International Conference on

Fast Reactors and Related Fuel Cycles:

Next Generation Nuclear Systems for Sustainable Development

FR17

26–29 June 2017

Yekaterinburg, Russian Federation

Programme

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Introduction

The first International Conference on Fast Reactors and Related Fuel Cycles (FR09) was held in Kyoto, Japan, in 2009 and was subtitled “Challenges and Opportunities”. The second conference (FR13) was held in Paris, France, in 2013 with the theme “Safe Technologies and Sustainable Scenarios” and was attended by some 700 experts from 27 countries and 4 international organizations representing different fields of fast reactor and related fuel cycle technologies. The International Atomic Energy Agency (IAEA) brings the fast reactor and related fuel cycles community together again. The Russian Federation’s State Atomic Energy Corporation “Rosatom” offered to host the FR17 Conference in Yekaterinburg, Russian Federation. One of the main reasons for this venue is that the sodium cooled fast reactor BN-800 was commissioned for commercial operation in 2016 at the Beloyarsk nuclear power plant (NPP), which is located in the vicinity of Yekaterinburg. BN-800 is a successor of the BN-600 reactor that has been in operation at the Beloyarsk NPP since 1980.

From its inception, the nuclear community has recognized the important role of fast reactors and related fuel cycles in ensuring the long term sustainability of nuclear power. Fast reactors are a type of innovative nuclear reactors that offer some key advantages over traditional thermal reactors in safety, sustainability and radioactive waste. Operating in a fully closed fuel cycle, they have the potential to extract 60-70 times more energy from uranium than existing thermal reactors and contribute to significant reduction in radioactive waste.

Many countries are actively developing reactor, coolant, fuel and fuel cycle technologies. Fast reactor technologies under development include sodium- , lead- , gas-, molten salt- and even supercritical water-cooled systems, as well as hybrids, such as accelerator-driven systems. Several demonstration projects, ranging from small to large scale, are under study, design and construction.

For fast nuclear energy systems to become viable for industrial deployment in the coming decades, designers will have to increase their level of safety in order to gain public acceptance. Harmonization of safety standards at the international level could play a leading role in achieving these goals.

Conference

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Editor:	J. Benbow

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J. Carmack	USA
T. Sofu	USA
M. Todosow	USA
C. Grandy	USA

Track Leaders

Track 1. **Innovative Fast Reactor Designs**
P. Pillai, India; A. Stanculescu, GIF;
V. Rachkov, Russian Federation; S. Shepelev, Russian Federation

Track 2. **Fast Reactor Operation and Decommissioning**
D. Settimo, France; V. Bezzubtsev, Russian Federation

Track 3. **Fast Reactor Safety**
B. Carulec, France; K. Morita, Japan;
Y. Khomyakov, Russian Federation; P. Alekseev, Russian Federation

Track 4. **Fuel Cycle: Sustainability, Environmental Considerations and Waste Management Issues**
T. Todd, USA; Y. Guoan, China; A. Shadrin, Russian Federation

Track 5. **Fast Reactor Materials (Fuels and Structures) and Technology**
J. Carmack, USA; V. Troyanov, Russian Federation

Track 6. **Test Reactors, Experiments and Modelling and Simulations**
P. Selvaraj, India; Z. Zhijian, China;
V. Strizhov, Russian Federation; L. Bolshov, Russian Federation

Track 7. **Fast Reactors and Fuel Cycles: Economics, Deployment and Proliferation Issues**
V. Korogodin, Russian Federation

Track 8. **Professional Development and Knowledge Management**
J. Guilliford, OECD/NEA; G. Tikhomirov, Russian Federation

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Time Table

Monday, 26 June 2017		Tuesday, 27 June 2017		Wednesday, 28 June 2017		Thursday, 29 June 2017	
08:30 – 09.30	Opening Session	08:00 – 10:00	Plenary Session II	08:00 – 10:00	Plenary Session III	08:00 – 10:00	Parallel Sessions 6.8|3.7|5.8|7.4|YGE Workshop
	Coffee Break		Coffee Break		Coffee Break		Coffee Break
10:00 – 11:30	Plenary Session I	10:20 – 12:10	Parallel Sessions 1.3|3.3|6.10|5.3|6.3|7.2	10:20 – 12:00	Panel II	10:20 – 12:00	Parallel Sessions 6.9|1.8|2.3|5.9|8.2|YGE Workshop
	Lunch Break		Lunch Break		Lunch Break		Lunch Break
13:00 – 15:00	Parallel Sessions 6.1|1.1|2.1|3.1|5.1|7.1	13:30 – 15:10	Parallel Sessions 1.4|3.4|5.4|8.1|5.10|6.4	13:30 – 15:10	Parallel Sessions 1.6|2.2|3.5|4.2|5.6|6.6	13:30 – 15:30	YGE Panel
	Coffee Break		Coffee Break		Coffee Break		Coffee Break
15:10 – 17:10	Parallel Sessions 1.2|6.2|3.2|4.1|5.2|6.11	15:30 – 17:10	Parallel Sessions 1.5|5.5|6.5	15:30 – 17:30	Parallel Sessions 6.7|1.7|3.6|4.3|5.7|7.3	15:50 – 17:00	Closing Session
	Coffee Break		Coffee Break		Coffee Break		
17:30 – 19:00	Panel I	17:30 – 19:00	Poster Session I	17:30 – 19:00	Poster Session II		

Session Details

Session	Session Title				
Monday, 26 June 2017					***Page 1***
Opening	Opening Session	Plenary Hall	08:30	-	09:30
Plenary	Plenary Session - I	Plenary Hall	10:00	-	11:30
1.1	SFR Design and Development - I	Room 1	13:00	-	15:00
2.1	Commissioning and Operating Experience of Fast Reactors - I	Room 2	13:00	-	15:00
3.1	Safety Programme	Room 3	13:00	-	15:00
5.1	Advanced Fast Reactor Fuel Development - I	Room 5	13:00	-	15:00
6.1	CFD and 3D Modelling	Room 6	13:00	-	15:00
7.1	Sustainability of Fast Reactors	Room 4	13:00	-	15:00
1.2	SFR Design and Development - II	Room 1	15:10	-	17:10
3.2	Core Disruptive Accident	Room 3	15:10	-	17:10
4.1	Fuel Cycle Overview	Room 4	15:10	-	17:10
5.2	Advanced Fast Reactor Fuel Development - II	Room 5	15:10	-	17:10
6.11	IAEA Benchmark on EBR-II Shutdown Heat Removal Tests	Room 2	15:10	-	17:10
6.2	Thermal Hydraulics Calculations and Experiments	Room 6	15:10	-	17:10
Panel	Panel I: Development and Standardization of Safety Design Criteria (SDC) and Safety Design Guidelines (SDG) for Sodium Cooled Fast Reactors	Plenary Hall	17:30	-	19:00
Tuesday, 27 June 2017					***Page 13***
Plenary	Plenary Session - II	Plenary Hall	08:00	-	10:00
1.3	System Design and Validation	Room 1	10:20	-	12:00
3.3	Probabilistic Safety Assessment	Room 3	10:20	-	12:00
5.3	Advanced Fast Reactor Cladding Development - I	Room 5	10:20	-	12:00
6.10	Other issues of code development and application	Room 2	10:20	-	12:00
6.3	Neutronics - I	Room 6	10:20	-	12:00
7.2	Economics of Fast Reactors	Room 4	10:20	-	12:00
1.4	Core and Design Features - I	Room 1	13:30	-	15:10
3.4	Sodium leak/fire and other safety issues	Room 3	13:30	-	15:10
5.10	Fuel Modelling and Simulation	Room 2	13:30	-	15:10
5.4	Advanced Fast Reactor Cladding Development - II	Room 5	13:30	-	15:10
6.4	Neutronics - II	Room 6	13:30	-	15:10

8.1	Professional Development and Knowledge Management - I	Room 4	13:30	-	15:10
1.5	LFR Design & Development	Room 1	15:30	-	17:10
5.5	Large Component Technology - I	Room 5	15:30	-	17:10
6.5	Uncertainty Analysis and Tools	Room 6	15:30	-	17:10
Poster	Poster Session - I	Poster Area	17:30	-	19:00
Wednesday, 28 June 2017					*Page 33*
Plenary	Plenary Session - III	Plenary Hall	08:00	-	10:00
Panel	Panel II: Small and Medium Sized Fast Reactors	Plenary Hall	10:20	-	12:00
1.6	Core and Design Features - II	Room 1	13:30	-	15:10
2.2	Commissioning and Operating Experience of Fast Reactors - II	Room 2	13:30	-	15:10
3.5	General Safety Approach	Room 3	13:30	-	15:10
4.2	Reprocessing and Partitioning	Room 4	13:30	-	15:10
5.6	Liquid Metal Technologies	Room 5	13:30	-	15:10
6.6	Coupled Calculations	Room 6	13:30	-	15:10
1.7	ADS and Other Reactor Designs	Room 1	15:30	-	17:30
7.3	Non Proliferation Aspects of Fast Reactors	Room 2	15:30	-	17:30
3.6	Safety Analysis	Room 3	15:30	-	17:30
4.3	Partitioning and Sustainability	Room 4	15:30	-	17:30
5.7	Chemistry Related Technology	Room 5	15:30	-	17:30
6.7	Experimental Thermal Hydraulics	Room 6	15:30	-	17:30
Poster	Poster Session - II	Poster Area	17:30	-	19:00
Thursday, 29 June 2017					*Page 49*
3.7	Core Disruptive Accident Prevention	Room 3	08:00	-	10:00
5.8	Structural Materials	Room 5	08:00	-	10:00
6.8	Experimental Facilities	Room 6	08:00	-	10:00
7.4	Fuel Cycle Analysis	Room 4	08:00	-	10:00
Workshop	Young Generation Workshop	Room 1	08:00	-	12:00
1.8	Innovative Reactor Designs	Room 3	10:20	-	12:00
2.3	Decommissioning of Fast Reactors and Radioactive Waste Management	Room 2	10:20	-	12:00
5.9	Large Component Technology - II	Room 5	10:20	-	12:00
6.9	Research Reactors	Room 6	10:20	-	12:00
8.2	Professional Development and Knowledge Management - II	Room 4	10:20	-	12:00
Panel	Young Generation Event	Plenary Hall	13:30	-	15:30
Closing	Closing Session	Plenary Hall	15:50	-	17:00

Monday, 26 June 2017

Opening 08:30-09:30 Opening Session

Venue: Plenary Hall

Chair: **V. Pershukov** and **V. Kriventsev** *Monday 26 June 2017*

Time	Speaker		
08:30	**A. Likhachev** Director General, ROSATOM	Russian Federation	Opening Address (by video message)
	Y. Amano Director General, IAEA	IAEA	Opening Address (by video message)
	V. Pershukov Conference General Chair	Russian Federation	Welcome Note
	M. Chudakov Conference General Co-chair	IAEA	Welcome Note
	A. Moiseev Deputy Presidential Envoy in the Ural Federation District	Russian Federation	Welcome Note
	S. C. Chetal Honorary General Chair	India	Fast Reactor Development and International Cooperation

Plenary I 10:00-11:30 Plenary Session - I

Venue: Plenary Hall

Chair: **M. Chudakov** and **A. Gonzalez-Espartero** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
10:00	CN245-342	E. Adamov	Russian Federation	Closed fuel cycle technologies based on fast reactors as the corner stone for sustainable development of nuclear power
10:30	CN245-585	D. Zhang	China	Research, development and deployment of fast reactors and related fuel cycle in China
11:00	CN245-586	S. Pivet	France	Status of the French Fast Reactor Programme
			Break 11:30 – 13:00	

