

CN-176 Presentations

INTERNATIONAL CONFERENCE ON FAST REACTORS AND RELATED FUEL CYCLES: CHALLENGES AND OPPORTUNITIES (FR09)

7-11 DECEMBER 2009, KYOTO, JAPAN

PRESENTATIONS

(please note that some presentations have not been released)

KEYNOTE AND INVITED PAPERS:

OPENING SESSION

No.	Name	Designating Member State/ Organization	Title of Paper
	J. Bouchard	France	Key challenges and opportunities
PLENARY SESSION 1: National and international fast reactor programmes			
FRP-01	M. Xu	China	Fast reactor development for a sustainable nuclear energy supply in China
FRP-02	J. Rouault J.P. Serpantié D. Verwaerde (presented by: F. Gauché)	France	French R&D program on SFR and the ASTRID prototype
FRP-03	S.C. Chetal P. Chellapandi P. Puthiyavinayagam S. Raghupathy V. Balasubramanian P. Selvaraj P. Mohanakrishnan B. Raj	India	Perspective on development of future FBRs in India
FRP-04	K. Hakozaiki	Japan	Research and development policy on FBR cycle technology in Japan
FRP-05	J.B. Choi	Korea, Republic of	Status of fast reactor and pyroprocess technology development in Korea
PLENARY Session 2: National and international fast reactor programmes (continued)			
FRP-06	P.G. Schedrovitsky V.I. Rachkov O.M. Saraev A.V. Zrodnikov V.M. Poplavsky B.A. Vasilyev V.N. Ershov A.V. Bychkov I.A. Shkabura V.N. Leonov	Russian Federation	The program of fast reactor development in Russia
FRP-07	P.J. Finck R.N. Hill	United States of America	The US advanced fuel cycle program: objectives and accomplishments
FRP-08	R. Schenkel	EC	Fast reactor research in Europe: the way towards sustainability
FRP-09	A. Stanculescu G. Dyck	IAEA	IAEA programme on fast reactor, related fuels, and structural materials technology
FRP-10	T. Dujardin C. Nordborg Y.J. Choi	OECD/NEA	OECD Nuclear Energy Agency activities related to fast reactor development
PLENARY Session 3: Advanced concepts and coolant technologies			
KN-01	J.L. Carbonnier	France	Advanced and innovative reactor concept

			designs, associated objectives and driving forces
KN-02	V.M. Poplavsky F.A. Kozlov Yu.I. Orlov A.P. Sorokin A.S. Korolkov Yu.Ye. Shtynda	Russian Federation	Liquid metal coolants technology for fast reactors
PLENARY Session 4: Safety and materials			
KN-03	R. Nakai	Japan	Design and assessment approach on advanced SFR safety with emphasis on core disruptive accident issue
KN-04	B. Raj T. Asayama C. Fazio	India	Structural materials: new challenges, manufacturing and performance
PLENARY SESSION 5: Fuels and fuel cycles			
INV-01	T. Mizuno	Japan	Fast reactor fuel development in Japan
INV-02	V.M. Poplavsky L.M. Zabudko I.A. Shkaboura M.V. Skupov A.V. Bychkov V.A. Kisly F.N. Kryukov	Russian Federation	Fuels for advanced sodium cooled fast reactors in Russia: state-of-art and prospects
INV-03	K.O. Pasamehmetoglu	United States of America	Advanced fuels for fast reactors
INV-04	J. Somers P. Anzieu J.M. Bonnerot E. D'Agata F. Klaassen R. Hania (presented by: D. Haas)	EC	Fast reactor fuel development in Europe
KN-05	S. Tanaka	Japan	Recycle strategies for fast reactors and related fuel cycle technologies
PLENARY SESSION 6: Retrospectives and advanced simulation			
INV-05	J.F. Sauvage G. Pr�ele L. Martin	France	The French SFR operating experience
INV-06	S.C. Chetal P. Kumar P. Chellapandi	India	The last twenty years experience with fast reactors; Lessons learnt and perspective
INV-07	K. Ito T. Yanagisawa	Japan	Last twenty years experiences with fast reactors in Japan
INV-08	A.V. Zrodnikov V.M. Poplavsky Yu.M. Ashurko O.M. Saraev N.N. Oshkanov M.V. Bakanov B.A. Vasilyev Yu.L. Kamanin V.N. Ershov M.N. Svyatkin A.S. Korolkov Yu.M. Krashennnikov V.V. Denisov	Russian Federation	Experience gained in Russia on sodium cooled fast reactors and prospects of their further development
KN-06	A. Siegel	United States of America	Advanced simulation: applications for fast reactors
CLOSING SESSION			
	T. Jo	Japan	Statement at YGE
	M. Salvatores	France	Issues and challenges of fast reactors: imaginative breakthrough vs. business as usual
PANELS:			
PANEL 1: Economics and performance of fast neutron systems: overall reliability of plant and systems and impact of technological improvements			

