00	Nele Wulf Decision Making in Spite of Ignorance? Phenomena of Ignorance in Sweden's Radioactive Waste Management.	Thomas Hassel Monitoring in the Deep Geological Disposal	12:00	
12:20	Open Discussion	Rocio Leon-Vargas Retrieval or Closure – Geotechnical Monitoring as a Decision Tool	12:20	
12:30	Johannes Meeussen Managing Uncertainties in Radionuclide Migration Rates in Boom Clay	Open Discussion	12:40	
12:50	Open Discussion			
13:00 <i>L U N C H</i>				

Tuesday, September 26th

S3: Substantiating the German RWM-Pathway: Time Frames, Technical and Procedural Issue Session Chairs: Klaus-Jürgen Röhlrig and Michael Sailer		S2 (continued): Governance & Monitoring Session Chairs: Ulrich Smeddinck and Sophie Kuppler	
14:15	Sophie Kuppler Hindrances and Supportive Factors on the Way Towards a New Paradigm in RWM in Germany	Christoph Görg – Invited Talk – Challenges of the Anthropocene. The Case of Nuclear Waste	14:15
14:35	Beate Kallenbach-Herbert The Self-Reflecting Process – a New Challenge		Open Discussion 14:45
- Maschinenhalle -		- Nîmes -	
14:55	Pius Krütli – Invited Talk – Safety First, Glasnost and Fairness: Will the Upcoming Repository Site Selection Process in Germany be able to meet its High Ambitions?	Pieter Cools (held by Anna-Laura Liebenstund) Producing a Handbook on Repository Monitoring to Facilitate Stakeholder Involvement and Interdisciplinary Dialogue	15:00
15:25	Open Discussion	Open Discussion	15:20
15:40	Ansgar Köhler Handling Techniques for HLW Retrieval Considering the Influence of Generic Container Concepts	Hanns-Maximilian Schmidt The Search for a Final Repository in Germany: Results of a Series of Stakeholder Interviews and Economic Experiments	15:35
16:00	Harald Budelmann Evolution of Technical Requirements for Long-Term Interim Storage Facilities	Jantine Schröder Preservation of Records, Knowledge and Memory Across Generations: An Interdisciplinary Endeavour	15:55
16:20	Open Discussion	Open Discussion	16:15
16:35	<i>C O F F E E B R E A K</i>		



ENTRIA

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Tuesday, September 26th

17:00	<p>Ursula Heinen-Esser</p> <p>Keynote: Shaping the German Pathway to Radioactive Waste Disposal</p>
<p>S3: Substantiating the German RWM-Pathway: Time Frames, Technical and Procedural Issue</p> <p>Session Chairs: Klaus-Jürgen Röhlig and Michael Sailer</p>	
18:00 – 18:30	<p>Miranda Schreurs</p> <p>Participation, Risk and Democracy: Selection Process for a New Site in Germany</p>
19:30	<p>Poster Session</p>

Wednesday, September 27th

- Maschinenhalle -		- Nîmes -	
S4: Experiences in Interdisciplinary Cooperation: Methods, Challenges, Outcome Session Chair: Moritz Riemann		S9: Governance & Participation Session Chair: Peter Hocke and Klaus-Jürgen Röhlig	
09:00	Antonietta Di Giulio – Invited Talk – Design the Undesignable	Allison Macfarlane – Invited Talk – Democracy and Nuclear Waste Disposal: International Experience	09:00
09:30	Open Discussion	Open Discussion	09:30
S4 (continued): Experiences in Interdisciplinary Cooperation: Methods, Challenges, Outcome Session Chair: Moritz Riemann		S5: Education & Training in RWM: Interdisciplinary and Disciplinary Aspects Session Chairs: Clemens Walther and Kenichi Oshima	
09:45	Armin Grunwald Integrating Knowledge for Nuclear Waste Disposal: Beyond Inter- and Transdisciplinary Research	Peter Schmidt – Invited Talk – Building Bridges with the Public	09:45
10:15	Open Discussion	Open Discussion	10:15
10:30	<i>C O F F E E B R E A K</i>		
11:00	Saleem Chaudry Synthesis of Results within the Interdisciplinary Research Project ENTRIA	Michael Sailer – Invited Talk – Transfer of Expertise in Waste Disposal - The Challenges	11:00
11:20	Open Discussion		