Session: **1.1** **13:00-15:00** **SFR Design and Development - I**

Venue: Room 1

Chair: **J. Guidez** and **A. Staroverov** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-300	P. Pillai (Invited)	India	Advanced Design Features of MOX Fuelled Future Indian SFRs
13:20	CN245-357	H. Bell (Invited)	USA	Overview of U.S. fast reactor technology development programme
13:40	CN245-402	S. Shepelev (Invited)	Russia	Development of the new generation power unit with the BN-1200 reactor
14:00	CN245-158	H. Hayafune	Japan	Advanced sodium-cooled fast reactor development regarding GIF safety design criteria
14:20	CN245-156	H. Hayafune	Japan	Current status of GIF collaborations on sodium-cooled fast reactor system
14:40	CN245-051	T. Obara	Japan	Feasibility of Burning Wave Fast Reactor Concept with Rotational Fuel Shuffling

Break 15:00 – 15:10

Session: **2.1** **13:00-15:00** **Commissioning and Operating Experience of Fast Reactors - I**

Venue: Room 2

Chair: **K. V. Suresh Kumar** and **A. Filin** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-553	Y. Nosov (Invited)	Russia	USSR and Russian fast reactor operation through the example of the BN600 reactor operating experience and peculiarities of the new generation BN800 reactor power unit commissioning
13:20	CN245-417	F. Baque	France	Main R&D objectives and results for under-sodium inspection carriers – Example of the ASTRID matting exceptional inspection carrier.
13:40	CN245-267	K. Aizawa	Japan	Development of under sodium viewer for next generation sodium-cooled fast reactor
14:00	CN245-425	I. Petrov	Russia	Manufacture, Installation and Adjustment of the BN-800 Reactor Plant Equipment
14:20	CN245-323	S. Raghupathy	India	Testing and Qualification of Trailing Cable system for Prototype Fast Breeder Reactor
14:40	CN245-307	K. V. Suresh Kumar	India	Safety Upgradation of Fast Breeder Test Reactor

Break 15:00 – 15:10

Session: **3.1** **13:00-15:00** **Safety Programme**

Venue: Room 3

Chair: **P. Alekseev** and **A. Rineiski** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-028	K. Morita (Invited)	Japan	The Status of Safety Research in the Field of Sodium-cooled Fast Reactors in Japan
13:20	CN245-133	A. Vasile	France	Recent activities of the safety and operation project of the sodium-cooled fast reactor in the generation iv international forum
13:40	CN245-476	S. Beils	France	ASTRID safety design: Radiological confinement improvements compared to previous SFRs
14:00	CN245-385	A. Anfimov	Russia	Safety Assurance for BN-1200 Power Unit During Accidents
14:20	CN245-067	F. Payot	France	The SAIGA experimental program to support the ASTRID Core Assessment in Severe Accident Conditions
14:40	CN245-164	S. Kubo	Japan	Study on Safety Design Concept for future Sodium-cooled Fast Reactors in Japan
		Break 15:00 – 15:10		

Session: **5.1** **13:00-15:00** **Advanced Fast Reactor Fuel Development - I**

Venue: Room 5

Chair: **V. Troyanov** and **C. Sowrinathan** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-198	J. Park (Invited)	Korea, Rep. of	Fabrication Characteristics of Injection-cast Metallic Fuels
13:20	CN245-347	B. Tarasov	Russia	Metal fuel for fast reactors, a new concept
13:40	CN245-062	L. Zabudko	Russia	Development of innovative fast reactor nitride fuel in Russian Federation: state-of-art
14:00	CN245-128	V. Blanc	France	Conceptual design of fuel and radial shielding sub-assemblies for ASTRID
14:20	CN245-174	B. Nashine	India	Development of Electromagnetic Devices for Sodium Cooled Fast Reactor Application
14:40	CN245-106	J. Kim	Korea, Rep. of	Fuel Cladding Chemical Interaction Tests of Irradiated Metallic Fuel
		Break 15:00 – 15:10		

Session: **6.1** **13:00-15:00** **CFD and 3D Modelling**

Venue: Room 6

Chair: **V. Karuppanna** and **L. Bolshov** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-548	D. Fomichev (Invited)	Russia	Numerical simulation of hydraulics and heat transfer in the BREST-OD-300 LFR fuel assembly
13:20	CN245-332	V. Karuppanna	India	Steady State Modelling and Validation of Once Through Steam Generator
13:40	CN245-274	V. Chudanov	Russia	Applications of the DNS CONV-3D Code for Simulations of Liquid Metal Flows
14:00	CN245-378	V. Arasappan	India	3D Modelling of Fuel Handling System for PFBR Operator Training Simulator
14:20	CN245-453	H. Ohshima	Japan	Numerical Simulation Method of Thermal Hydraulics in Wire-wrapped Fuel Pin Bundle of Sodium-cooled Fast Reactor
14:40	CN245-099	Z. Tian	China	Modelling and Simulation of Heat Transport System and Steam Power Transition System of CEFR

Break 15:00 – 15:10

Session: **7.1** **13:00-15:00** **Sustainability of Fast Reactors**

Venue: Room 4

Chair: **A. Gulevich** and **S. Maeda** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
13:00	CN245-269	S. Maeda (Invited)	Japan	Current Status of Next Generation Fast Reactor Core & Fuel Design and Related R&D in Japan
13:20	CN245-194	V. Usanov	Russia	Assessment of a nuclear energy system based on the integral indicator of sustainable development
13:40	CN245-007	A. Andrianov	Russia	Performance and sustainability assessment of nuclear energy deployment scenarios with fast reactors: advanced tools and application
14:00	CN245-434	A. Yegorov	Russia	Comparison of Innovative Nuclear Energy Systems Based on Selected Key Indicators and Their Weighing Factors
14:20	CN245-399	E. Marova	Russia	Evaluation results of BN-1200 compliance with the requirements of Generation IV and INPRO
		Break 15:00 – 15:10		

Session: **1.2** **15:10-17:10** **SFR Design and Development - II**

Venue: Room 1

Chair: **P. Pillai** and **S. Shepelev** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-298	H. Kamide (Invited)	Japan	Progress of Design and related Researches of Sodium-cooled Fast Reactor in Japan
15:30	CN245-413	F. Varaine (Invited)	France	Astrid Project, from Conceptual to Basic Design: Progress status
15:50	CN245-522	V. Rajan Babu (Invited)	India	Lessons and strategies from PFBR to Future Fast Breeder Reactors
16:10	CN245-528	J. Hamy	France	Status of ASTRID Nuclear Island Design and Future Trends
16:30	CN245-188	I. Drobyshev	Russia	Analysis of the Characteristics of the Fast Breeder Reactor with Metallic Fuel
16:50	CN245-141	C. Grandy	USA	FASTER Test Reactor Pre-conceptual Design

Break 17:10 – 17:30

Session: **3.2** **15:10-17:10** **Core Disruptive Accident**

Venue: Room 3

Chair: **K. Morita** and **A. Volkov** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-410	F. Bertrand (Invited)	France	Status of severe accident studies at the end of the conceptual design: feedback on mitigation features
15:30	CN245-335	V. Kriventsev	IAEA	Source Term Estimation for Radioactivity Release under Severe Accident Scenarios in Sodium cooled Fast Reactors
15:50	CN245-056	S. Kang	Korea, Rep. of	Advances in the Development of the SAS4A Code Metallic Fuel Models for the Analysis of PGSFR Postulated Severe Accidents
16:10	CN245-320	V. Karuppanna (Invited)	India	Computational modelling of flow blockage in fuel subassemblies and molten material relocation in sodium cooled fast reactors
16:30	CN245-483	M. Flad	Germany	Quantitative Evaluation of the Post Disassembly Energetics of a Hypothetical Core Disruptive Accident in a Sodium Cooled Fast Reactor
16:50	CN245-172	K. Lee	Korea, Rep. of	An assessment of transient over-power accident in the PGSFR

Break 17:10 – 17:30

Session: **4.1** **15:10-17:10** **Fuel Cycle Overview**

Venue: Room 4

Chair: **C. Poinssot** and **V. Vidanov** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-507	C. Poinssot (Invited)	France	1992-2017: 25 years of success story for the Development of Minor Actinides Partitioning Processes
15:30	CN245-052	J. Krepel	Switzerland	Comparison of fast reactors performance in the closed U-Pu and Th-U cycle
15:50	CN245-076	A. Shadrin (Invited)	Russia	Reprocessing of fast reactors mixed U-Pu used nuclear fuel: studies and industrial test
16:10	CN245-527	S. Cornet	NEA	Overview of the Nuclear Energy Agency Scientific Activities on Advanced Fuel Cycles
16:30	CN245-506	C. Poinssot	France	Assessment of the anticipated improvement of the environmental footprint of future nuclear energy systems
16:50	CN245-297	K. Jayaraman	India	Concurrent Trends in Indian Fast Reactor Fuel Reprocessing Programme

Break 17:10 – 17:30

Session: **5.2** **15:10-17:10** **Advanced Fast Reactor Fuel Development - II**

Venue: Room 5

Chair: **M. Veshchunov** and **V. Blanc** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-458	O. Azpitarte	Argentina	The IAEA Coordinated Research Project on Sodium Properties and Safe Operation of Experimental Facilities in Support of the Development and Deployment of Sodium-cooled Fast Reactors (NAPRO)
15:30	CN245-224	S. Vaudez	France	Effects of Oxygen Partial Pressure During Sintering at Laboratory and Industrial Scales on FR MOX Fuels
15:50	CN245-333	V. Blanc	France	Fuel Melting Margin Assessment of Fast Reactor Oxide Fuel Pins using a Statistical Approach
16:10	CN245-525	K. Tucek	EC	New catalogue on (U, Pu)O2 properties for fast reactors and first measurements on irradiated and non-irradiated fuels within the ESNII+ project
16:30	CN245-252	K. V. Suresh Kumar	India	Fission product and swelling behaviour in FBTR mixed carbide fuel
16:50	CN245-081	S. Porollo	Russia	Analysis of experimental data on fission gas release and swelling in mononitride fuel irradiated in BR-10 reactor

Break 17:10 – 17:30

Session: **6.11** **15:10-17:10** **IAEA Benchmark on EBR-II Shutdown Heat Removal Tests**

Venue: Room 2

Chair: **V. Kriventsev** and **D. Zhang** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-361	V. Kriventsev	IAEA	IAEA's Coordinated Research Project on EBR-II Shutdown Heat Removal Tests: An Overview
15:30	CN245-004	V. Kriventsev	IAEA	EBR-II Passive Safety Demonstration Tests Benchmark Analyses
15:50	CN245-070	B. Vezzoni	Germany	IAEA Neutronics Benchmark for EBR-II SHRT-45R
16:10	CN245-372	E. Bates	USA	Conclusions of a Benchmark Study on the EBR-II SHRT-45R Experiment
16:30	CN245-118	P. Uppala	India	Thermal Hydraulic Investigation of EBR-II Instrumented Subassemblies during SHRT-17 and SHRT-45R Tests
16:50	CN245-084	N. Rtishchev	Russia	Final Results and Lessons Learned from EBR-II SHRT-17 Benchmark Simulations

Break 17:10 – 17:30

Session: **6.2** **15:10-17:10** **Thermal Hydraulics Calculations and Experiments**

