

The background of the entire page is a technical drawing or blueprint. It features various lines, circles, and handwritten numbers such as '1700', '1380', '8700', and '781'. A metal caliper is positioned diagonally across the right side of the image, with its legs resting on the drawing. The overall color palette is light blue and white.

**International Conference on**

# **Topical Issues in Nuclear Installation Safety**

**Safety Demonstration  
of Advanced Water Cooled  
Nuclear Power Plants**

**6–9 June 2017  
Vienna, Austria**

# **Programme**



**IAEA**

*60 Years*

*Atoms for Peace and Development*

**CN-251**

**Organized by the**  
International Atomic Energy Agency



**IAEA** *60 Years*  
*Atoms for Peace and Development*

## **Conference**

President	Petteri Tiippana Director General STUK Finland
<b>IAEA Secretariat</b>	
Scientific Secretaries	Cornelia Spitzer Stefano Monti
Scientific Support	Anthony Ulses Javier Yllera Kristine Madden Tatjana Jevremovic
Administrative Support	Sanja Hadzic
Conference Organizer	Julie Zellinger
Intern	Francisco Parada Iturria

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## **Conference Location**

International Atomic Energy Agency  
Vienna International Centre (VIC)  
M Building, Board Room A, 2nd floor  
Wagramer Straße 5  
1400 Vienna, Austria  
Tel.: (+43) 1 2600 0  
E-mail: [official.mail@iaea.org](mailto:official.mail@iaea.org)

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## **Working Language**

English

## **Resolutions**

No resolutions may be submitted for consideration on any subject; no votes will be taken.

## Scientific Organizing Committee

### Chair

M. Hirano, Chair            Japan

### Members

O. Calzetta Larrieu        Argentina  
M. Zheng                    China  
H. Xing                     China  
W. Zeng                     China  
D. Song                     China  
K. Herviou                 France  
F. De Bois                 France  
U. Stoll                     Germany  
B. Baller                    Hungary  
A. Kahata                  Japan  
K. Araj                      Jordan  
T.E. Jin                     Korea, Republic of  
C. Song                     Korea, Republic of  
P. Kral                      NUGENIA  
L. Chaniel                 OECD/NEA  
A. Lorin                     OECD/NEA  
V.S. Bezzubtsev         Russian Federation  
O. Phillips                 South Africa  
I. Korir                     South Africa  
D. Loy                      Switzerland  
M. Ceyhan                 Turkey  
A.A. Al Hosani            United Arab Emirates  
M. El-Shanawany        United Kingdom  
C. McDaniel              United States of America  
M. Colby                    United States of America  
T.C. Thanh                Viet Nam

## TIMETABLE

### Monday, 05 June 2017

14:30 – 18:00    Registration                    Gate 1

### Tuesday, 06 June 2017

08:00              Registration and  
Distribution of Conference  
Materials                      M Building

10:00 – 10:30    Opening Plenary              Board Room A

10:30 – 11:00    *Meet and Greet Coffee/Tea Break*

11:00 – 13:00    Plenary 1: The Vienna  
Declaration on Nuclear  
Safety: Objectives,  
Challenges and Prospects    Board Room A

13:00 – 14:00    *Lunch Break*

14:00 – 16:00    Technical Session 1:  
Young Generation Event    Board Room A

14:00 – 16:00    Technical Session 2:  
Progress on Severe  
Accidents Management      Conference Room M2

14:00 – 16:00    Technical Session 3:  
Contributions to the  
Harmonization of  
Approaches and Methods  
at the Member State Level    Conference Room M6

16:00 – 16:30    *Coffee/Tea Break*

16:30 – 18:30    Technical Session 4:  
Uncertainty Qualification  
and Safety Margins          Conference Room M2

16:30 – 18:30    Technical Session 5:  
Contributions to  
Harmonization of  
Approaches and Methods  
by International Forums      Conference Room M6

16:30 – 18:30    Technical Session 6:  
Investigation on Corium  
Cooling                      Conference Room M7

18:30 – 20:00    *Welcome Reception*        M Building,  
Ground Floor

### Wednesday, 07 June 2017

09:30 – 10:30    Keynote                      Board Room A

10:30 – 11:00    *Coffee/Tea Break*

11:00 – 13:00    Technical Session 7: Safety  
Assessment of Passive  
Safety Systems              Conference Room M2