Wednesday, September 27th

S6: Geoscientific and Geotechnical Aspects of High-Level Radioactive Waste Disposal Session Chair: Elmar Plischke		S5 (continued): Education & Training in RWM: Interdisciplinary and Disciplinary Aspects Session Chairs: Clemens Walther and Kenichi Oshima	
11:30	Aleksandra Schwenk-Ferrero Decision Making Support Applying Multi-Criteria Decision Aid Methods to Wicked Waste Management Problems	Open Discussion	11:30
11:50	Open Discussion	Clemens Walther Interdisciplinary Education and Training by ENTRIA	11:40
- Maschinenhalle -		- Nîmes -	
12:00	Claudia König Role and Implementation of Dose Modelling in Final Disposal of Radioactive Waste	Julia Neles Raising Public Awareness of Nuclear Waste Management by Active Information – a Field Report	12:00
12:20	Open Discussion	Brian J. Gullekson Public Perception Informed Nuclear Fuel Cycle Selection in the United States	12:20
12:30	Frank Becker Monte-Carlo Simulations for individual Dosimetry in Disposal Facilities for Spent Nuclear fuel	Open Discussion	12:40
12:50	Open Discussion		
13:00	<i>LUNCH</i>		
S7: Ethical and Juridical Challenges in RWM Session Chairs: Julia Pohlens and Saleem Chaudry			
14:15	Kristin Shrader-Frechette Keynote: Nuclear-Waste Decisions: Flawed by Special-Interest Science		
15:30	<i>COFFEE BREAK</i>		

Wednesday, September 27th

S7 (continued): Ethical and Juridical Challenges in RWM		S6 (continued): Geoscientific and Geotechnical Aspects of High-Level Radioactive Waste Disposal	
Session Chairs: Julia Pohlers and Saleem Chaudry		Session Chair: Elmar Plischke	
16:00	Konrad Ott Introduction – The Ethics of RWM	Ralf Wolters Local, Functional as well as Global Models – a Way to Analyze the Long-term System Behaviour of a Repository for HLW Built in Salt Rock Mass	16:00
16:20	Open Discussion	Open Discussion	16:20
- Maschinenhalle -		- Nîmes -	
16:30	Franziska Semper Responsibility towards Future Generations in German Nuclear Law	Juan Zhao Multiphysical Process Analysis as well as System Analysis Concerning the Post-operational System Behaviour of a Repository for HLW Built in a Clay Stone Formation	16:30
16:50	Open Discussion	Open Discussion	16:50
17:00	Matti Kojo Ethical Discussion on Final Disposal of SNF in Finland and Sweden	Volker Metz Reactive Transport Modelling: Near Field Evolution and Radionuclide Migration in Generic Spent Nuclear Fuel Repositories	17:00
17:20	Open Discussion	Open Discussion	17:20
17:30	Moritz Riemann Concurring Values – Conflicts in Distributive and Procedural Justice	Helge Moog THEREDA – Thermodynamic Reference Database	17:30
17:50 – 18:00	Open Discussion	Open Discussion	17:50
20:00	Conference Dinner		

Thursday, September 28th

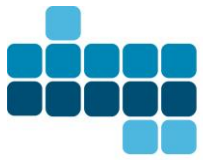
- Maschinenhalle -		- Nîmes -	
S8: Research Needs in Technical and Non-Technical Disciplines – How Good is Good Enough? Session Chairs: Pius Krütli and Erik Pönitz		S6 (continued): Geoscientific and Geotechnical Aspects of High-Level Radioactive Waste Disposal Session Chair: Karl-Heinz Lux	
09:00	Peter T. Wikberg – Invited Talk – Research on Radioactive Waste Management	Francis D. Hansen – Invited Talk – Perspectives on our Nuclear Waste Imperative	09:00
09:30	Open Discussion	Open Discussion	09:30
09:40	Stéphan Schumacher – Invited Talk – Research Needs for Implementing a Radioactive Waste Disposal: How Good is Good Enough? The French Experience Feedback	Nina Müller-Hoppe Applicability of the Partial Safety Factor Method to Long Time Periods	09:40
		Open Discussion	10:00
10:10	Open Discussion	Volker Mintzlaff Host Rock Evaluation for a Generic High-Level Radioactive Waste Repository with Retrievability	10:10
10:20	Jörg Feinhals No Nuclear Power - No Disposal Facility?		
		Open Discussion	10:30
10:40	Open Discussion		
10:45	<i>C O F F E E B R E A K</i>		
S8 (continued): Research Needs in Technical and Non-Technical Disciplines - How Good is Good Enough? Session Chairs: Pius Krütli and Erik Pönitz		S1 (continued): Addressing Technical and Societal Risks and Uncertainties Session Chairs: Bernd Grambow and Moritz Riemann	
11:10	Frank Tawussi Influence of Chemical Speciation on Plant Uptake of Radionuclides	Ingo Kock (held by Guido Bracke) Multiphase Flow in a Shallow ILW/LLW Repository in Germany	11:10
11:30	Open Discussion	Open Discussion	11:30