Venue: Room 6

Chair: **S. Perumal** and **N. Mosunova** *Monday 26 June 2017*

Time	Id	Presenter	Country	Title
15:10	CN245-249	J. Hong (Invited)	Korea, Rep. of	Thermal Hydraulic Study of Steam Generator of PGSFR
15:30	CN245-310	C. Sowrinathan	India	Effect of inlet temperature and operating linear heat rating (LHR) on the maximum achievable burnup of MK-1 carbide fuel in FBTR
15:50	CN245-232	F. Lodi	Italy	Extension to Heavy Liquid Metal coolants of the validation database of the ANTEO+ sub-channel code
16:10	CN245-440	M. Japas	Argentina	Density of sodium along the Liquid-Vapour Coexistence Curve, including the Critical Point
16:30	CN245-439	A. Trufanov	Russia	Experimental investigations of velocity and temperature fields, stratification phenomena in an integral water model of fast reactor in the steady state forced circulation

Break 17:10 – 17:30

Panel I

Venue: Plenary Hall

17:30-19:00

Development and Standardization of Safety Design Criteria (SDC) and Safety Design Guidelines (SDG) for Sodium Cooled Fast Reactors

Moderator: **V. Kriventsev**

Monday 26 June 2017

Time	Id	Presenter	Country	Title
17:30		V. Kriventsev	IAEA	Introduction of the Panel
17:35	CN245-374	P. Gauthé	France	Considerations on GEN IV safety goals and how to implement them in future Sodium-cooled Fast Reactors
17:45	CN245-590	S. Chetal	India	Safety criteria for future Indian SFRs
17:55	CN245-015	R. Nakai	Japan	The Safety Design Guideline Development for Generation-IV SFR Systems
18:05	CN245-565	J. Yoo	Korea, Rep. of	Compliance of Korean SFR Safety Design Approaches with Generation-IV Safety Design Criteria
18:15	CN245-599	I. Ashurko	Russia	Russian SFR Safety Requirements and Approaches and Their Correspondence to Generation-IV SFR Safety Design Criteria
18:25	CN245-046	Y. Okano	Japan	The Safety Design Criteria Development and Summary of Its Update for the Generation-IV SFR Systems
18:35		***General Discussion***		

Tuesday, 27 June 2017

Plenary II 08:00-10:00 Plenary Session - II

Venue: Plenary Hall

Chair: **H. Kamide** and **V. Kriventsev** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
08:00	CN245-420	A.K. Bhaduri	India	Indian Fast Reactor Programme : Status and R&D Achievements
08:30	CN245-571	Y. Sagayama	Japan	Current status and future view of the fast reactor cycle technology development in Japan
09:00	CN245-460	J. Yoo	Korea, Rep. of	Status of sodium cooled fast reactor development program in Korea
09:30	CN245-580	A. Tuzov	Russian Federation	Research and Pilot Fast Neutron Reactors in Russian Federation as the Ground for Development of Worldwide Commercial Technologies
			Break 10:00 – 10:20	

Session: **1.3** **10:20-12:00** **System Design and Validation**

Venue: Room 1

Chair: **S. Raghupathy** and **S. Rukhlin** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-344	S. Raghupathy (Invited)	India	Experimental seismic qualification of diverse safety rod and its drive mechanism of prototype fast breeder reactor
10:40	CN245-285	D. Plancq	France	Progress in the ASTRID Gas Power Conversion System development
11:00	CN245-395	F. Dechelette	France	ASTRID fuel handling route for the basic design
11:20	CN245-314	S. Raghupathy	India	Component handling system : PFBR and beyond
11:40	CN245-468	D. Barbier	France	Main operation procedures for ASTRID gas power conversion system
		Break 12:00 – 13:30		

Session: **3.3** **10:20-12:00** **Probabilistic Safety Assessment**

Venue: Room 3

Chair: **P. Antipin** and **T. Takata** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-189	P. Pillai	India	Development of Smart Component Based Framework for Dynamic Reliability Analysis of Nuclear Safety Systems
10:40	CN245-042	V. Rychkov	France	Dynamic probabilistic risk assessment at a design stage for a sodium fast reactor.
11:00	CN245-419	P. Antipin	Russia	Probabilistic safety analysis results for BN reactor power units
		Break 12:00 – 13:30		

Session: **5.3** **10:20-12:00** **Advanced Fast Reactor Cladding Development - I**

Venue: Room 5

Chair: **L. Zabudko** and **J. Park** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-077	T. Asayama (Invited)	Japan	Development of core and structural materials for fast reactors
10:40	CN245-032	V. Bobrovskii	Russia	Results of monitoring, using high-resolution neutron diffraction, of radiation-induced damages in claddings of fuel pins after their performance in the reactor BN-600 as a ground for prolongation of their life expectancy
11:00	CN245-153	A. Sorokin	Russia	Fracture strain and fracture toughness prediction for irradiated austenitic steels over wide range of temperatures taking into account the effect of swelling and thermal ageing
11:20	CN245-005	M. Veshchunov	IAEA	IAEA activities in the area of Nuclear Power Reactor Fuel Engineering
11:40	CN245-094	A. Kozlov	Russia	Examination of Fast Reactor Materials and Structural Elements at JSC "INM" Premises

Break 12:00 – 13:30

Session: **6.10** **10:20-12:00** **Other issues of code development and application**

Venue: Room 2

Chair: **T. Sofu** and **N. Mosunova** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-041	A. Brunett	USA	U.S. Sodium Fast Reactor Codes and Methods: Current Capabilities and Path Forward
10:40	CN245-057	A. Karahan	USA	Validation of Advanced Metallic Fuel Models of SAS4A using TREAT M-Series Overpower Test Simulations
11:00	CN245-523	C. Jensen (Invited)	USA	Review of Transient Testing of Fast Reactor Fuels in the Transient REActor Test Facility (TREAT)
11:20	CN245-054	T. Sofu	USA	USDOE NEAMS Program and SHARP Multi-Physics Tool-Kit for High-Fidelity SFR Core Design and Analysis

Break 12:00 – 13:30

Session: **6.3** **10:20-12:00** **Neutronics - I**

Venue: Room 6

Chair: **A. Rineiski** and **D. Klinov** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-216	G. Rimpault (Invited)	France	The APOLLO3 scientific tool for SFR neutronic characterization: current achievements and perspectives
10:40	CN245-010	O. Andrianova	Russia	Integral Experiments With Minor Actinides At The Bfs Critical Facilities: State-Of-The-Art Survey, Reevaluation And Application
11:00	CN245-578	V. Pershukov (Invited)	Russia	International research centre based on MBIR reactor – cornerstone for Generation 4 technologies development
11:20	CN245-397	A. Gomez Torres	Mexico	Verification of the neutron diffusion code AZNHEX by means of the Serpent-DYN3D and Serpent-PARCS solution of the OECD/NEA SFR Benchmark
11:40	CN245-142	T. Ivanova	OECD/NEA	Benchmark Evaluation of Dounreay Prototype Fast Reactor Minor Actinide Depletion Measurements

Break 12:00 – 13:30

Session: **7.2** **10:20-12:00** **Economics of Fast Reactors**

Venue: Room 4

Chair: **D. Tolstoukhov** and **G. Mathonnière** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-082	M. Frignani	France	Fast Reactors and Nuclear Cogeneration: A Market and Economic Analysis
10:40	CN245-098	D. Tolstoukhov	Russia	Providing the competitiveness of nuclear energy in the implementation of PRORYV project
11:00	CN245-435	V. Dekusar	Russia	Comparative analysis of electricity generation fuel cost component at NPPs with WWER and BN-type reactor facilities
11:20	CN245-296	G. Mathonniere	France	How to take into account the fleet composition in order to evaluate Fast Breeder Competitiveness
11:40	CN245-536	N. Molokanov	Russia	Equipment cost estimation for pilot demonstration lead-cooled fast-neutron reactor BREST-OD-300

Break 12:00 – 13:30

Session: 1.4 — 13:30-15:10 — Core and Design Features - I

Venue: Room 1

Chair: **H. Hayafune** and **D. Klinov** — *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-406	A. Kuznetsov	Russia	Selection of a layout for the BN-800 reactor hybrid core
13:50	CN245-037	P. Dařílek	Slovakia	ALLEGRO Core Neutron Physics Studies
14:10	CN245-405	A. Kuznetsov	Russia	BN-800 core with MOX fuel
14:30	CN245-275	H. Yu	Korea, Rep. of	Physics Investigation of a Supercritical CO_2–cooled Micro-Modular Reactor (MMR) for Autonomous Load-Follow Operation
			Break 15:10 – 15:30	

Session: 3.4 — 13:30-15:10 — Sodium leak/fire and other safety issues

Venue: Room 3

Chair: **Y. Okano** and **Y. Shvetsov** — *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-102	A. Vinogradov	Russia	Numerical – experimental research in justification of fire (sodium) safety of sodium cooled fast reactors
13:50	CN245-093	M. Aoyagi	Japan	Identification of important phenomena under sodium fire accidents based on PIRT process
14:10	CN245-326	L. Lebel	France	Learning from 1970 and 1980-Era Sodium Fire Experiments
14:30	CN245-355	M. Jeltsov	Sweden	Seismic sloshing effects in lead-cooled fast reactors
14:50	CN245-290	K. Yoshimura	Japan	Evaluation of multiple primary coolant leakages accidents in Monju with consideration of passive safety features
			Break 15:10 – 15:30	

Session: **5.10** **13:30-15:10** **Fuel Modelling and Simulation**

Venue: Room 2

Chair: **M. Veshchunov** and **M. Lainet** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-063	E. Marinenko	Russia	Problems of calculation modelling of nitride fuel performance: DRAKON code
13:50	CN245-223	B. Michel	France	3D simulation in the PLEIADES software environment for sodium fast reactor fuel pin behaviour under irradiation
14:10	CN245-222	M. Lainet	France	Current status and progression of GERMINAL fuel performance code for SFR oxide fuel pins
14:30	CN245-363	A. Boldyrev	Russia	BERKUT – Best Estimate Code for Modelling of Fast Reactor Fuel Rod Behaviour under Normal and Accidental Conditions
14:50	CN245-396	I. Golovchenko	Russia	Experience and applicability of high density metal uranium in advanced BN-reactors

Break 15:10 – 15:30

Session: **5.4** **13:30-15:10** **Advanced Fast Reactor Cladding Development - II**

Venue: Room 5

Chair: **V. Chuyev** and **T. Asayama** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-341	J. Lee	Korea, Rep. of	Development of Pilgering Process of Hybrid-layer Cladding for Advanced Small Modular Fast Reactor Application
13:50	CN245-095	A. Kozlov	Russia	Modelling of Processes in Austenitic Steel Produced Under Irradiation in Fast Reactors and Possibilities of Model Practical Application
14:10	CN245-107	V. Shikhalev	Russia	Preliminary Inspection of Spent Fast Reactor Fuel Claddings
14:30	CN245-409	S. Belov	Russia	Operability validation of fuel pins with claddings made of EK164-id steel in the BN-600 reactor
14:50	CN245-040	L. Tan	USA	Creep resistance and fracture toughness of recently-developed optimized Grade 92 and its weldments for advanced fast reactors

Break 15:10 – 15:30

Session: **6.4** **13:30-15:10** **Neutronics - II**

Venue: Room 6

Chair: **R. Jacqmin** and **E. Seleznev** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-180	B. Vrban	Slovakia	Stability Analysis of a Liquid Metal Cooled Fast Reactor
13:50	CN245-470	R. Jacqmin	France	Analysis of the BFS-115-1 experiments
14:10	CN245-501	X. Huo (Invited)	China	Physical start-up test of China Experimental Fast Reactor
14:30	CN245-457	C. Pereira	Brazil	Neutronic evaluation of a GFR of 100 MW(th) with reprocessed fuel and thorium using SCALE 6.0 and MCNPX
14:50	CN245-411	E. Del Valle Gallegos	Mexico	Solution of the OECD/NEA SFR Benchmark with the Mexican neutron diffusion code AZNHEX