N. Camarcat	France	PDF
V. Kagramanyan	Russian Federation	PDF

PANEL 2: International activities: collaborative programmes, harmonization of prototypes, sharing of facilities and standardization

C. Hu	China	PDF
P. Frigola	EC	PDF
S. Golub	USA	PDF
A. Chebeskov	Russian Federation	PDF
Y. Sagayama	Japan	PDF
A. Rineiski	Germany	PDF

YOUNG GENERATION EVENT (YGE):**Development and deployment of fast reactor technology to meet global nuclear energy sustainability requirements: A challenge for the young generation**

YGE-02	T. Ito	Japan	Important matters in realizing commercial FBR cycle
	L. Ren	China	PDF
	Y. Liu	China	PDF
	K.L. Lee	Korea, Republic of	PDF
	W.J. Chang	Korea, Republic of	PDF
	F. Gabrielli	Germany	PDF
	E. Hourcade	EC	PDF
	S. Poglyad	Russian Federation	
	W. D. Pointer	USA	PDF
	S. Beils	France	PDF
	T. Jo	Japan	PDF

CONTRIBUTED PAPERS:**PARALLEL SESSION 1.1: Innovative fast reactors: objectives and driving forces**

01-01	N. Camarcat J.M. Delbecq J.F. Sauvage D. Verwaerde P. Berbey	France	Fast breeder reactor development: EDF's point of view
01-02	Y. Sagayama K. Okada T. Nagata	Japan	Progress on reactor system technology in the FaCT project toward the commercialization of fast reactor cycle system
01-03	Y. Kim D.H. Hahn	Korea, Republic of	Advanced SFR concept design studies at KAERI
01-04	V.M. Poplavsky A.M. Tsybulya Yu.E. Bagdasarov B.A. Vasilyev Yu.L. Kamanin S.L. Osipov N.G. Kuzavkov V.N. Yershov M.R. Ashirmetov	Russian Federation	Advanced sodium fast reactor power unit concept
01-05	V.M. Poplavsky A.M. Tsybulya Yu.S. Khomyakov V.I. Matveev V.A. Eliseev A.G. Tsykunov B.A. Vasiliev S.B. Belov M.R. Farakshin	Russian Federation	Core design and fuel cycle of advanced fast reactor with sodium coolant