11:00 – 13:00	Technical Session 8: SMR Regulatory Perspectives	Conference Room M6	11:00 – 13:00	Technical Session 18: Periodic Safety Review and Assessment	Conference Room M7
11:00 – 13:00	Technical Session 9: System, Structure and Component (SSC) Modifications to cope with Severe Accidents	Conference Room M7	13:00 – 14:00	<i>Lunch Break</i>	
11:00 – 13:00	Workshop 1: Technical Safety Review (TSR) Services	Board Room A	14:00 – 16:00	Technical Session 19: Complementary Utilization of Probabilistic and Deterministic Safety Analysis	Conference Room M2
13:00 – 14:00	<i>Lunch Break</i>		14:00 – 16:00	Technical Session 20: Safety Reinforcement of Operating Reactors	Conference Room M6
14:00 – 16:00	Technical Session 10: IAEA SMR Focused Initiatives	Conference Room M2	14:00 – 16:00	Technical Session 21: Challenges in Severe Accident Management	Conference Room M7
14:00 – 16:00	Technical Session 11: Challenges due to Different Regulatory Frameworks	Conference Room M6	16:00 – 16:30	<i>Coffee/Tea Break</i>	
14:00 – 16:00	Technical Session 12: Cross-cutting Analysis and Perspectives Related to Severe Accident Mitigation	Conference Room M7	16:30 – 18:30	Roundtable: SMR Deployment: Technical, Construction and Licensing Challenges	Board Room A
16:00 – 16:30	<i>Coffee/Tea Break</i>		16:30 – 18:30	Technical Session 22: Risk Informed Decision Making	Conference Room M2
16:30 – 18:30	Technical Session 13: Perspectives Related to Probabilistic Safety Analysis	Conference Room M2	16:30 – 18:30	Technical Session 23: Digital I&C Systems	Conference Room M6
16:30 – 18:30	Technical Session 14: Licensing Process of Advanced Reactors	Conference Room M6	16:30 – 18:30	Technical Session 24: Approaches to Practical Elimination	Conference Room M7
16:30 – 18:30	Technical Session 15: Advanced Modelling of Physical Phenomena	Conference Room M7	<b>Friday, 09 June 2017</b>		
16:30 – 18:30	Workshop 2: An Introduction and Further Explanation on Design Extension Conditions	Board Room A	09:00 – 11:00	Technical Session 25: Advanced Modelling and Analysis Codes	Conference Room M2
<b>Thursday, 08 June 2017</b>			09:00 – 11:00	Technical Session 26: Considerations of New Design Safety Principles	Conference Room M6
09:00 – 10:30	Plenary 2: Insights Gained From Design, Construction And Commissioning of Advanced Water Cooled Reactors	Board Room A	09:00 – 11:00	Technical Session 27: Computer Codes for Safety Assessment	Conference Room M7
10:30 – 11:00	<i>Coffee/Tea Break</i>		11:00 – 11:30	<i>Coffee/Tea Break</i>	
11:00 – 13:00	Technical Session 16: Use of Advanced Models and Codes	Conference Room M2	11:30 – 12:00	Closing Plenary	Board Room A
11:00 – 13:00	Technical Session 17: National Strategies to Implement International Safety Requirements	Conference Room M6	Posters will be presented on the 2nd floor of the M Building, outside of Board Room A.		
			Exhibits will be displayed on the ground floor and 2nd floor of the M Building, outside of Board Room A, from Tuesday, 6 June to Friday, 9 June 2017.		

## TUESDAY, 6 JUNE 2017

**08:00 ongoing**     **Registration and Distribution  
of Conference Material**

**10:00 – 10:30**     **Opening Plenary**

**Location:**        **Board Room A**

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<i>Time</i>	<i>Speaker</i>	
	<b>Y. Amano, IAEA</b> Director General	Opening Remarks
	<b>P. Tiippana, Finland</b> Conference President	Opening Statement
<b>10:30 – 11:00</b>	<i>Meet and Greet Coffee/Tea Break</i>	
<b>11:00 – 13:00</b>	<b>Plenary 1</b> The Vienna Declaration on Nuclear Safety: Objectives, Challenges and Prospects	
<b>Location:</b>	<b>Board Room A</b>	
<b>Chairperson:</b>	<b>P. Tiippana, Finland</b>	
<i>Time</i>	<i>Speaker</i>	
	<b>D. Drábová, Czech Republic</b>	
	<b>J.-C. Niel, France</b>	
	<b>A. Kawano, Japan</b>	
	<b>Rosatom, tbd, Russian Federation</b>	
	<b>M. Johnson, United States of America</b>	
<b>13:00 – 14:00</b>	<i>Lunch Break</i>	

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## TUESDAY, 6 JUNE 2017

**14:00 – 16:00**      **Technical Session 1**  
Young Generation Event

**Location:**        **Board Room A**

**Chairperson:**    **K. Madden, IAEA**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:10	S. Shi	WNA	Initial Startup Procedure Investigation of a BWR-type Small Modular Reactor
14:30	S. Melhem	Jordan	Investigation of Performance of Passive Heat Removal System for Advanced Nuclear Power Reactors under Severe Conditions
14:50	D. Domanski	Argentina	Assessments of a Passive Heat Removal System in an Integral Reactor
15:10	D. Lajnef	Tunisia	Safety Assessment of Advanced Reactor Designs
15:30	H.K. Park	Korea, Republic of	Utilization of Analogy Experimental Method for the Preliminary Verification of the Safety of System with Highly Buoyant or Extreme Test Condition
15:50	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**      *Coffee/Tea Break*

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**14:00 – 16:00**      **Technical Session 2**  
Progress on Severe Accident  
Management