Break 15:10 – 15:30

Session: **8.1** **13:30-15:10** **Professional Development and Knowledge Management - I**

Venue: Room 4

Chair: **V. Artisyuk** and **T. Ivanova** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-382	V. Arasappan	India	Development and Deployment of Knowledge Management Portal for Fast Breeder Reactors
13:50	CN245-533	G. Tikhomirov (Invited)	Russia	Topical issues of training of specialists for fast nuclear power engineering and the closed nuclear fuel cycle
14:10	CN245-351	R. Garbil	EC	'EURATOM success stories' in facilitating pan-European E&T collaborative efforts
14:30	CN245-009	K. Mikityuk	Switzerland	GEN IV Education and Training Initiative via Public Webinars
14:50	CN245-427	S. Bortot	Sweden	A proposal for a pan-European E&T programme supporting the development and deployment of ALFRED

Break 15:10 – 15:30

Session: **1.5**	**15:30-17:10**	**LFR Design & Development**

Venue: Room 1

Chair: **J. Yoo** and **V. Lemekhov** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-065	A. Alemberti	Italy	Status of Generation-IV Lead Fast Reactor Activities
15:50	CN245-140	L. Cinotti	Luxmeburg	Simplification, the *atout* of LFR-AS-200
16:10	CN245-301	Q. Huang	China	Strategy and R&D status of China Lead-based Reactor
16:30	CN245-539	V. Lemekhov	Russia	BREST OD-300 reactor facility development stages and justification
		Break 17:10 – 17:30		

Session: **5.5**	**15:30-17:10**	**Large Component Technology - I**

Venue: Room 5

Chair: **B. Margolin** and **C. Latge** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-024	K. Vulliez	France	Experimental qualification of rotatable plug seals for Sodium Fast Reactor on a large scale test stand
15:50	CN245-183	H. Kim	Korea, Rep. of	Heat Transfer Performance Test for a Sodium-to-Air Heat Exchanger with an Inclined Finned-Tube Banks
16:10	CN245-404	S. Rukhlin	Russia	Development of the built-in primary sodium purification system for the
16:30	CN245-325	P. Pillai	India	Design of Sleeve Valve mechanism for Primary Sodium Pump of future FBR
16:50	CN245-286	D. Plancq	France	ASTRID French SFR: Progress in Sodium Gas Heat Exchanger development
		Break 17:10 – 17:30		

Session: **6.5** **15:30-17:10** **Uncertainty Analysis and Tools**

Venue: Room 6

Chair: **G. Rimpault** and **A. Kiselev** *Tuesday 27 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-567	A. Gandini (Invited)	Italy	Recent and Potential Advances of the HGPT methodology
15:50	CN245-218	G. Rimpault	France	Evaluation of βeff measurements from BERENICE programme with TRIPOLI4® and uncertainties quantification
16:10	CN245-475	G. Manturov	Russia	System of Codes and Nuclear Data for Neutronics Calculations of Fast Reactors and Uncertainty Estimation
16:30	CN245-255	J. Heo	Korea, Rep. of	Sensitivity and Uncertainty Analysis in Best-Estimate modelling for PGSFR Under ULOF Transient
16:50	CN245-220	G. Rimpault	France	Objectives and Status of the OECD/NEA sub-group on Uncertainty Analysis in Modelling (UAM) for Design, Operation and Safety Analysis of SFRs (SFR-UAM)
			Break 17:10 – 17:30	

Poster 17:30-19:00 Poster Session - I

Venue: Poster Location

Tracks 1, 3, 4, 5, and 7

Tuesday 27 June 2017

Poster	Id	Presenter	Country	Title
Track 1				
P1-01	CN245-001	Z. Gholamzadeh	Iran	Computational investigation of nuclear waste incineration efficiency in a subcritical molten salt driven by 50-100 MeV protons
P1-02	CN245-017	K. Yoon	Korea, Rep. of	Mechanical Design Evaluation of Fuel Assembly for PGSFR
P1-03	CN245-022	J. Sienicki	USA	Advanced Energy Conversion for Sodium-Cooled Fast Reactors
P1-04	CN245-155	N. Kim	Korea, Rep. of	High temperature design and evaluation of forced draft sodium-to-air heat exchanger in PGSFR
P1-05	CN245-162	C. Park	Korea, Rep. of	Structural Design and Evaluation of a Steam Generator in PGSFR
P1-06	CN245-185	G. Grasso	Italy	The core of the LFR-AS-200: robustness for safety
P1-07	CN245-226	M. Belonogov	Russia	The optimization of core characteristics of fast molten salt reactor based on neutron-physical and thermal-hydraulic calculations and the analysis of fuel cycle closure options
P1-08	CN245-235	I. Volkov	Russia	The lead-cooled fast reactor transition to equilibrium operating conditions
P1-09	CN245-268	C. Kim	Korea, Rep. of	Neutronic Self-sustainability of a Breed-and-Burn Fast Reactor Using Super-Simple Fuel Recycling
P1-10	CN245-276	X. Chen	Switzerland	Possibility studies of a boiling water cooled traveling wave reactor
P1-11	CN245-302	Y. Kotov	Russia	Application of Heterogeneous Fuel Assemblies in the Core of Modular Fast Sodium Reactor
P1-12	CN245-371	S. Bogetic	USA	3-D Core Design of the TRU-Incinerating Thorium RBWR Using Accident Tolerant Cladding

P1-13	CN245-388	B. Hombourger	Switzerland	On the feasibility of Breed-and-Burn fuel cycles in Molten Salt Reactors
P1-14	CN245-394	A. Lizin	Russia	Selection of carrier salt for molten salt fast reactor
P1-15	CN245-400	F. Chanteclair	France	ASTRID reactor: design overview and main innovative options for Basic Design
P1-16	CN245-436	A. Sorokin	Russia	Investigations in a substantiation of high-temperature nuclear energy technology with fast-neutron reactor cooled by sodium for manufacture of hydrogen and other innovative applications
P1-17	CN245-478	M.Vanderhaegen	Belgium	Fast Reactors - The Belgian Regulatory Approach
P1-18	CN245-499	Y. Osheyko	Russia	The concept of 50-300 MWe modular-transportable nuclear power plant with sodium coolant and a gas turbine
Track 3				
P1-19	CN245-006	T. Ishizu	Japan	Model validation of the ASTERIA-FBR code related to core expansion phase based on THINA experimental results
P1-20	CN245-025	D. Grabaskas	USA	A Mechanistic Source Term Calculation for a Metal Fuel Sodium Fast Reactor
P1-21	CN245-026	D. Grabaskas	USA	Advanced Reactor PSA Methodologies for System Reliability Analysis and Source Term Assessment
P1-22	CN245-055	M. Bucknor	USA	An Assessment of Fission Product Scrubbing in Sodium Pools Following a Core Damage Event in a Sodium Cooled Fast Reactor
P1-23	CN245-085	F. Wang	China	Study on the limits of confinement leakage rates of pool-type sodium-cooled fast reactor
P1-24	CN245-097	T. Takata	Japan	Numerical Investigation of Sodium Spray Combustion Test with SPHINCS code
P1-25	CN245-138	E. Bissen	France	Passive Complementary Safety Devices for ASTRID severe accident prevention
P1-26	CN245-150	J. Lüley	Slovakia	Assessment of the reactivity effects of Gas cooled Fast Reactor

P1-27	CN245-161	I. Ashurko	Russia	Decay heat removal system in the secondary circuit of the sodium-cooled fast reactor and evaluation of its capacity
P1-28	CN245-177	D. Lemasson	France	Benchmark Between EDF And IPPE On The Behaviour Of Low Sodium Void Reactivity Effect Sodium Fast Reactor During An Unprotected Loss Of Flow Accident
P1-29	CN245-192	I. Shvetsov	Russia	Decay-heat removal in accidents in fast reactors with liquid metal coolant
P1-30	CN245-199	O. Myazdrikova	Russia	Modelling of hydrodynamic processes at a large leak of water into sodium in the fast reactor coolant circuit
P1-31	CN245-204	I. Suslov	Russia	Assessment of accuracy from the use of point kinetics when analyzing transition processes in high power fast reactor
P1-32	CN245-205	S. Qvist	Sweden	Passive Shutdown Systems for Liquid Metal-Cooled Fast Reactors
P1-33	CN245-212	D. Lee	Korea, Rep. of	Evaluation of Anticipated Transient without Scram for SM-SFR using SAS4A/SASSYS-1
P1-34	CN245-225	S. Poumerouly	France	Impact of the irradiation of an ASTRID-type core during an ULOF with SIMMER-III
P1-35	CN245-233	D. Blagodatskykh	Russia	ROUZ code: CFD approach for assessment of radiation situation during atmosphere radioactivity releases within an industrial site
P1-36	CN245-324	N. Girault	France	Main outcomes from the JASMIN project: development of ASTEC-Na for severe accident simulation in Na cooled fast reactors
P1-37	CN245-327	S. Raghupathy	India	Design and Development of Stroke Limiting Device for Control & Safety Rod Drive Mechanisms (CSRDMs) of future FBRs
P1-38	CN245-334	V. Karuppanna	India	Thermal hydraulic investigation of sodium fire and hydrogen production in top shield enclosure of an FBR following a core disruptive accident

P1-39	CN245-336	V. Karuppanna	India	Numerical and Experimental Investigations of Tube-to-Tube Interaction of Air Heat Exchangers of PFBR under Seismic Excitations
P1-40	CN245-345	V. Karuppanna	India	Computational modelling of inter-wrapper flow and primary system temperature evolution in FBTR under extended Station Blackout
P1-41	CN245-356	M. Jeltsov	Sweden	Voiding of ELSY primary system during steam generator leakage
P1-42	CN245-368	M. Denman	USA	Development of the U.S. Sodium Component Reliability Database
P1-43	CN245-377	D. Dzama	Russia	The code rom for assessment of radiation situation on a regional scale during atmosphere radioactivity releases
P1-44	CN245-428	S. Bortot	Sweden	Preliminary Safety Performance Assessment of ESFR CONF-2 Sphere-pac-Fueled Core
P1-45	CN245-433	I. Mickus	Sweden	Preliminary transient analyses of SEALER
P1-46	CN245-450	K. Mikityuk	Switzer-land	ESFR-SMART: new Horizon-2020 project on SFR safety
P1-47	CN245-451	K. Mikityuk	Switzer-land	Chugging boiling in low-void SFR core: new phenomenology of unprotected loss of flow
P1-48	CN245-459	M. Kriachko	Russia	The method of calculating tritium content in various technological media of BN-type reactors
P1-49	CN245-530	S. Beils	France	CFD Simulation of Corium / Materials Interaction for Severe Accidents
P1-50	CN245-541	M. Ivochkin	Russia	Probabilistic Safety Analysis of NPP with BREST-OD-300 reactor
P1-51	CN245-579	L. Kochetkov	Russia	Development of Fast Reactors in the USSR and the Russian Federation; Malfunctions and Incidents in the Course of their Operation and Solution of Problems.
Track 4				
P1-52	CN245-027	M. Oettingen	Poland	Transmutation trajectory analysis in the modelling of LFR fuel cycle
P1-53	CN245-034	R. Alexakhin	Russia	Ecological aspects of the use of fast reactors in a closed nuclear fuel cycle under the "PRORYV" project