01-06	D.H. Hahn C.M. Kang E.P. Loewen E.F. Saito	Korea, Republic of	Advanced SFR concept based on PRISM and KALIMER
01-07	K. Aoto S. Kotake N. Uto T. Ito M. Toda	Japan	JSFR design study and R&D progress in the FaCT project
PARALLEL SESSION 1.2: Innovative fast reactors: objectives and driving forces			
01-08	A. Alemberti J. Carlsson E. Malambu A. Orden L. Cinotti D. Struwe P. Agostini S. Monti	Italy	ELSY – The European lead fast reactor
01-09	A.V. Zrodnikov G.I. Tshinsky O.G. Komlev V.S. Stepanov N.N. Klimov A.V. Kudryavtseva V.V. Petrochenko	Russian Federation	SVBR-100 module-type fast reactor of the IV Generation for regional power industry
01-10	J.C. Garnier J.Y. Malo F. Bertrand P. Anzieu (presented by: N. Devictor)	France	Recent progress of gas fast reactor program
01-11	M. Konomura M. Ichimiya K. Mukai	Japan	Future R&D programs using Monju
01-12	B. Riou D. Verwaerde S. Aniel	France	Design features of advanced sodium cooled fast reactors with emphasis on economics
PARALLEL SESSION 2: Fast reactor coolant technology and instrumentation			
02-01	R. Ganesan V. Jayaraman S. Rajan Babu R. Sridharan T. Gnanasekaran	India	Behaviour and monitoring of non-metallic impurities in liquid sodium
02-02	C. Latgé	France	Sodium quality control; French developments from Rapsodie to EFR
02-03	S. Eckert D. Buchenau G. Gerbeth F. Stefani F.P. Weiss	Germany	Some recent developments in the field of liquid metal measuring techniques and instrumentation
02-04	C. Ito Y. Araki K. Okazaki H. Naito K. Watanabe N. Takegawa H. Harano T. Iguchi T. Aoyama	Japan	Development of high sensitive and reliable FFD and sodium leak detection technique for fast reactor using RIMS
02-05	F. Baqué G. Rodriguez N. Jardin J.M. Carpeau J.M. Augem J. Sibilo	France	Challenges and R&D program for improving inspection of sodium cooled fast reactors and systems
02-06	K. Tsukimori M. Ueda S. Miyahara T. Yamashita	Japan	R&D on Maintenance Technologies for FBR plants in JAEA The status quo and the future plan

02-07	T. Ashida K. Imaizumi S. Maeda M. Takamatsu T. Sekine A. Nagai Y. Maeda	Japan	Restoration work for obstacle and upper core structure in reactor vessel of experimental fast reactor Joyo
PARALLEL Session 3.1: Fast reactor safety: approaches and issues			
03-01	S. Beils B. Carlucci N. Devictor G.L. Fiorini J.F. Sauvage	France	Safety for the future sodium cooled fast reactors
03-02	R.A. Wigeland J.E. Cahalan	United States of America	Mitigation of sodium-cooled fast reactor severe accident consequences using inherent safety principles
03-03	I. Slessarev P. Alekseev	Russian Federation	Ways to the nuclear power renaissance and vital risk free fast reactors
PARALLEL SESSION 3.2: Fast reactor safety: approaches and issues			
03-05	G.L. Fiorini T.J. Leahy (presented by: R. Nakai)	France	Generation IV International Forum Risk and Safety Working Group: Terms of reference, accomplishments, current activities & perspectives
03-06	N. Nakae T. Baba K. Kamimura	Japan	Basis of technical guideline for FBR fuel safety evaluation in JNES
03-07	K. Haga H. Endo T. Nakajima T. Ishizu	Japan	Development of integrated analytical tools for level-2 PSA of LMFBR
03-08	E.E. Morris W.M. Nutt (presented by: T. Taiwo)	United States of America	Uncertainty analysis for unprotected loss-of-heat-sink, loss of flow, and transient overpower events in sodium-cooled fast reactors
03-09	V.M. Poplavsky V.I. Matveev V.A. Yeliseev I.A. Kuznetsov A.V. Volkov M.Yu. Semenov Yu.S. Khomyakov A.M. Tsubulya (presented by: Yu.Ye. Shvetsov)	Russian Federation	Sodium void reactivity effect influence on the prospective fast neutron reactor safety and concept approaches
03-10	S. Kubo Y. Shimakawa H. Yamano S. Kotake	Japan	Safety design requirements for safety systems and components of JSFR
PARALLEL SESSION 4.1: Fast reactor structural materials: achievements and new challenges			
04-01	J.T. Busby	United States of America	Advanced materials for nuclear reactor systems: alloys by design to overcome past limitations
04-02	G. Müller A. Weisenburger A. Heinzl A. Jianu	Germany	Pulsed e-beam modified FeCrAlY corrosion barriers for future fast reactor systems
04-03	A. Povstyanko V. Prokhorov A. Fedoseyev F. Krykov	Russian Federation	EP-450 Steel as cladding material for fuel rods for fast neutron reactors
04-04	S.H. Kim C.B. Lee D.H. Hahn	Korea, Republic of	Development of SFR fuel cladding tube materials
PARALLEL SESSION 4.2: Fast reactor structural materials: achievements and new challenges			
04-05	N. Isobe N. Kawasaki M. Ando M. Sukekawa	Japan	Experimental investigation of strain concentration evaluation based on the stress redistribution locus method