**Location:**        **M2**

**Chairperson:**    **J. Žďárek, Czech Republic**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	J. Duspiva	Czech Republic	Activities on Safety Improvement of Czech NPPs in Solution of Severe Accident Issues
14:20	J. Baláž	Slovakia	The Proposal, Design, Implementation and Safety Demonstration of the Severe Accident Management Measures at VVER440 in Slovakia
14:40	G. Volent	Hungary	Severe Accident Management at PAKS NPP
15:00	G. Vayssier	Netherlands	Lessons from SAMG Exercises for Existing and New Reactors
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**      *Coffee/Tea Break*

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## TUESDAY, 6 JUNE 2017

**14:00 – 16:00**

### Technical Session 3

Contributions to the Harmonization of Approaches and Methods at the Member State Level

**Location:**

**M6**

**Chairperson:**

**J. Collet, France**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	A. Tehrani	United Kingdom	Mixing of the Atmosphere within the EPR Design Containment in Design Basis & Severe Accident Conditions
14:20	C. Mayoral	France	Considerations on the Concept of Reference Plant
14:40	T. Nguyen	France	Management of Engineering and Safety Knowledge along Reactor Lifetime
15:00	I. Basic	Croatia	Overview and Comparison of International Practices Concerning the Requirements on Single Failure Criterion with an Emphasis on New Water-Cooled Reactor Designs
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**

*Coffee/Tea Break*

**16:30 – 18:30**

### Technical Session 4

Uncertainty Qualification and Safety Margins

**Location:**

**M2**

**Chairperson:**

**F. D'Auria, Italy**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	D. Serbanescu	Romania	On Some Challenges in Defining and using Defense in Depth and Safety Margin Concepts, as Highlighted by the Safety Improvement Process
16:50	F. D'Auria	Italy	BEPUs and Safety Margins in Nuclear Reactor Safety
17:10	J. Yang	China	Assessment of Base-Isolated CAP1400 Nuclear Island Design
17:30	V. Mecir	Czech Republic	A Scheme for Harmonization of Terminology on Safety Margins and Criteria
17:50	<i>Q&amp;A with all presenters and summary</i>		

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**18:30 – 20:00**

*Welcome Reception*

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## TUESDAY, 6 JUNE 2017

**16:30 – 18:30**

### Technical Session 5

Contributions to Harmonization of Approaches and Methods by International Forums

**Location:**

**M6**

**Chairperson:**

**S. Chen, China**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	G. Jacquart	France	The European Utility Requirements for Advanced LWR – Recent Activities and New Challenges
16:50	A. Wasyluk	WNA	Mechanical Codes & Standards: A Path toward Reconciliation
17:10	J. Collet	France	Multinational Design Evaluation Programme: 10 Year-Achievements
17:30	<i>Q&amp;A with all presenters and summary</i>		

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**18:30 – 20:00**

*Welcome Reception*

**16:30 – 18:30**

### Technical Session 6

Investigation on Corium Cooling

**Location:**

**M7**

**Chairperson:**

**F. Fichot, France**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	Z. Yang	China	IVR Design and Safety Demonstration of Advanced NPPs in China
16:50	M. Valinčius	Lithuania	Numerical Study of In-Vessel Corium Retention in BWR Reactor
17:10	K. Yamada	IAEA	Recent Progress in Phenomenology and Technologies relevant to In-Vessel Melt Retention and Ex-Vessel Corium Cooling
17:30	B. de L'Epinois	France	Corium In Vessel Retention Stakes as regards the Safety Demonstration
17:50	R. Lishchuk	Ukraine	Implementation of the In-Vessel Retention Strategy for Rivne NPP Units 1,2
18:10	<i>Q&amp;A with all presenters and summary</i>		

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**18:30 – 20:00**

*Welcome Reception*



## WEDNESDAY, 7 JUNE 2017

**09:30 – 10:30**     **KEYNOTE**  
ETSON: Its Role and Activities for  
Harmonising Safety Assessment

**Location:**        **Board Room A**

**Chairperson:**    **U. Stoll, Germany**

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<i>Time</i>	<i>Speaker</i>
	<b>B. De Boeck, ETSON</b>

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**10:30 – 11:00**    *Coffee/Tea Break*

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**11:00 – 13:00**    **Technical Session 7**  
Safety Assessment of Passive Safety  
Systems

**Location:**        **M2**

**Chairperson:**    **M. Colby, United States of America**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	D. Von der Cron	Germany	Qualification of the System Code AC <sup>2</sup> (Submodule ATHLET) for the Safety Assessment of Passive Residual Heat Removal Systems
11:20	V.T. Nguyen	Viet Nam	Effect of Non-condensable Gas on the Performance of Passive Containment Cooling System in VVER-1200 Design
11:40	M.A. Ibrahim	Egypt	The Role of Passive Systems in Enhancing Safety and Preventing Accidents in Advanced Reactors
12:00	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**    *Lunch Break*