P1-54	CN245-035	V. Smolenski	Russia	Thermodynamics and separation factor of lanthanides and actinides in system "liquid metal-molten salt"
P1-55	CN245-147	I. Makeyeva	Russia	Modelling technologies of fuel cycles
P1-56	CN245-190	M. Shekhanova	Russia	Optimization problem for characteristics of fast reactors operating in a closed fuel cycle
P1-57	CN245-193	A. Krylov	Russia	Sibylla code: assessment of water bodies contamination and doses received by population due to radioactivity discharges into the hydrosphere
P1-58	CN245-260	A. Salyulev	Russia	Electrical conductivity of molten LICL-KCL eutectic with components of spent nuclear fuel
P1-59	CN245-261	E. Nikitina	Russia	Corrosion of 12x18h10t steel in CE-, ND- and U-containing molten LICL-KCL eutectic
P1-60	CN245-289	M. Kriachko	Russia	The study of U-232 accumulation in reprocessed uranium for fast reactor fuel cycle
P1-61	CN245-311	A. Glazov	Russia	On-site nuclear fuel cycle of "BREST" reactors
P1-62	CN245-376	S. Terentev	Russia	Full-fledged affination extractive-crystallizing platform for technology validation of the fast reactor spent fuel reprocessing on fast neutrons – the results of first experiments
P1-63	CN245-466	G. Kolotkov	Russia	Remote detection of raised radioactivity in emission from Beloyarsk nuclear power plant
P1-64	CN245-480	V. Dekusar	Russia	Features of the nuclear fuel cycle systems based on joint operation of fast and thermal reactors
P1-65	CN245-564	K. Ikeda	Japan	Feasibility of MA Transmutation by (MA, Zr)Hx in Radial Blanket Region of Fast Reactor and Plan of Technology Development
P1-66	CN245-570	B. Sreenivasulu	India	Facility for advanced fuels through the sol-gel method
Track 5				
P1-67	CN245-029	A. Sedov	Russia	"Peculiarities of behaviour of Coated Particle fuel in the core of Fast Gas Reactor BGR-1000"

P1-68	CN245-045	M. Li	USA	Sodium compatibility of Recently-Developed Optimized Grade 92 and its Weldments for Advanced Fast Reactors
P1-69	CN245-048	O. Golosov	Russia	Thermal Annealing Effect on Recovery of Corrosion Properties of EP-450 Steel Irradiated IN BN-600 Reactor to High Damage Doses
P1-70	CN245-049	I. Portnykh	Russia	Investigation of Radiation-Induced Swelling of EK-164 Steel, an Advanced Material for BN-600 and BN-800 Claddings
P1-71	CN245-060	S. Mishra	India	Challenges in the fabrication and recycling of mixed carbide fuel
P1-72	CN245-069	V. Alekseev	Russia	Investigation of steel corrosion products mass transfer in sodium
P1-73	CN245-073	M. Benson	USA	Controlling FCCI with Pd in metallic fuel
P1-74	CN245-074	K. Natesan	USA	Code Qualification Plan for an Advanced Austenitic Stainless Steel, Alloy 709, for Sodium Fast Reactor Structural Applications
P1-75	CN245-080	N. Glushkova	Russia	Examination of ChS-68 Steel Used as a BN-600 Reactor Cladding Material
P1-76	CN245-087	V. Tsygvintsev	Russia	X-ray diffraction structural analysis of structural and fuel materials for BN-600 reactor
P1-77	CN245-120	D. Lorenzo	France	Insertion reliability studies for the RBC-type control rods in ASTRID
P1-78	CN245-124	V. Shvetsova	Russia	Synergetic mechanism of high temperature radiation embrittlement of austenitic steels under long term neutron irradiation at high temperatures
P1-79	CN245-126	F. Rouillard	France	Evaluation of cobalt free coatings as hard facing material candidates in sodium fast reactor
P1-80	CN245-152	N. Stauff	USA	Trade-off Study of Advanced Transmutation Fuels in Sodium-cooled Fast Reactors
P1-81	CN245-166	V. Shurupov	Russia	Application of physical modelling when calibrating high range electromagnetic flowmeters
P1-82	CN245-169	K.V. Suresh Kumar	India	Extending the grid plate life - Incorporation of lower axial shield for FBTR

P1-83	CN245-171	I. Konovalov	Russia	The behaviour features of fuel elements with nitride fuel - theory and experiment
P1-84	CN245-176	B. Yin	China	Fabrication process of NpO2 pellets
P1-85	CN245-178	E. Kinev	Russia	Post-reactor state of the standard and experimental BN-600 fuel kinds
P1-86	CN245-207	W. Carmack	USA	Overview of the U.S. DOE fast reactor fuel development program
P1-87	CN245-214	I. Peshkichev	Russia	Mathematical modeling of the mononitride nuclear fuel production processes
P1-88	CN245-227	P. Agostini	Italy	Towards a new approach for structural materials of Lead Fast Reactors
P1-89	CN245-234	S. Starikov	Russia	Multiscale computer modelling of nuclear fuel properties at radiation and thermal impacts
P1-90	CN245-241	Y. Yamada	Japan	A Conceptual design of engineering-scale plant applied the simplified MA-bearing fuel fabrication process
P1-91	CN245-244	K. Suzuki	Japan	Experience on MOX fuel fabrication for fast reactor at PFPF
P1-92	CN245-245	T. Matsumoto	Japan	Thermal conductivity of non-stoichiometric (Pu0.928Am0.072)O2-x
P1-93	CN245-251	K. Morimoto	Japan	The influence of porosity on thermal conductivity of low-density uranium oxide
P1-94	CN245-253	P. Pillai	India	Development of Ultra Sub-size Tensile Specimen for Evaluation of Tensile Properties of Irradiated Materials
P1-95	CN245-254	Y. Sekio	Japan	Evaluation of irradiation-induced point defects migration during neutron irradiation in modified 316 stainless steel
P1-96	CN245-256	S. Hirooka	Japan	Mechanical and Thermal Properties of (U, Pu)O2-x
P1-97	CN245-264	V. Pastukhov	Russia	Statistical investigation of radiation-induced porosity in BN fuel claddings using scanning electron microscopy
P1-98	CN245-265	S. Barsanova	Russia	Change in Mechanical Properties of Spent Fast Reactor Claddings

P1-99	CN245-272	Y. de Carlan	GIF	Use of ion irradiations to help design of advanced austenitic steels
P1-100	CN245-287	A. Filanovich	Russia	Thermal and elastic properties of CexTh1-xO2 mixed oxides: a self-consistent thermodynamic approach
P1-101	CN245-291	M. Tarasova	Russia	The way of nitride fuel producing by high voltage electro-discharge compaction
P1-102	CN245-322	B. Hary	France	Optimization of the thermomechanical treatment to achieve a homogeneous microstructure in a 14Cr ODS steel
P1-103	CN245-338	J. Lee	Korea, Rep. of	The Effect of Proton Irradiation on the Corrosion Behaviours of Ferritic/Martensitic Steel
P1-104	CN245-350	C. Unal	USA	Modelling of Lanthanide Transport in Metallic Fuels: Recent Progresses
P1-105	CN245-366	C. Matthews	USA	BISON for Metallic Fuels Modelling
P1-106	CN245-379	V. Krotov	Russia	The UO2– MeO2 (Me = Th, Pu, Zr) cathode crystalline deposits formation during the melts electrolysis
P1-107	CN245-380	J. Genin	France	OSCAR-Na validation against sodium loop experiments
P1-108	CN245-407	B. Guillou	France	ASTRID hot cells
P1-109	CN245-430	P. Maslov	Russia	On the possibility of using various types of fuel in the MBIR reactor core
P1-110	CN245-442	M. Luppo	Argentina	Precipitate phases in a weldment of P92 steel
P1-111	CN245-443	M. Luppo	Argentina	Isothermal transformation austenite-ferrite in a P92 steel
P1-112	CN245-444	M. Luppo	Argentina	Study of the austenitization process in a P91 steel
P1-113	CN245-445	M. Luppo	Argentina	New results on the continuous cooling behaviour of an ASTM A335 P92 steel
P1-114	CN245-447	J. Large	France	Study of isolation valve for Sodium Fast Reactor
P1-115	CN245-448	R. Sadovnichiy	Russia	Sensors of content of oxygen dissolved in heavy liquid metal coolants

P1-116	CN245-495	S. Sikorin	Belarus	A High Density Uranium Zirconium Carbonitride LEU Fuel for Application in Fast Reactors
P1-117	CN245-512	V. Rajan Babu	India	Testing and Qualification of shielded flasks for handling sodium wetted large sized components of PFBR
P1-118	CN245-516	V. Rajan Babu	India	Challenges during construction of sodium piping systems for 500MWe prototype fast breeder reactor
P1-119	CN245-542	K. Shutko	Russia	Corrosion behaviour of tube steel for BREST-OD-300 steam generator
P1-120	CN245-563	A. Denisov	Russia	Key features of design, manufacturing and implementation of laboratory and industrial equipment for Mixed Uranium – Plutonium Oxide (MOX) and Nitride fuel pellets fabrication in Russia
P1-121	CN245-582	T. Gervais	France	(U, Pu)O2-x MOX pellet for Astrid reactor project
Track 7				
P1-122	CN245-110	Y. Yang	China	A Preliminary Study of P&T Scenario on a Sustainable Energy System in China
P1-123	CN245-375	Y. Hu	China	Study on the sensitivity analysis of the installed capacity and the high-level waste generation based on closed nuclear fuel cycle
P1-124	CN245-387	B. Merk	UK	A Demand Driven Way of Thinking Nuclear Development – Neutron Physical Feasibility of a Reactor Directly Operating SNF from LWR
P1-125	CN245-537	N. Molokanov	Russia	The Computer model for the economic assessment of NPP pilot demonstration energy complex with BREST-OD-300 reactor (REM PRORYV Project)
P1-126	CN245-581	M. Orlov	Russia	Complex discussion of inherent safety fast reactors start-up with enriched uranium concept (strategical, economical aspects, problems of neutron physics etc.). R&D program proposal
P1-127	CN245-583	M. Baryshnikov	Russia	The Commercial Potential of the Dual-Component Nuclear Power System

P1-128	CN245-367	D. Louie	USA	Implementation status of contain-LMR sodium chemistry models into MELCOR 2.1
P1-129	CN245-612 (Track 1)	D. Costes	France	Resting bottom fast reactor

Wednesday, 28 June 2017

Plenary III 08:00-10:00 Plenary Session - III

Venue: Planery room

Chair: **V. Pershukov** and **S. C. Chetal** *Wednesday 28 June 2017*

Time	Id	Presenter	Organization	Title
08:00	CN245-568	J-P. Glatz	EC	The European Commission contribution to the development of safe and sustainable fast reactor systems
08:30	CN245-588	F. Gauché	GIF	Overview of GEN-IV International Forum Activities. Status and Prospects of Fast Reactors
09:00	CN245-587	T. Ivanova	OECD/NEA	Overview of NEA Activities Related to Fast Reactors
09:30	CN245-589	J. Phillips	IAEA	INPRO: Fast Reactors and Enhanced Nuclear Energy Sustainability
			Break 10:00 – 10:20	

Panel II 10:20-12:00 Small and Medium Sized Fast Reactors

Venue: Plenary Hall

Moderator: **S. Monti** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
10:20		S. Monti	IAEA	Introduction to the Panel
10:25	CN245-566	Y. Kim	Korea, Rep. of	Feasibility and Challenges for Self-sustainable Long-Life SMR without Refuelling
10:35	CN245-592	G. Toshinsky	Russia	SVBR-100: Option for developing countries
10:45	CN245-593	G. Grasso	Italy	A safe and competitive lead-cooled small modular fast reactor concept for a short-term deployment
10:55	CN245-594	J. Krepel	Switzerland	Eligibility of Small Molten Salt Fast Reactor (S-MSFR)
11:05	CN245-595	S. Qvist	Sweden	Small and fast reactors for arctic regions
11:15		***General Discussion***		
			Break 12:00 – 13:30	