Thursday, September 28th

11:40	Lucy Bailey – Invited Talk – Approaches to Dealing with Uncertainty	Dirk Herrling ReSUS: Repository Simulation, Uncertainty Propagation and Sensitivity Analysis	11:40
		Open Discussion	12:00
- Maschinenhalle -		- Nîmes -	
12:10	Open Discussion	Xiaoshuo Li	
12:20	Guido Bracke Deep Borehole Disposal of HLRW in Germany	3-D Numerical Modelling and Probabilistic Analysis of RN-Transport Based on TMH2-Coupled Two Phase Flow Model for Clay Disposal	12:10
12:40	Open Discussion	Open Discussion	12:30
S9: Governance & Participation Session Chair: Peter Hocke and Klaus-Jürgen Röhlig		S1 (continued): Addressing Technical and Societal Risks and Uncertainties Session Chairs: Bernd Grambow and Moritz Riemann	
12:50	Andrew Blowers – Invited Talk – Participation, Power and Policy Making for Radioactive Waste Management – Implications for Democracy and Governance	Anne Eckhardt Comparative Risk Assessment of Disposal Options for Radioactive Waste	12:50
13:20	Open Discussion	Open Discussion	13:10
13:30	<i>LUNCH</i>		

Thursday, September 28th

S9 (continued): Governance & Participation		S10: Technical Criteria and Normative Values for Long-term Interim Storage of SNF and HLW	
Session Chair: Peter Hocke and Klaus-Jürgen Röhlig		Session Chair: Konrad Ott and Harald Budelmann	
14:45	Roman Seidl Nuclear Waste Siting as a Model for Dealing with Hazardous Waste	Ansgar Köhler Technical Concepts for Maintenance and Repair of HLW-Storage Containers in the Framework of Long-Term-Interim Storage	14:45
15:05	Claudia Alpiger The Importance of Different Characteristics of a Citizen Participation Process	Open Discussion	15:05
15:25	Open Discussion	Dennis Köhnke Study of the Heat Removal in an Interim Storage Facility for High Level Waste and Spent Fuel by Airflow due to Natural Convection	15:15
		Open Discussion	15:35
- Maschinenhalle -		- Nîmes -	
15:40	Cord Drögemüller Local Views on Disposal Options and Governance of Radioactive Waste in Germany. A Sociological Analysis of the Status Quo	Lena Mengel Radiation Effects on Concrete	15:45
16:00	Rosaria Di Nucci In Whose Backyard? The Wicked Problem of Siting Nuclear Waste Repositories	Open Discussion	16:05
16:20	Open Discussion	Manuel Reichardt Challenges Concerning Long-Term Resistance of Interim Storage Facilities Against Extreme Mechanical Loads and Modelling Approaches	16:15
		Open Discussion	16:35
16:35	<i>C O F F E E B R E A K</i>		16:45



Thursday, September 28th

17:00	<p>Melanie Mbah</p> <p>Participation and Deliberation in Radioactive Waste Management – Challenges for Democracies</p>	17:15
17:20	<p>Max Richard Schindler</p> <p>Old Ditches, New Frontiers? – Stakeholders’ Perceptions of Gorleben and Their Claims towards a New Approach for Finding a Repository in Germany</p>	17:35
17:40	Open Discussion	
<p>S9 (continued): Governance & Participation Session Chair: Peter Hocke and Klaus-Jürgen Röhlig</p>		
18:00	<p>Peter Hocke Terms are more than Words. The Meaning of Governance in the Context of RW</p>	18:00
18:20	Open Discussion	18:20
18:30	<p>Stefan Jordi Swiss Experience: Learning by Doing Participation</p>	18:30
18:50	Open Discussion	18:50
19:00	Closing Remarks	19:00

Friday, September 29th

Excursions

Starting and destination point is the Steigenberger Hotel.

Morsleben Repository, guided tour in English

Departure: 06:30 h
Return (estimated): 14:00 h

Federal Institute for Geosciences and Natural Resources (BGR in Hanover), guided tour in German

Departure: 08:00 h
Return (estimated): 15:00 h

Asse II mine, guided tour in English

Departure: 10:00 h
Return (estimated): 18:00 h

Field Trip: Geology of the Harz Mountains, guided tour in English. Sturdy shoes required.