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## WEDNESDAY, 7 JUNE 2017

**11:00 – 13:00**     **Technical Session 8**  
SMR Regulatory Perspectives

**Location:**        **M6**

**Chairperson:**    **M. El-Shanawany, United Kingdom**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	W. Kröger	Switzerland	Small-sized reactors of different types: Regulatory framework to be re-thought?
11:20	V. Jakovich	WNA	Facilitating International Licensing of Small Modular Reactors
11:40	X. Wang	China	Study on Plume Emergency Planning Zone Determination for CAP200 Small Modular Reactor
12:00	A. Bradford	United States of America	Preparing for Small Modular Reactor Application Reviews: NRC Perspective
12:20	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**     *Lunch Break*

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**11:00 – 13:00**     **Technical Session 9**  
System, Structure and Component (SSC)  
Modifications to Cope with Severe  
Accidents

**Location:**        **M7**

**Chairperson:**    **D. Loy, Switzerland**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	K. Arai	Japan	Safety Enhancement Technology Development with Collaborative International Activity
11:20	A. Viktorov	Canada	Bringing Safety Performance of Older Plants on par with Advanced Reactor Designs
11:40	A. Laborda Rami	Spain	ASVAD, The Final Solution to the Nitrogen Injection Threat
12:00	D. Jacquemain	France	Contributions of the OECD/NEA Working Group on the Analysis and Management of Accidents (WGAMA) to the Severe Accident Field
12:20	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**     *Lunch Break*

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## WEDNESDAY, 7 JUNE 2017

**11:00 – 13:00**     **Workshop 1**  
Technical Safety Review (TSR) Services

**Location:**     **Board Room A**

**Chairperson:**   **A. Uises, IAEA**

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<i>Time</i>	<i>Speaker</i>
	<b>I. Basic, Croatia</b>
	<b>C. Tóth, Hungary</b>
	<b>E. Kimtys, Lithuania</b>
	<b>M. Lankin, Russian Federation</b>

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**13:00 – 14:00**     *Lunch Break*

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**14:00 – 16:00**     **Technical Session 10**  
IAEA SMR Focused Initiatives

**Location:**     **M2**

**Chairperson:**   **W. Kröger, Switzerland**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	S. Magruder	IAEA	SMR Regulators' Forum
14:20	K. Madden	IAEA	IAEA Study on Design Safety Requirements to SMR Technologies
14:40	H. Subki	IAEA	Design Safety Considerations for Water-Cooled Small Modular Reactors – Incorporating Lessons Learned from the Fukushima Daiichi Accident
15:00	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**     *Coffee/Tea Break*

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## WEDNESDAY, 7 JUNE 2017

**14:00 – 16:00**     **Technical Session 11**  
Challenges due to Different Regulatory Frameworks

**Location:**     **M6**

**Chairperson:**     **P. Wells, United States of America**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	C. Tóth	Hungary	Harmonized EUR Revision E Requirements corresponding to Currently Available Technical Solutions
14:20	C. Mayoral	France	Considerations on Harmonization of Safety Assessment of New Reactors' Design
14:40	S. Chen	China	Implementation Design Extension Conditions (DECs) Standalone or Considered within the Scope of Risk Management Regulatory Framework
15:00	R. Rulko	Canada	Canadian Regulatory Approach to Enhancement of the Passive Safety Concept
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**     *Coffee/Tea Break*

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**14:00 – 16:00**     **Technical Session 12**  
Cross-cutting Analysis and Perspectives Related to Severe Accident Mitigation

**Location:**     **M7**

**Chairperson:**     **K. Araj, Jordan**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	T. Yamamoto	Japan	Developments to Improve Nuclear Power Plant Safety
14:20	A.G. Siklósi	Hungary	Regulatory Aspects of the Targeted Safety Re-Assessment and the Experience Gained from the Regulatory Oversight of the TSR Related Activities
14:40	E. Dinca	Romania	RELAP/SCDAP Sensitivity Study on the Efficiency in Severe Core Degradation Prevention of Depressurization and Water Injection into Steam Generators following SBO at a CANDU-6 NPP
15:00	A. Miassoedov	Germany	The SAFEST Project: Severe Accident Facilities for European Safety Targets
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**     *Coffee/Tea Break*

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## WEDNESDAY, 7 JUNE 2017

**16:30 – 18:30**

### Technical Session 13

Perspectives Related to Probabilistic Safety Analysis

**Location:** M2

**Chairperson:** Q. Zhang, China

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	G. Miller	United States of America	Safety Demonstration for ESBWR Plant Design: Risk-Informed Completion Time
16:50	B. Nahar Hamid	Bangladesh	Use of Reliability Assessment Methods to Quantify Probabilistic Safety of Reactor Core Thermal Hydraulic Parameters
17:10	A. Lyubarskiy	Russian Federation	Practical Experience of Russian Designer of WWERs in Use of PSA for Verification of Compliance with Single Failure Criteria Principles
17:30	<i>Q&amp;A with all presenters and summary</i>		