Session: **1.6** **13:30-15:10** **Core and Design Features - II**

Venue: Room 1

Chair: **V. Rajan Babu** and **S. Belov** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-414	I. Zverev	Russia	Core condition monitoring in advanced commercial sodium BN-1200
13:50	CN245-288	C. Venard	France	The ASTRID core at the end of the conceptual design phase
14:10	CN245-020	E. Rodina	Russia	Fundamental Approaches to High-power Fast Reactor Core Development
14:30	CN245-408	S. Belov	Russia	Specific features of BN-1200 core in case of use of nitride or MOX fuel
		Break 15:10 – 15:30		

Session: **2.2** **13:30-15:10** **Commissioning and Operating Experience of Fast Reactors - II**

Venue: Room 2

Chair: **D. Settimo** and **A. Gulevich** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-278	K. V. Suresh Kumar (Invited)	India	Operating experience of FBTR
13:50	CN245-279	F. Baque	France	R&D status on in-sodium ultrasonic transducers for ASTRID inspection
14:10	CN245-167	S. Takaya	Japan	Proposal of Basic Principles of Maintenance Management for Prototype Reactors
14:30	CN245-186	D. Lukyanov	Russia	Experience of commissioning of the sectoral monitoring tightness system of fuel elements claddings (SSKGO) of RF BN-600, RF BN-800
14:50	CN245-318	V. Arasappan	India	Design modifications of Instrumentation & Control System of future FBRs
		Break 15:10 – 15:30		

Session: 3.5 — 13:30-15:10 — General Safety Approach

Venue: Room 3

Chair: **L. Bolshov** and **P. Gauthe** — *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-577	L. Bolshov (Invited)	Russia	Safety assurance of the new generation of the Russian fast liquid metal reactors
13:50	CN245-075	K. Tucek	EC/JRC	Development of Safety Design Criteria for the Lead-cooled Fast Reactor
14:10	CN245-549	A. Stremin	Russia	Deterministic safety analysis of reactor BREST-OD-300
14:30	CN245-463	A. Bochkarev	Russia	SFR inherent safety features and criteria analysis
14:50	CN245-016	A. Saturnin	France	Evolution of the collective radiation dose from the nuclear reactors through the 2nd to the 4th generation
		Break 15:10 – 15:30		

Session: 4.2 — 13:30-15:10 — Reprocessing and Partitioning

Venue: Room 4

Chair: **S. Cornet** and **A. Glazov** — *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-348	J-P. Grouiller	France	Pu recycling capabilities of ASTRID reactor
13:50	CN245-520	E. Buravand	France	First assessment of a digestion method applied to recover plutonium from refractory residues after dissolving spent SFR MOX fuel in nitric acid
14:10	CN245-114	K. Dvoeglazov	Russia	The actinide oxides preparation by thermal denitration
14:30	CN245-519	N. Reynier-Tronche	France	A comprehensive study of the dissolution of spent SFR MOX fuel in boiling nitric acid (the PHENIX NESTOR-3 case)
		Break 15:10 – 15:30		

Session: **5.6** **13:30-15:10** **Liquid Metal Technologies**

Venue: Room 5

Chair: **R. Askhadullin** and **A. Yamaguchi** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-238	M. Blat-Yrieix	France	Stainless Steels Corrosion in Sodium Fast Reactor: Feedback from Risks during Maintenance Operations (SCC in Caustic Solution and Intergranular Corrosion by Acid Solution)
13:50	CN245-349	T. Cozzika	France	Chemical compatibility with liquid sodium after in service solicitations: feedback on stainless steel in French sodium Fast reactor after 35 years of operation
14:10	CN245-489	M. Girard	France	Testing of electrochemical hydrogen meter in a sodium facility in Cadarache
14:30	CN245-163	E. Varseev	Russia	Mass Transfer Simulation Model for Justification Sodium Purification System Characteristics
14:50	CN245-139	H. Chien	USA	Development and Demonstration of Ultrasonic Under-Sodium Viewing System for SFRs
		Break 15:10 – 15:30		

Session: **6.6** **13:30-15:10** **Coupled Calculations**

Venue: Room 6

Chair: **Z. Zhang** and **V. Strizhov** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
13:30	CN245-561	V. Strizhov (Invited)	Russia	Codes of New Generation Developed for Breakthrough Project
13:50	CN245-576	Z. Zhang (Invited)	China	Research and Development on Simulator of Fast Reactor in China
14:10	CN245-299	Q. Wu	China	Neutronics Experimental Verification for ADS with China Lead-based Zero Power Reactor
14:30	CN245-184	N. Mosunova	Russia	Coupled calculations for the fast reactors safety justification with the EUCLID/V1 integrated computer code
14:50	CN245-059	E. Pettersen	Switzerland	Simulating circulating-fuel fast reactors with the coupled TRACE-PARCS code
		Break 15:10 – 15:30		

Session: **1.7** **15:30-17:30** **ADS and Other Reactor Designs**

Venue: Room 1

Chair: **V. Rachkov** and **S. Monti** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-282	T. Sasa	Japan	Study for Accelerator-driven System in J-PARC/JAEA
15:50	CN245-358	R. Fernandez	Belgium	The evolution of the primary system design of the MYRRHA facility
16:10	CN245-517	A. Balanin	Russia	Physical and technical basics of the concept of a competitive gas cooled fast reactor facility with the core based on coated fuel microparticles
16:30	CN245-574	J. Gadó	Hungary	The ALLEGRO experimental Gas Cooled Fast Reactor Project
16:50	CN245-575	D. Gerardin	France	Design Evolutions of the Molten Salt Fast Reactor

Break 17:30 – 17:50

Session: **7.3** **15:30-17:30** **Non Proliferation Aspects of Fast Reactors**

Venue: Room 2

Chair: **A. Chebeskov** and **S. Kim** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-486	M. Frignani	Italy	Status and perspectives of industrial supply chain for Fast Reactors
15:50	CN245-294	L. Volpe	France	ASTRID - An original and efficient project organization
16:10	CN245-309	O. Saraev	Russia	Closing up nuclear fuel cycle in a two component system with thermal and fast neutron reactors
16:30	CN245-485	M. Frignani	Italy	FALCON advancements towards the implementation of the ALFRED Project
16:50	CN245-526	A. Chebeskov	Russia	The GIF Proliferation Resistance and Physical Protection (PR&PP) Evaluation Methodology: Status, Applications and Outlook

Break 17:30 – 17:50

Session: **3.6** **15:30-17:30** **Safety Analysis**

Venue: Room 3

Chair: **S. Qvist** and **Y. Khomyakov** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-354	A. Yamaguchi (Invited)	Japan	Current Thermal Hydraulic Activities on Sodium-cooled Fast Reactors in Japan
15:50	CN245-364	C. Sowrinathan	India	Design Safety Limits for Transients in a Metal Fuelled Reactor
16:10	CN245-281	N. Rtishchev	Russia	SOCRAT-BN integral code for safety analysis of NPP with sodium cooled fast reactors: development and plant applications
16:30	CN245-064	A. Vasile	France	Thermal-hydraulics and Decay Heat Removal in GFR ALLEGRO
16:50	CN245-557	S. Qvist	Sweden	Autonomous Reactivity Control
17:10	CN245-123	P. Gauthe	France	Sensitivity studies of SFR unprotected transients with global neutronic feedback coefficients

Break 17:30 – 17:50

Session: **4.3** **15:30-17:30** **Partitioning and Sustainability**

Venue: Room 4

Chair: **A. Gonzalez-Espartero** and **A. Shadrin** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-315	B. Sreenivasulu	India	Advanced flow-sheet for partitioning of trivalent actinides from fast reactor high active waste
15:50	CN245-259	A. Potapov	Russia	Pyrochemical recycling of the nitride SNF of fast neutron reactors in molten salts as a part of the short-circuited nuclear fuel cycle
16:10	CN245-228	L. Tkachenko	Russia	Dynamic test of extraction process for americium partitioning from the PUREX raffinate
16:30	CN245-111	M. Halász	Hungary	Fuel cycle studies of Generation IV fast reactors with the SITON v2.0 code and the FITXS burn-up scheme
16:50	CN245-237	V. Vidanov	Russia	Hot test of technique separation of americium and curium
17:10	CN245-492	E. Lyman	USA	External Assessment of the U.S. Sodium-Bonded Spent Fuel Treatment Program

Break 17:30 – 17:50

Session: **5.7** **15:30-17:30** **Chemistry Related Technology**

Venue: Room 5

Chair: **A. Legkikh** and **C. Fazio** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-392	A. Legkikh	Russia	Methods of controlling concentration of oxygen dissolved in heavy liquid metal coolants (lead and lead-bismuth) of nuclear reactors and test facilities
15:50	CN245-562	C. Fazio (Invited)	EC	Materials corrosion in Fast Reactor environment
16:10	CN245-211	A. Aerts	Belgium	The Conditioning and Chemistry Programme for MYRRHA
16:30	CN245-393	R. Askhadullin	Russia	Strategies of maintaining appropriate technology of heavy liquid metal coolants in advanced nuclear power plants
16:50	CN245-543	K. Shutko	Russia	Development of steam-water cycle chemistry for steam generator of research reactor MBIR
17:10	CN245-390	L. Bělovský	Czech Republic	Helium Recovery from Guard Vessel Atmosphere of the ALLEGRO Reactor

Break 17:30 – 17:50

Session: **6.7** **15:30-17:30** **Experimental Thermal Hydraulics**

Venue: Room 6

Chair: **H. Ohshima** and **N. Pribaturin** *Wednesday 28 June 2017*

Time	Id	Presenter	Country	Title
15:30	CN245-340	J. Kuzina	Russia	Heat transfer and temperature non-uniformities in pin bundles with heavy liquid metal coolant at various spacing ways
15:50	CN245-283	J. Pacio	Germany	Thermal-hydraulic experiments supporting the MYRRHA fuel assembly
16:10	CN245-545	I. Soldatenkov	Russia	Testing of the model friction units type of "tube - spacer grid" of the steam generator of the lead coolant nuclear reactor
16:30	CN245-088	M. Angelucci	Italy	NACIE-UP: a HLM loop facility for natural circulation experiments
16:50	CN245-535	N. Krauter	Germany	Eddy current flowrate and local ultrasonic velocity measurements in liquid sodium

Break 17:30 – 17:50

Poster 17:30-19:00 Poster Session - II

Venue: Poster Location

Tracks 2, 6 and 8

Wednesday 28 June 2017

Post.	Id	Presenter	Country	Title
Track 2				
P2-01	CN245-008	R. Coulon	France	Detection and analysis of fuel cladding damages using gamma ray spectroscopy
P2-02	CN245-078	T. Asayama	Japan	Assessment of Creep Damage Evaluation Methods for Grade 91 Steel in the ASME and JSME Nuclear Codes
P2-03	CN245-079	V. Karuppanna Gounder	India	Dependence of intermediate heat exchanger life on primary sodium heating rate during power raising
P2-04	CN245-122	V. Danilenko	Russia	Experience of commissioning of BN-800 core diagnostic system (SDRU)
P2-05	CN245-165	E. Seleznev	Russia	Using of computer code GEFEST800 at the initial stage of NPP operation with BN-800
P2-06	CN245-273	M. Girard	France	Development of innovating Na leak detector on pipes
P2-07	CN245-277	F. Baque	France	Inspection specifications leading to extended ASTRID Design rules
P2-08	CN245-317	B. Sreenivasulu	India	Performance evaluation of tin oxide based sensor for monitoring trace levels of H_2 in argon cover gas plenum of FBTR
P2-09	CN245-423	I. Petrov	Russia	Russian Companies' involvement in CEFR RP (China) construction
P2-10	CN245-446	P. Pillai	India	Design validation of PFBR fuel subassembly transportation cask with mock-up trial run
P2-11	CN245-461	M.Kriachko	Russia	The approaches to the radiation characteristics of structural elements of the core determination during operation and decommissioning for BN-type reactors
P2-12	CN245-514	V. Rajan Babu	India	Experiences during construction & Commissioning of electrical power Generation and Evacuation systems in PFBR