04-06	K. Fukumoto H. Matsui N. Akasaka I. Yamagata	Japan	Microstructural effect of solute addition for Fe-15Cr-20Ni steels irradiated in Joyo
04-07	K. Natesan M. Li S. Majumdar R.K. Nanstad T.L. Sham	United States of America	Materials and code qualification needs for sodium-cooled fast reactors
04-08	O. Ancelet M.N. Berton M. Blat F. Dalle P. Dubuisson O. Gelineau Y. Lejeail	France	Analysis of the optimization of the secondary hot piping for a sodium fast reactor
04-09	V.S. Ageev Yu.P. Budanov A.G. Ioluhovskiy M.V. Leontyeva-Smirnova N.M. Mitrofanova A.V. Tselishchev I.A. Shkabura	Russian Federation	Structural materials for Russian fast reactor cores: Status and prospects
04-10	T. Asayama Y. Nagae T. Wakai M. Inoue T. Kaito S. Otuka N. Kawasaki M. Morishita	Japan	Development of structural materials for JSFR – overview and current status

PARALLEL SESSION 5.1: Fast reactor fuel cycles

05-01	A.V. Bychkov M.V. Kormilitsyn P.P. Poluectov V.S. Kagramanyan Yu.S. Khomyakov P.N. Alexeyev A.Yu. Kuznetsov	Russian Federation	Strategies and national programs of closed fuel cycles: Russian vision
05-02	H. Funasaka T. Koyama T. Namekawa T. Nagata	Japan	Development of FBR fuel cycle technology in Japan
05-03	C. Poinssot D. Warin C. Rostaing	France	Recent progress in advanced actinide recycling processes
05-05	W. Nakazato K. Ikeda R.A. Kochendarfer S. Kunishima	Japan	Enhancing Minor Actinide Transmutation in ARR
05-06	T. Taiwo S. Bays A. Yacout E. Hoffman M. Todosow T. Kim M. Salvatores	United States of America	U.S. Study on impacts of heterogeneous recycle in fast reactors on overall fuel cycle
05-21P	T. Namekawa Y. Yamada A. Kitamura T. Hosogane K. Kawaguchi	Japan	Handling technology of low decontaminated TRU fuel for the simplified pelletizing method fuel fabrication system

PARALLEL SESSION 5.2: Fast reactor fuel cycles

05-08	F. Gabrielli V. Romanello M. Salvatores A. Schwenk-Ferrero W. Maschek	Germany	Advanced fuel cycles and fast reactor flexibility
05-09	A.M. Yacout T.A. Taiwo	United States of America	Multi-regional transitional strategies towards fast reactor based nuclear energy systems