Departure: 08:00 h
Return (estimated): 16:00 h

Orientation

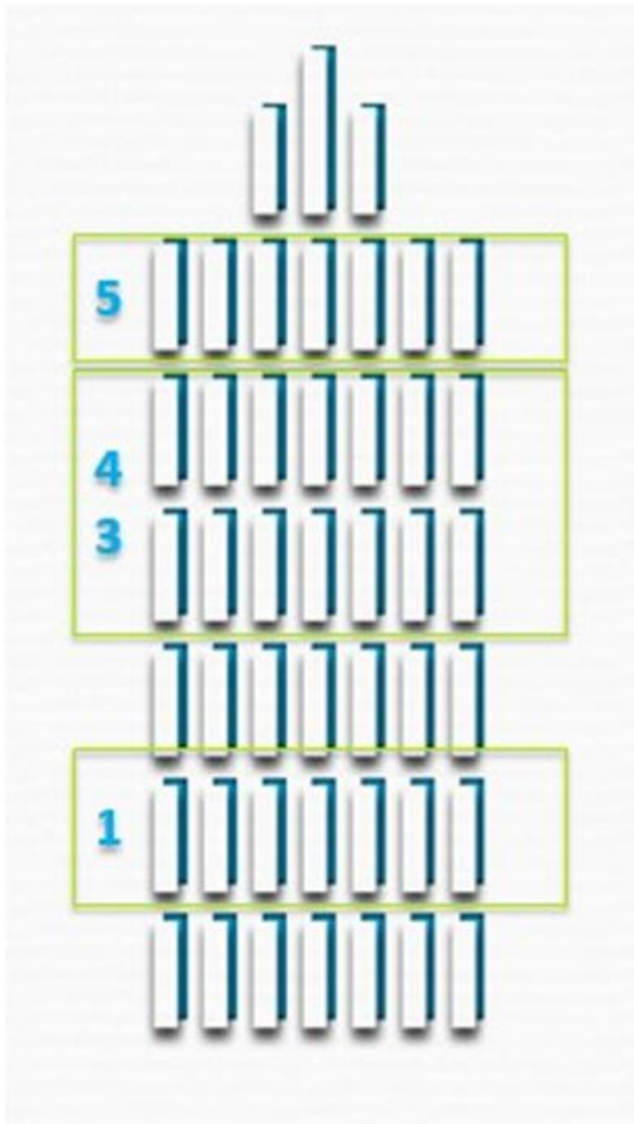
Friday, 29th and Saturday, 30th September 2017

Haus der Wissenschaft

Pockelsstraße 11

Braunschweig

**HAUS DER
 WISSENSCHAFT**
 BRAUNSCHWEIG



5th Floor
 Room Veolia and
 Room Weitblick
 15:30 – 16:30 Session 2

4th Floor
 Gallery above the Assembly Hall
 12:00 – 12:30 Poster Tour

3rd Floor – Assembly Hall
 10:00 - 12:00 Welcome
 13:30 - 15:00 Speed Dating
 15:30 - 16:30 Session 1
 16:30 - 17:00 Conclusion

1st Floor
 Foyer
 12:30 – 13:30 Lunch
 15:00 – 15:30 Coffee Break

Orientation

Pleadings for each Key Disposal Option and Contradictions

- Language: German -
- Location: Haus der Wissenschaft, Pockelsstraße 11, Braunschweig -
- Time: 20:00h -

Pleading for “Final Disposal in Deep Geological Formations without any Arrangements for Retrieval“	Klaus-Jürgen Röhlig
Contradiction	Moritz Riemann
Pleading for “Disposal in Deep Geological Formations with Arrangements for Monitoring and Retrieval”	Joachim Stahlmann
Contradiction	Saleem Chaudry
Pleading for “Surface Storage”	Harald Budelmann
Contradiction	Sophie Kuppler

Plädoyers für jede der drei wichtigen Entsorgungsoptionen und Gegenrede

- Sprache: Deutsch -
- Ort: Haus der Wissenschaft, Pockelsstraße 11, Braunschweig -
- Beginn: 20:00h -

Plädoyer für die “Endlagerung in tiefen geologischen Formationen ohne Vorkehrungen zur Rückholbarkeit (wartungsfreie Tiefenlagerung)”	Klaus-Jürgen Röhlig
Gegenrede	Moritz Riemann
Plädoyer für die “Einlagerung in tiefe geologische Formationen mit Vorkehrungen zur Überwachung und Rückholbarkeit”	Joachim Stahlmann
Gegenrede	Saleem Chaudry
Plädoyer für die “Oberflächenlagerung”	Harald Budelmann
Gegenrede	Sophie Kuppler