Track 6				
P2-13	CN245-000	C. Batra	IAEA	Nuclear Reactor Modelling and Simulation Toolkit (NuReMoST) – Numerical Reactor Model Configuration System with Interface to Simulation Codes
P2-14	CN245-003	T. Sumner	USA	EBR-II SHRT-17 and SHRT-45R Benchmark Analyses
P2-15	CN245-011	P. Qiao	China	Study about the transient characteristics of the unprotected loss of flow accident in a metal fuel sodium cooled fast reactor based on the SAS4A code
P2-16	CN245-018	E. Fridman	Germany	Modelling of Phenix End-of-Life control rod withdrawal tests with the Serpent-DYN3D code system
P2-17	CN245-021	M. Ibrahim	Egypt	Burnup Analysis for BN-600 Reactor Core fuelled with MOX fuel and Minor Actinides
P2-18	CN245-023	T. Fanning	USA	Uncertainty Quantification of EBR-II Loss of Heat Sink Simulations with SAS4A/SASSYS-1 and DAKOTA
P2-19	CN245-036	I. Chernova	Russia	Analysis of various approximations in neutronic calculations of transient in fast reactors
P2-20	CN245-043	H. Yamano	Japan	Basic Visualization Experiments on Eutectic Reaction of Boron Carbide and Stainless Steel under Sodium-Cooled Fast Reactor Conditions
P2-21	CN245-047	Z. Zhang	China	Research on modelling and simulation of the primary coolant system for China Experimental Fast Reactor
P2-22	CN245-050	S. Pelloni	Switzerland	Low-void-effect sodium-cooled core: Uncertainty of local sodium void reactivity as a result of nuclear data uncertainties
P2-23	CN245-072	B. Vezzoni	Germany	Simmer analyses of the EBR-II shutdown heat removal tests
P2-24	CN245-091	P. Uppala	India	Development and Validation of EBRDYN code by Benchmark Analysis of EBR-II SHRT-17 Test
P2-25	CN245-100	A. Varivtcev	Russia	Calculation of neutronic parameters in support of a BOR-60 experimental fa with moderating elements
P2-26	CN245-103	I. Zhemkov	Russia	Potential Capabilities in Transmutation of Minor Actinides of the BOR-60 Reactor and MBIR Reactor under Construction

P2-27	CN245-105	Y.Naboyshchikov	Russia	Calculation and Experimental Data Analysis of Neutron Spatial/Energy Distribution in the BOR-60 Blanket
P2-28	CN245-108	X. Chen	China	Analysis of Irradiation Ability of China Experimental Fast Reactor
P2-29	CN245-109	B. Batki	Hungary	Analyses of unprotected transients in GFR (ALLEGRO) and SFR reactors supporting the group constant generation methodology
P2-30	CN245-115	J. Lee	Korea, Rep. of	Scoping Analysis of STELLA-2 using MARS-LMR
P2-31	CN245-119	S. Li	China	Thermal design of double helium gas gap conduction test facility
P2-32	CN245-134	S. Sikorin	Belarus	Results of old and program of new experiments on the small-sized fast multiplying systems with HEU / LEU fuel for receiving the benchmark data on criticality
P2-33	CN245-136	I.kodeli	Slovenia	Uncertainty Analysis of Kinetic Parameters for Design, Operation and Safety Analysis of SFRs
P2-34	CN245-143	E. Rozhikhin	Russia	Overview of Experiments for Physics of Fast Reactors from the International Handbooks of Evaluated Criticality Safety Benchmark Experiments and Evaluated Reactor Physics Benchmark Experiments
P2-35	CN245-149	N. Stauff	USA	Evaluation of the OECD/NEA/SFR-UAM Neutronics Reactivity Feedback and Uncertainty Benchmarks
P2-36	CN245-157	Z. Zhou	China	Computational Analysis Code Development for core and primary system thermal hydraulic design of SFR
P2-37	CN245-159	W. Van Rooijen	Japan	Analysis of the EBR-II SHRT-45R neutronics benchmark with ERANOS-2.0
P2-38	CN245-168	B. Abramov	Russia	More precise definitions of the perturbation theory formulas for reactivity effects calculations
P2-39	CN245-179	N. Doda	Japan	Numerical Analysis of EBR-II Shutdown Heat Removal Test-17 using 1D Plant Dynamic Analysis Code coupled with 3D CFD Code
P2-40	CN245-181	G. Grasso	Italy	Impact of nuclear data uncertainties on the reactivity coefficients of ALFRED

P2-41	CN245-195	V. Bereznev	Russia	New neutronic calculation codes based on discrete ordinates method using methods of finite differences and finite elements
P2-42	CN245-200	K. Mitrofanov	Russia	The relative yields and half-lives of precursors of delayed neutrons in the fission ^{241}Am by fast neutrons.
P2-43	CN245-201	K. Mitrofanov	Russia	Features of the time dependence of the intensity of delayed neutrons in the range of 0.02 s in the fission ^{235}U by thermal and fast neutrons.
P2-44	CN245-203	D. Gremyachkin	Russia	Validation of the evaluated fission product yields data from the fast neutron induced fission of ^{235}U, ^{238}U, ^{239}Pu
P2-45	CN245-209	Š. Čerba	Slovakia	Actual Status of the Development of Multigroup XS Libraries for the Gas-cooled Fast Reactor in Slovakia
P2-46	CN245-213	H. Zhu	China	Experiment and Analysis of Flow distribution of MOX Assembly
P2-47	CN245-231	F. Lodi	Italy	Evaluation of data and model uncertainties and their effect on the fuel assembly temperature field of the ALFRED Lead-cooled Fast Reactor
P2-48	CN245-243	Q. Zhou	China	Preliminary Design of Zero Power Reactor for CEFR MOX Core
P2-49	CN245-246	J. Won	Korea, Rep. of	Investigation of the homogenization effect in sodium void reactivity in PGSFR
P2-50	CN245-247	C. Choi	Korea, Rep. of	Benchmark Analysis of EBR-II SHRT45R using MARS-LMR
P2-51	CN245-263	J. Jeong	Korea, Rep. of	CFD investigation of thermal-hydraulic characteristics in a SFR fuel assembly
P2-52	CN245-270	X. Xue	China	Computational Analysis Code Development for Emergency Heat Removal of Pool-style Fast Reactors
P2-53	CN245-271	V. Blandinskiy	Russia	Concept of multifunctional fast neutron research reactor (MBIR) core with metal (U-Pu-Zr)-fuel
P2-54	CN245-280	Q. Zhao	China	the simulation of reactor physics for China Experimental Fast Reactor
P2-55	CN245-308	H. Ye	Korea, Rep. of	Hydraulic Design and Evaluation of the PHTS Mechanical Pump of PGSFR
P2-56	CN245-346	L. Hu	China	Development and Applications of Nuclear Design and Safety Assessment Program SuperMC for Fast Reactor

P2-57	CN245-401	A. Tuzov	Russia	Development of Research Nuclear Power Facility with MBIR Multi-Purpose Fast Neutron Research Reactor
P2-58	CN245-416	V. Pakholkov	Russia	Integrated R&D to validate innovative emergency heat removal system for BN-1200 reactor
P2-59	CN245-418	S. Rogozhkin	Russia	V&V status of CFD codes applied to BN reactors
P2-60	CN245-422	N. Loginov	Russia	Development experience for experimental reactor facility cooled With evaporating liquid metals
P2-61	CN245-437	V. Eliseev	Russia	Features of the physics of the MBIR reactor core
P2-62	CN245-467	M. Ternovykh	Russia	System of coordinated calculation benchmarks for a fast reactor with sodium coolant in closed fuel cycle
P2-63	CN245-469	D. Fomichev	Russia	LOGOS CFD software application for the analysis of liquid metal coolants in the fuel rod bundles geometries
P2-64	CN245-529	J-M. Hamy	France	Advanced Coupling Methodology for Thermal-hydraulic calculations
P2-65	CN245-532	V. Yufereva K. Kalugina	Russia	Methodical uncertainty of criticality precise calculations for fast lead reactor
P2-66	CN245-551	A. Tutukin	Russia	Application of CFD simulation to validate the BREST-OD-300 primary circuit design
P2-67	CN245-552	K. Sergeenko	Russia	LES-simulation of heat transfer in a turbulent pipe
P2-68	CN245-573	F. Puente	Mexico	Participation of Mexico in the OECD/NEA SFR Benchmark using the Monte Carlo code Serpent
P2-69	CN245-604	I. Hwang	Korea, Rep. of	Characterization of LBE Non-isothermal Natural Circulation by Experiments with HELIOS Test Loop and Numerical Analyses
Track 8				
P2-70	CN245-012	D. Wootan	USA	The U.S. Knowledge Preservation Program for Fast Flux Test Facility Data
P2-71	CN245-013	D. Wootan	USA	Lessons Learned from Fast Flux Test Facility Experience
P2-72	CN245-014	D. Wootan	USA	Passive Safety Testing at the Fast Flux Test Facility Relevant to New LMR Designs

P2-73	CN245-039	D. Wootan	USA	Design and Fabrication of Closed Loop Systems (CLS) for the Fast Flux Test Facility (FFTF)
P2-74	CN245-053	T. Sofu	USA	Development of Safety, Irradiation, and Reliability Databases based on Past U.S. SFR Testing and Operational Experiences
P2-75	CN245-240	N. Maksimov	Russia	Comparative analysis of nuclear energy lexicon
P2-76	CN245-360	S. Monti	IAEA	Overview of the international cooperation and collaboration activities initiated and performed under the Technical Working Group on Fast Reactors in last 50 years
P2-77	CN245-547	A. Semchenkov	Russia	The study of thermal-hydraulic processes in the steam generator of the BREST-OD-300 reactor facility

Thursday 29 June 2017

Session: **3.7** **08:00-10:00** **Core Disruptive Accident Prevention**

Venue: Room 3

Chair: **H. Y. Jeong** and **Y. Ashurko** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
08:00	CN245-284	C. Kim (Invited)	Korea, Rep. of	Optimization of Passive Safety Devices FAST and SAFE for Sodium-cooled Fast Reactors
08:20	CN245-474	L. Costes	France	ASTRID safety design: Progress on prevention of severe accident
08:40	CN245-182	M. Sarotto	Italy	Impact of an accidental control rod withdrawal on the ALFRED core: tridimensional neutronic and thermal-hydraulic analyses
09:00	CN245-131	Y. Khomyakov (Invited)	Russia	Minimisation of Reactivity Margin for Equilibrium Core of Liquid Metal Cooled Fast Reactors
		Break 10:00 – 10:20		