**16:30 – 18:30**

### Technical Session 14

Licensing Process of Advanced Reactors

**Location:** M6

**Chairperson:** A. Julin, Finland

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	N. Mughal	Pakistan	Meeting the Objectives of the Vienna Declaration on Nuclear Safety: Licensing of New Nuclear Power Plants
16:50	R. Moscrop	United Kingdom	Lessons Learnt from the UK Generic Design Assessment Process
17:10	J. Krutzler	Hungary	Lessons Learned from the Preparatory Process for Licensing of the New Nuclear Units in Hungary
17:30	D. Rogatov	Russian Federation	Russian Regulatory Approach to Safety Review of Passive Systems used for Specific BDBAs (SBO, Loss of UHS)
17:50	<i>Q&amp;A with all presenters and summary</i>		

## WEDNESDAY, 7 JUNE 2017

### 16:30 – 18:30 Technical Session 15

Advanced Modelling of Physical Phenomena

**Location:** M7

**Chairperson:** T. Jevremovic, IAEA

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	A. Haghhighshad	Iran, Islamic Republic of	Design and Development of a Radioecological Domestic User Friendly Code for Calculation of Individual/Collective Radiation Doses and Concentration due to Radionuclides Airborne Release during the Accidental and Normal Operation in Nuclear Installation
16:50	Z. Jankovsky	United States of America	A Dynamic Assessment of Auxiliary Building Contamination and Failure due to a Cyber-Induced Interfacing System Loss of Coolant Accident
17:10	A. Shams	Netherlands	Direct Numerical Simulation of a Single Phase PTS
17:30	S. Walker	United Kingdom	Mechanistic Modeling of Dryout and its use for Reactor Licensing
17:50	<i>Q&amp;A with all presenters and summary</i>		

### 16:30 – 18:30 Workshop 2

An Introduction and Further Explanation on Design Extension Conditions

**Location:** Board Room A

**Chairperson:** J. Yllera, IAEA

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<i>Time</i>	<i>Speaker</i>
	<b>A. Viktorov, Canada</b>
	<b>P. Kral, Czech Republic</b>
	<b>M.L. Järvinen, Finland</b>
	<b>B. de L'Epinois, France</b>
	<b>K. Nünighoff, Germany</b>

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## THURSDAY, 8 JUNE 2017

**09:00 – 10:30**     **Plenary 2**  
Insights Gained from Design,  
Construction and Commissioning of  
Advanced Water Cooled Reactors

**Location:**        **Board Room A**

**Chairperson:**    **A. Bychkov, Russian Federation**

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<i>Time</i>	<i>Speaker</i>
	<b>M. Zheng, China</b>
	<b>T.E. Jin, Korea, Republic of</b>
	<b>A. Kiryukhin, Russian Federation</b>
	<b>A. Bradford, United States of America</b>
	<b>G. Rzentkowski, IAEA</b>
	<b>P. Vincze, IAEA</b>

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**10:30 – 11:00**     *Coffee/Tea Break*

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**11:00 – 13:00**     **Technical Session 16**  
Use of Advanced Models and Codes

**Location:**        **M2**

**Chairperson:**    **A. Schaffrath, Germany**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	P. Montero	Czech Republic	Comparison of Assessment of Neutron Fluence affecting VVER 440 Reactor Pressure Vessel using DORT and TORT Codes
11:20	J. Thompson	United States of America	Validation of High Pressure Condensation Model in TRACE Code
11:40	M. Polidori	Italy	Post-Test Analysis of the Natural Circulation Test Campaign on HERO-2 Bayonet Tubes Test Section
12:00	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**     *Lunch Break*

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## THURSDAY, 8 JUNE 2017

**11:00 – 13:00**      **Technical Session 17**  
National Strategies to Implement  
International Safety Requirements

**Location:**        **M6**

**Chairperson:**    **M. Hirano, Japan**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	D. Bhattacharya	India	Ensuring Safety Regulation for Sustainable Development of Nuclear Power
11:20	P. Kral	Czech Republic	Analyses of DEC for NPPs in the Czech Republic and their Implementation into SAR
11:40	P. De Gelder	Belgium	Belgian Guidelines on Safety Demonstration and Specific External Hazards
12:00	E. Courtin	France	Application of the Concept of Defense in Depth to the EPR Reactor Design
12:20	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**      *Lunch Break*

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**11:00 – 13:00**      **Technical Session 18**  
Periodic Safety Review and Assessment

**Location:**        **M7**

**Chairperson:**    **C. Tóth, Hungary**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
11:00	T.E. Jin	Korea, Republic of	Recent Approaches Related to Safety Enhancement of Operating NPPs in Korea
11:20	Z. Kovacs	Slovakia	External Event Level 1 PSA for the WWER440 Type Reactors in Slovakia
11:40	R. Kalantari	United States of America	Addressing Fire Safety, "The Right Way"
12:00	J. Misak	Slovakia	Needs for Enhancement of Comprehensiveness of Defence in Depth and its Demonstration in Safety Analysis Reports
12:20	<i>Q&amp;A with all presenters and summary</i>		

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**13:00 – 14:00**      *Lunch Break*

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## THURSDAY, 8 JUNE 2017

**14:00 – 16:00**      **Technical Session 19**  
Complementary Utilization of Probabilistic  
And Deterministic Safety Analysis