Saturday, September 30th

Radioactive Waste – what next? Ask ENTRIA!
 Approaches and Results of Five Years of Research

- Conference Language: German -

- Location: Haus der Wissenschaft, Pockelsstraße 11, Braunschweig -

10:00	Welcome and Introduction of ENTRIA	Klaus-Jürgen Röhlig
10:40	Introduction of the Investigated Disposal Options <ul style="list-style-type: none"> - Final Disposal in Deep Geological Formations without any Arrangements for Retrieval (Maintenance-free Deep Geological Disposal) - Disposal in Deep Geological Formations with Arrangements for Monitoring and Retrieval - Surface Storage 	Klaus-Jürgen Röhlig / Karl Heinz Lux Joachim Stahlmann Harald Budelmann
11:25	Germany's New Start in the Search for a Final Disposal Site. Findings from Governance Research	Cord Drögemüller Sophie Kuppler
12:00	Poster Tour - at the gallery above the assembly hall -	
12:30	<i>LUNCH</i>	
13:30	Science-Speed-Dating Topics at the tables: <ul style="list-style-type: none"> - Long-Term Safety - Retrieval and Monitoring - Long-term Interim Storage - Citizen's Forum - Risk Map - Governance (Institutions, Instruments, Processes) - Non-Knowledge - Inventory and Types of Waste - Site Selection Act - Regulatory Limit 	
15:00	<i>COFFEE BREAK</i>	



Saturday, September 30th

Parallel Sessions	
15:30	Session 1: Interdisciplinary Problem Solving Outcome and Discussion
	Session 2: Norms and Values Ethics and Law in Exchange about Radioactive Residues Eckard Rehbinder Klaus Kornwachs Format: Fish-Bowl
16:30 – 17:00	What Remains? What is About to Come? Conclusion and Feedback from the Audience with Reference to the Question “What Kind of Research is Needed in the Future?”

Samstag, 30. September

Radioaktiver Abfall – was nun? Befragen Sie ENTRIA!
 Ansätze und Ergebnisse aus fünf Jahren Forschung

- Konferenzsprache: Deutsch -

- Ort: Haus der Wissenschaft, Pockelsstraße 11, Braunschweig -

10:00	Begrüßung und Vorstellung ENTRIA	Klaus-Jürgen Röhlig
10:40	Vorstellung der betrachteten Entsorgungsoptionen - Endlagerung ohne Vorkehrung zur Rückholbarkeit - Einlagerung in tiefe geologische Formationen mit Vorkehrung zur Überwachung und Rückholbarkeit - Oberflächenlagerung	Klaus-Jürgen Röhlig / Karl Heinz Lux Joachim Stahlmann Harald Budelmann
11:25	Neustart in der Endlagersuche. Ergebnisse der Governance-Forschung	Cord Drögemüller Sophie Kuppler
12:00	Posterrundgang - in der Galerie über der Aula -	
12:30	M I T T A G E S S E N	
13:30	Wissenschafts-Speeddating Themen der einzelnen Tische: - Langzeitsicherheit - Rückholbarkeit und Monitoring - Langfristzwischenlagerung - Bürgerforum - Risikokarte - Governance (Institutionen, Instrumente, Verfahren) - Nichtwissen - Inventar und Abfallarten - StandAG - Grenzwerte	
15:00	K A F F E E P A U S E	

Samstag, 30. September

Parallelsession			
15:30	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> Session 1: Interdisziplinäre Problembearbeitung Ergebnisse und Diskussion </td> <td style="width: 50%; vertical-align: top;"> Session 2: Normen und Werte Ethik und Recht im Dialog über radioaktive Reststoffe Eckard Rehbinder Klaus Kornwachs </td> </tr> </table>	Session 1: Interdisziplinäre Problembearbeitung Ergebnisse und Diskussion	Session 2: Normen und Werte Ethik und Recht im Dialog über radioaktive Reststoffe Eckard Rehbinder Klaus Kornwachs
Session 1: Interdisziplinäre Problembearbeitung Ergebnisse und Diskussion	Session 2: Normen und Werte Ethik und Recht im Dialog über radioaktive Reststoffe Eckard Rehbinder Klaus Kornwachs		
16:30 – 17:00	Was bleibt und was kommt? Tagesabschluss und Feedback aus dem Publikum zur Frage "Welche Forschung braucht es in Zukunft?"		