Session: **5.8** **08:00-10:00** **Structural Materials**

Venue: Room 5

Chair: **A. Sorokin** and **S. Kim** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
08:00	CN245-033	S. Kim	Korea, Rep. of	Fabrication and Evaluation of Advanced Cladding Tube for PGSFR
08:20	CN245-130	B. Margolin	Russia	Basic principles for lifetime and structural integrity assessment of BN-600 and BN-800 fast reactors components with regard for material degradation
08:40	CN245-135	A. Courcelle	France	TEM characterization of a swelling-resistant austenitic steel irradiated at high temperature (>600°c) in the PHENIX fast reactor
09:00	CN245-250	C. Sowrinathan	India	Performance evaluation of ferroboron shielding material after irradiation in FBTR
09:20	CN245-092	A. Buchatsky	Russia	Prediction of creep-rupture properties for austenitic stainless steels undergone neutron irradiation at different temperatures
09:40	CN245-477	L. Nicolas	France	Recent supplying of 316L(N) stainless steel products for ASTRID
		Break 10:00 – 10:20		

Session: **6.8** **08:00-10:00** **Experimental Facilities**

Venue: Room 6

Chair: **B. K. Nashine** and **V. Semenov** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
08:00	CN245-534	G. Gerbeth (Invited)	Germany	The DRESDYN project: A new facility for thermohydraulic studies with liquid sodium
08:20	CN245-089	M. Tarantino	Italy	CIRCE-ICE experimental activity in support of LMFR design
08:40	CN245-313	F. Serre	France	PLINIUS-2: a new corium facility and programs to support the safety demonstration of the ASTRID mitigation provisions under Severe Accident Conditions
09:00	CN245-266	P. Selvaraj (Invited)	India	Sodium testing of fast reactor components
09:20	CN245-546	V. Sizarev	Russia	On the rational design of fuel assemblies for reactor facilities from the standpoint of providing vibration strength
09:40	CN245-312	T. Zhou	China	CLEAR-S: A Large Pool-type Components and Thermo-hydraulic Integrated Test Facility for China Lead based reactor
		Break 10:00 – 10:20		

Session: **7.4** **08:00-10:00** **Fuel Cycle Analysis**

Venue: Room 4

Chair: **A. Khaperskaya** and **X. Huo** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
08:00	CN245-487	A. Rineiski	Germany	Fast reactor systems in the German P&T and related studies
08:20	CN245-242	M. Kim (Invited)	Korea, Rep. of	Performance Analysis of Various Thorium Fuel Options for the Sodium Cooled Fast Reactor
08:40	CN245-412	K. Zhou	China	Primary Analysis on The Nuclear Energy Development Scenario base on the U-Pu Multicycling with PWR, FR and CNFC in China
09:00	CN245-343	V. Artisyuk	Russia	Analysis of the SVBR-100 nuclear fuel cycle by means of the advanced nuclear fuel cycle assessment methodology (ATTR)
09:20	CN245-090	G. Toshinsky	Russia	SVBR Project: status and possible development
09:40	CN245-104	A. Chebeskov	Russia	Fast Neutron Reactors, Fuel Cycles and Problem of Nuclear Non-Proliferation

Break 10:00 – 10:20

Session: **1.8** **10:20-12:00** **Innovative Reactor Designs**

Venue: Room 3

Chair: **S. Monti** and **I. Tretyakov** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-038	A. Sedov	Russia	A Concept of VVER-SCP reactor with fast neutron spectrum and self-provision by secondary fuel
10:40	CN245-426	S. Bortot	Sweden	Design of a nitride-fuelled lead fast reactor for MA transmutation
11:00	CN245-531	K. Arie	Japan	Innovative TRU Burning Fast Reactor Cycle Using Uranium-free TRU Metal Fuel - Core Design Progress -
11:20	CN245-431	J. Wallenius	Sweden	SEALER: a small lead-cooled reactor for power production in the Canadian Arctic
11:40	CN245-303	N. Maslov	Russia	Improving inherent safety BN-800 by the use of fuel assembly with (U, Pu)C microfuel.

Break 12:00 – 13:30

Session: **2.3** **10:20-12:00** **Decommissioning of Fast Reactors and Radioactive Waste Management**

Venue: Room 2

Chair: **H. Ohshima** and **V. Bezzubtsev** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-560	D. Settimo (Invited)	France	Superphenix dismantling - Status and lessons learned
10:40	CN245-101	P. Filliatre	France	Dependability of the fission chambers for the neutron flux monitoring system of the French GEN-IV SFR
11:00	CN245-386	S. Belov	Russia	Arrangement of the BN-600 reactor core refuelling at transition to the increased fuel burn-up
11:20	CN245-456	K. Butov	Russia	Industrial Exploitation of Testing Ground for Treatment of Radwaste of Alkaline Coolants under Decommissioning of Fast Research Reactors

Break 12:00 – 13:30

Session: **5.9** **10:20-12:00** **Large Component Technology - II**

Venue: Room 5

Chair: **J. Kuzina** and **H. Kim** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-217	F. Gao	China	The development of a computer code for predicting fast reactor oxide fuel element thermal and mechanical behaviour (FIBER-Oxide)
10:40	CN245-544	O. Novichkova	Russia	A new generation steel for heat exchangers tubes of reactors design with lead coolant
11:00	CN245-510	V. Rajan Babu	India	Challenges During Manufacture of Reactor Components of PFBR

Break 12:00 – 13:30

Session: **6.9** **10:20-12:00** **Research Reactors**

Venue: Room 6

Chair: **H. Yamano** and **A. Tuzov** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-248	D. Euh (Invited)	Korea, Rep. of	Development of Flow Identification Technology for the PGSFR Thermal Fluidic Design Validation
10:40	CN245-196	A. Belov	Russia	Detailed engineering neutron codes for calculations of fast breeder reactors
11:00	CN245-497	A. Izhutov (Invited)	Russia	BOR-60 reactor operational experience and experimental capabilities
11:20	CN245-462	D. Klinov (Invited)	Russia	Calculation and experimental analysis of neutronic parameters of the BN-800 reactor core at the stage of reaching first criticality followed by rated power testing
11:40	CN245-438	A. Gulevich (Invited)	Russia	Justification of arrangement, parameters, and irradiation capabilities of the MBIR reactor core at the initial stage of operation

Break 12:00 – 13:30

Session: **8.2** **10:20-12:00** **Professional Development and Knowledge Management - II**

Venue: Room 4

Chair: **G. Tikhomirov** and **C. Fazio** *Thursday 29 June 2017*

Time	Id	Presenter	Country	Title
10:20	CN245-031	C. Batra	IAEA	IAEA's Fast Reactors Knowledge Portals and Catalogues
10:40	CN245-359	V. Kriventsev	IAEA	Overview of the IAEA Activities in the Field of Fast Reactor Technology Development: Current State and Future Vision
11:00	CN245-538	M. Noskov	Russia	Personnel training for the "PRORYV" project at the Seversk Technological Institute of NRNU MePhI
11:20	CN244-132	O. Azpitarte	Argentina	IAEA NAPRO Coordinated Research Project: Physical Properties of Sodium Overview of the Reference Database and Preliminary Analysis Results
			Break 12:00 – 13:30	

Workshop 08:00-12:00 YGE Workshop:

Venue: Room 1

Filling the gap: "Training Young Generation"

Chair: **E. Adamov** and **C. Batra**

Thursday 29 June 2017

Moderator: **M. Vanderhaegen**

Time	Presenter	Country	Focus
08:00	D. Janin	IYNC	Introduction
08:15	C. Batra	IAEA	The Role of the IAEA in Fast Reactor Development and Knowledge Transfer
08:30	E. Adamov	Russia	Knowledge Transfer and Management for an active fleet of fast reactors.
09:00	C. Latgé	France	Knowledge Transfer and Management with interrupted development
09:30	H. Kamide	Japan	Knowledge Transfer and Management during long outage periods
10:00	***Break***		
10:20	A. Zhukov	Russia	Knowledge Transfer to Young Generation and Technical Reconstruction of BFS Complex
10:40	Group Discussion		
11:20	Group Presentations		
11:50	Workshop Conclusions		

YGE Panel 13:30-15:30 Young Generation Event

Venue: Plenary Hall

Next Generation Nuclear Systems: "The Force Awakens"

Chair: **C. Xerri**
Moderator: **C. Batra**

Thursday 29 June 2017

Time	Presenter	Country	Title
13:30	C. Batra	IAEA	Introduction of the Panel
13:35	L. Lebel	Canada	How the Next Generation of People will shape the Next Generation of Nuclear?
13:50	K. Gladinez	Belgium	Innovative cold trap filtration technologies for reliable and economical exploitation of lead-bismuth eutectic cooled systems
14:05	E. Bissen	France	Stability and bifurcation analysis of sodium boiling in a GEN IV SFR reactor core
14:20	S. Aravindan	India	Development of Reverse Flow Blockage Device for Primary Sodium Pumps of Fast Breeder Reactor
14:35	E. Pettersen	Switzerland	Developing an open-source multi-physics tool for simulating advanced nuclear reactors
14:50	B. Sreenivasulu	India	Development of Tri-iso-Amyl Phospahte (TiAP) based solvent extraction process as an alternate method for the processing of metallic alloy fuels (U-Pu-Zr and UZr)

15:05 General Discussion

Break 15:30 – 15:50

Closing 15:50-17:00 Closing Session

Venue: Plenary Hall

Chair: **M. Chudakov** and **A. Gonzalez-Espartero** *Thursday 29 June 2017*

Time	Speaker		
15:50	**L. Bolshov** Chair of the International Scientific Programme Committee	Russian Federation	Concluding Report on the Technical Sessions
16:10	**V. Kriventsev**	IAEA	Report on Panel 1: Safety Design Guidelines
16:20	**S. Monti**	IAEA	Report on Panel 2: Small and Medium sized fast reactors
16:30	**C. Xerri** Chair of the YGE Selection Committee	IAEA	Report on the Young Generation Event
16:40	**V. Pershukov** Conference General Chair	Russian Federation	Closing Remarks
16:50	**M. Chudakov** Conference General Co-Chair	IAEA	Closing Remarks

Forthcoming Scientific Meetings Scheduled by the IAEA

2017

International Conference on Fast Reactors and Related Fuel Cycles (FR17)
Yekaterinburg, Russian Federation, 26-29 June 2017

Scientific Forum: Nuclear Technology for Human Health: Prevention, Diagnosis and Treatment
19-20 September 2017, Vienna, Austria

Fourth International Conference on Nuclear Power Plant Life Management (PLiM)
23-27 October 2017, Lyon, France

International Ministerial Conference on Nuclear Power in the 21st Century
30 October-1 November 2017, Abu Dhabi, UAE

International Conference on Physical Protection of Nuclear Material and Nuclear Facilities
13-17 November 2017, Vienna, Austria

International Conference on Radiation Protection in Medicine: Achieving Change in Practice
11-15 December 2017, 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 2018, Gyeongju, Republic 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 2018, Vienna, Austria

International Symposium on Plant Mutation Breeding and Biotechnology
6-10 August 2018, Vienna, Austria

International Symposium on Communicating Nuclear and Radiological Emergencies to the Public
1-5 October 2018 Vienna, Austria

International Conference on Challenges Faced by Technical and Scientific Support Organizations (TSOs) in Enhancing Nuclear Safety and Security
15-19 October 2018, Brussels, Belgium

27th IAEA Fusion Energy Conference (FEC-2018)
22-27 October 2018, Ahmedabad, India

Symposium on International Safeguards
5-9 November 2018, Vienna, Austria

Ministerial Conference on Nuclear Science, Technology and Applications for Peaceful Uses
27-29 November 2018, Vienna, Austria

International Conference on Global Radioactive Material Security Governance: Prevention and detection in action
3-7 December 2018, Vienna, Austria

International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions
10-14 December 2018, Vienna, Austria