**Location:**        **M2**

**Chairperson:**    **C. Spitzer, IAEA**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	M. Lankin	Russian Federation	Involvement of Deterministic and Probabilistic Considerations for choosing Accident Scenarios to be Covered in NPP Design (Non-Severe and Severe Cases)
14:20	P. Dupuy	France	Complementarity of Deterministic and Probabilistic Approaches for Safety Assessment of French EPR Design
14:40	P. Kral	Czech Republic	Latest Activities of NUGENIA in the field of Deterministic and Probabilistic Assessment
15:00	M. Lankin	Russian Federation	Safety Classification: Implementation of Defence-in-Depth Considerations and Probabilistic Criteria
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**      *Coffee/Tea Break*

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**14:00 – 16:00**      **Technical Session 20**  
Safety Reinforcement of Operating  
Reactors

**Location:**        **M6**

**Chairperson:**    **K. Arai, Japan**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	H. Hirsch	WENRA	WENRA Approach with respect to Design Extension of Existing Reactors
14:20	K. Nünighoff	Germany	Safety Principles and Defence-in-Depth Concept implemented in German Regulations
14:40	R. Cozeret	France	Review of the Additional Severe Accident Mitigation Strategies for the Generation II PWRs in France in the Framework of Plant Life Extension
15:00	A. Kiryukhin	Russian Federation	Safety Enhancement of Nuclear Power Plants in Russia: Response to Challenges of the Time
15:20	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**      *Coffee/Tea Break*

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## THURSDAY, 8 JUNE 2017

**14:00 – 16:00**      **Technical Session 21**  
Challenges in Severe Accident  
Management

**Location:**        **M7**

**Chairperson:**    **P. De Gelder, Belgium**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
14:00	J. Ždárek	Czech Republic	In Vessel Melt Retention Strategy – Status of Work for VVER 1000 Units Applications
14:20	M. Gajdoš	Slovakia	Enhancing Human Reliability in Severe Accident Mitigation through Advanced Expert Systems
14:40	B. Williamson	United States of America	BWROG – Emergency Procedures and Severe Accident Guidelines Rev 4 Highlight
15:00	<i>Q&amp;A with all presenters and summary</i>		

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**16:00 – 16:30**      *Coffee/Tea Break*

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**16:30 – 18:30**      **Roundtable**  
SMR Deployment: Technical,  
Construction and Licensing Challenges

**Location:**        **Board Room A**

**Moderator:**     **A. Bradford, United States of America**

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<i>Time</i>	<i>Speaker</i>
	<b>D. Song, China</b>
	<b>K. Herviou, France</b>
	<b>A. Ferapontov, Russian Federation</b>
	<b>W. Kröger, Switzerland</b>
	<b>S. Moor, United Kingdom</b>
	<b>H. Subki, IAEA</b>

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## THURSDAY, 8 JUNE 2017

**16:30 – 18:30**      **Technical Session 22**  
Risk Informed Decision Making

**Location:**        **M2**

**Chairperson:**    **P. Kral, Czech Republic**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	Y. Ishiwatari	Japan	Risk-Informed Design for UK ABWR Project
16:50	F. Ilizastigui	Cuba	The Use of the Bowtie Methodology in the Pre-Construction Safety Reports for Advanced Water Cooled NPPs
17:10	A. Julin	Finland	Limited Comparison of Evolutionary Power Reactor Probabilistic Safety Assessments
17:30	Q. Zhang	China	Risk-Informed Design for CAP1400
17:50	<i>Q&amp;A with all presenters and summary</i>		

**16:30 – 18:30**      **Technical Session 23**  
Digital I&C Systems

**Location:**        **M6**

**Chairperson:**    **K. Lee, WNA**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	S. Small	United States of America	A Defense-in-Depth Approach to Evaluating Digital CCF Across an Integrated Plant Design
16:50	C. Mueller	Germany	Development of a Method for the Assessment of Modern I&C System Architectures with regard to Failure Effects
17:10	J. Pickelmann	WNA	Defence in Depth & Diversity – Challenges related to the I&C Architecture
17:30	I. Garcia	United States of America	Spurious Actuations in Digital Instrumentation and Control Systems – Evaluation Framework
17:50	<i>Q&amp;A with all presenters and summary</i>		

## THURSDAY, 8 JUNE 2017

**16:30 – 18:30**      **Technical Session 24**  
Approaches to Practical Elimination

**Location:**        **M7**

**Chairperson:**    **J. Yllera, IAEA**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
16:30	M.L. Järvinen	Finland	Approach to Practical Elimination in Finland
16:50	B. de L'Epinois	France	Practical Elimination of Large or Early Releases: Origin, Focus and Implementation in the Safety Demonstration
17:10	F. Fichot	France	Summary and conclusions from the International Seminar on In-Vessel Retention Strategy
17:30	V. Tiberi	France	The « practical elimination » Approach for Pressurized Water Reactors
17:50	M.U. Pande	Indonesia	Safety and Siting Assessment for NPPs Deployment in Indonesia
18:10	<i>Q&amp;A with all presenters and summary</i>		

## FRIDAY, 9 JUNE 2017

**09:00 – 11:00**      **Technical Session 25**  
Advanced Modelling and Analysis Codes

**Location:**        **M2**

**Chairperson:**    **S. Monti, IAEA**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
09:00	A.C. Marino	Argentina	A Safety Fuel Element Assessment by using New Materials and Advanced Modelling Tools
09:20	H.J. Allelein	Germany	German Experimental Activities for Advanced Modelling and Validation Relating to Containment Thermal Hydraulics and Source Term
09:40	E. Negrenti	Italy	Enhanced Nuclear Engineering Simulators (ENES)
10:00	A. Schaffrath	Germany	The Nuclear Simulation Chain of GRS
10:20	<i>Q&amp;A with all presenters and summary</i>		

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**11:00 – 11:30**      *Coffee/Tea Break*

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**09:00 – 11:00**      **Technical Session 26**  
Considerations on New Design Safety Principles

**Location:**        **M6**

**Chairperson:**    **M.L. Järvinen, Finland**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
09:00	V. Sorel	France	Diversity Analysis for Advanced Reactor Design
09:20	M. El-Shanawany	United Kingdom	Consideration of Defence in Depth in the Recently Revised IAEA Standard on Design Safety
09:40	D. Song	China	HPR1000: Advanced PWR with Active and Passive Safety Features
10:00	J. Pickelmann	WNA	Safety Classification for I&C Systems in Nuclear Power Plants – Current Status & Difficulties
10:20	<i>Q&amp;A with all presenters and summary</i>		

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**11:00 – 11:30**      *Coffee/Tea Break*

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## FRIDAY, 9 JUNE 2017

**09:00 – 11:00**      **Technical Session 27**  
Computer Codes for Safety Assessment

**Location:**        **M7**

**Chairperson:**    **M. Lankin, Russian Federation**

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<i>Time</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Title of Paper</i>
09:00	V.H. Sanchez Espinoza	Germany	Analysis of PWR Severe Accident Sequences including Mitigative Measures to Prevent or Delay the Failure of Safety Barriers with the Severe Accident Code ASTEC
09:20	R. Abu Saleem	Jordan	Coupling of the Thermal-Hydraulic Code (RELAP5) and the Monte-Carlo Neutronics Code (Serpent)
09:40	S. Bznuni	Armenia	Comparative Analysis of WWER-440 Reactor Core with PARCS/HELIOS and PARCS/SERPENT Codes
10:00	<i>Q&amp;A with all presenters and summary</i>		

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**11:00 – 11:30**      *Coffee/Tea Break*

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**11:30 – 12:00**      **Closing Plenary**

**Location:**        **Board Room A**

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<i>Time</i>	<i>Speaker</i>	
	<b>P. Tiippana, Finland</b> Conference President	Summary of the Conference: Insights and Recommendations
	<b>J.C. Lentijo, IAEA</b> DDG-NS	Closing Remarks

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## POSTERS

Venue: M02, Outside of Board Room A, M Building

<i>Poster ID</i>	<i>Presenter</i>	<i>Member State/Organization</i>	<i>Poster Title</i>
2	C. Ngwakwe	Nigeria	Safety Assessment of Advanced Reactor Designs: Safety Assessment of Small and Medium Sized or Modular Reactors
4	W. Zeng	China	Research on the Passive Safety System Design during ACP100+
32	G.F. Cuevas Vivas	United States of America	ESBWR AFIP Technology: V&V of Improved 3D Power Distribution Modelling
34	G. Miller	United States of America	Risk Insights from ESBWR Design Certification Probabilistic Safety Assessments
36	G. Miller	United States of America	Use of Peer Review for the UK ABWR PSA to Demonstrate PSA Adequacy
59	C. Mugica	Mexico	Analysis of Corium Cooling and Melt Retention Strategies for a Boiling Water Reactor by using the MELCOR Code
72	Y. Zvonarev	Russian Federation	Safety Assessment of Advanced NPP with VVER-1200 Reactor under Severe Accident Conditions
74	P. Chan	Canada	Establishing CANDU Fuel Reliability
89	S. Aldawahrah	Syrian Arab Republic	Fuel Burnup and Radioactivity in the VVER-1200 Advanced Nuclear Reactor
107	P. Grudev	Bulgaria	Assessment of "Practical Elimination" of Early or Large Releases for VVER 1000/V320
108	Z. Hlaváč	Czech Republic	Reactor Biological Shielding Concrete Inspection Procedure
110	G. Kanetsyan	Armenia	Maintenance Effectiveness Monitoring Requirements and Process of its Realization in Armenia
115	G. Mazzini	Czech Republic	CVR Generation IV Loops Analyses and Licensing
122	G. Vayssier	Netherlands	Advanced Nuclear Power Plants: Heaven on Earth or Still Some Earth on Heaven?
133	H. Liu	China	Flood Margin Assessment and Reinforcement for Qinshan Phase I Nuclear Power Plant
153	A.A.M. Karwi	Iraq	Change the Morphology of Lithium Oxides by Nd-Yag Laser Beam to use as a Sand in Water-Cooled Reactors
154	W. M. Moustafa	Egypt	Development of Radiation Protection Safety Culture

## Participation in IAEA Scientific Meetings

Governments of Member States and those organizations whose activities are relevant to the meeting subject matter are invited to designate participants in IAEA scientific conferences and symposia. In addition, the IAEA itself may invite a limited number of scientists as invited speakers. Only participants designated or invited in this way are entitled to present papers and take part in the discussions.

Representatives of the press, radio, television or other information media and members of the public, the latter as 'observers', may also be authorized to attend, but without the right to take part in the proceedings.

Scientists interested in participating in any of the IAEA meetings should request information from the Government authorities of their own countries, in most cases the Ministry of Foreign Affairs or national atomic energy authority.

## Publication

A book containing the papers presented will be published after the Conference.

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Marketing and Sales Unit, Publishing Section  
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### Android



### iPhone



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## Log in!

Many of the App features can be accessed without logging in. However to enjoy all the features of the App you will need to log in with your individual event code. This code was emailed to all registered participants approximately one week before the conference.

## App Features

The App has a number of very useful features. Inter alia it allows you to:

- See who is attending
- Message other participants (log in is required)
- Access PowerPoint presentations which have been released by their authors, abstracts and posters
- View an up-to-date programme
- Receive announcements via push notifications

## Forthcoming Scientific Meetings Scheduled by the IAEA

### 2017

*International Conference on Advances in Radiation Oncology (ICARO2)*

20-23 June, Vienna, Austria

*International Conference on Fast Reactors and Related Fuel Cycles (FR17)*

26-29 June, Yekaterinburg, Russian Federation

*Scientific Forum: Nuclear Technology for Human Health: Prevention, Diagnosis and Treatment*

19-20 September, Vienna, Austria

*Fourth International Conference on Nuclear Power Plant Life Management (PLiM)*

23-27 October, Lyon, France



*International Ministerial Conference on Nuclear Power in the 21st Century*

30 Oct.- 1 Nov., Abu Dhabi, UAE

*International Conference on Physical Protection of Nuclear Material and Nuclear Facilities*

13-17 November, Vienna, Austria

*International Conference on Radiation Protection in Medicine: Achieving Change in Practice*

11-15 December, Vienna, Austria

## 2018

*Third International Conference on Human Resource Development for Nuclear Power Programmes: Meeting Challenges to Ensure the Future Nuclear Workforce Capability*

28-31 May, Gyeongju, Rep. of Korea

*International Symposium on Uranium Raw Material for Nuclear Fuel Cycle: Exploration, Mining, Production, Supply and Demand, Economics and Environmental Issues (URAM-2018)*

25-29 June, Vienna, Austria

*International Symposium on Plant Mutation Breeding and Biotechnology*

6-10 August, Vienna, Austria

*International Symposium on Communicating Nuclear and Radiological Emergencies to the Public*

1-5 October, Vienna, Austria

*International Conference on Challenges Faced by Technical and Scientific Support Organizations (TSOs) in Enhancing Nuclear Safety and Security*

15-19 October, Brussels, Belgium

*27th IAEA Fusion Energy Conference (FEC-2018)*

22-27 October, Ahmedabad, India

*Symposium on International Safeguards*

5-9 November, Vienna, Austria

*Ministerial Conference on Nuclear Science, Technology and Applications for Peaceful Uses*

TBD November, Vienna, Austria

*International Conference on Global Radioactive Material Security Governance*

3-7 December, Vienna, Austria

For complete information on forthcoming scientific meetings, please consult the IAEA conference web site:

<http://www.iaea.org/meetings>

## Abbreviations

<b>CNNC</b>	China National Nuclear Corporation
<b>ETSON</b>	European Technical Safety Organizations Network
<b>GRS</b>	Gesellschaft für Anlagen- und Reaktorsicherheit
<b>IAEA</b>	International Atomic Energy Agency
<b>IRSN</b>	Institute for Radiation Protection and Nuclear Safety
<b>KINS</b>	Korea Institute of Nuclear Safety
<b>KEPCO</b>	Korea Electric Power Corporation
<b>MDEP</b>	Multinational Design Evaluation Programme
<b>NUGENIA</b>	Nuclear Generation II & III Association
<b>OECD/NEA</b>	Organization for Economic Cooperation and Development/Nuclear Energy Agency
<b>ROSATOM</b>	Ministry for Atomic Energy of the Russian Federation and Federal Agency on Atomic Energy
<b>SMR</b>	Small and Medium or Modular Reactor
<b>SNERDI</b>	Shanghai Nuclear Engineering Research and Design Institute
<b>STUK</b>	Radiation and Nuclear Safety Authority
<b>TEPCO</b>	Tokyo Nuclear Power Company Holdings
<b>U.S. NRC</b>	United States Nuclear Regulatory Commission
<b>VIC</b>	Vienna International Centre
<b>WENRA</b>	Western European Nuclear Regulators Association
<b>WNA</b>	World Nuclear Association

## NOTES

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**CN-251**