	C.J. Jeong U. Laüferts		
05-10	A. Baschwitz C. Loaëc J. Fournier M. Delpech	France	GEN-IV deployment: long term-prospective
05-11	B. Raj A. Vasile V. Kagramanian M. Xu R. Nakai Y.I. Kim V. Usanov	IAEA	Assessment of compatibility of a system with fast reactors with sustainability requirements and paths to its deployment
05-12	A.V. Zrodnikov V.S. Kagramanyan A.N. Chebeskov E.V. Poplavskaya	Russian Federation	International nuclear fuel cycle centers in global nuclear power infrastructure
05-13	P. Kumar S. Narasimhan	India	Security and control of nuclear material in PFBR
PARALLEL SESSION 5.3: Fast reactor fuel cycles			
05-14	J.F. Pilat	United States of America	Proliferation resistance for fast reactors and related fuel cycles: issues and impacts
05-15	D. Greneche	France	Proliferation issues related to the deployment of fast neutron reactors
05-16	Y. Kuno M. Senzaki M. Seya N. Inoue	Japan	Role of safeguards in proliferation resistance for the future nuclear fuel cycle systems
PARALLEL Session 6.1: Fast reactor analysis: basic data, experiments and advanced simulation			
06-01	K. Sugiyama Z. Zhang	Japan	Thermal and hydrodynamic fragmentation of a single molten stainless steel droplet penetrating sodium pool
06-02	K. Litfin A. Batta A. G. Class T. Wetzell R. Stieglitz	Germany	Flow distribution and turbulent heat transfer in a hexagonal rod bundle experiment
06-03	Yu.M. Ashurko G.P. Pugachev	Russian Federation	Phenomenon of local natural circulation in a circuit of nuclear power plant
06-04	R. Kato H. Saito H. Ota K. Kimura	Japan	The R&D test plan using sodium test loop for development of the 4S
06-05	G. Palmiotti M. Salvatores M. Assawaroongruengchot	France	Nuclear data for innovative fast Reactors: Impact of uncertainties and new requirements
06-06	J.M. Ruggieri J.F. Lebrat J. Tommasi P.A Archier (presented by: F. Varaine)	France	JEFF-3.1.1 Nuclear data validation for sodium fast reactors
06-07	T. Takeda W.F.G. van Rooijen	Japan	Sensitivity coefficients for fast reactor core analysis
PARALLEL SESSION 6.2: Fast reactor analysis: basic data, experiments and advanced simulation			
06-08	K. Mikityuk	Switzerland	Review of the recent FAST project activities related to Gen-IV fast reactors
06-09	T.J. Tautges	United States of America	Coupled multi-physics simulation frameworks for reactor simulation: A bottom-up approach
06-10	V.M. Poplavsky I.A. Kuznetsov Yu.Ye. Shvetsov A.V. Volkov Yu.M. Ashurko	Russian Federation	Computational software package for analyzing the fast neutron reactor safety: Its improvement and development prospects

	M.V. Kashcheev L.A. Shchekotova G.A. Kunzio		
06-11	M.A. Smith D. Kaushik A. Wollaber W.S. Yang B. Smith	United States of America	Neutronics code development at Argonne National Laboratory
06-13	A. Rinecki M. Ishikawa J. Jang P. Mohanakrishnan T. Newton G. Rimpault A. Stanculescu V. Stogov	Germany	Benchmark analyses for BN-600 MOX core with minor actinides
06-14	T. Nakajima H. Endo T. Yokoyama	Japan	Analysis of core physics test data and sodium void reactivity worth calculation for Monju core with ARCADIAN-FBR computer code system

PARALLEL SESSION 6.3: Fast reactor analysis: basic data, experiments and advanced simulation

06-31P	C. Lee W.S. Yang	United States of America	Development of multigroup cross section generation code MC2-3 for fast reactor analysis
06-17	T.H. Fanning T. Sofu (presented by: W.D. Pointer)	United States of America	Modeling of thermal stratification in sodium fast reactor outlet plenums during loss of flow transients
06-18	W.D. Pointer J. Smith A. Siegel P. Fischer	United States of America	RANS Simulations of turbulent diffusion in wire-wrapped sodium fast reactor fuel assemblies
06-19	S.M. Woo H.M. Park S.H. Chang	Korea, Republic of	The multi-dimensional analysis method development for KALIMER-600 using MARS-LMR CODE

PARALLEL SESSION 7.1: Advanced fast reactor fuels

07-01	D. Haas J.P. Glatz R.J.M. Konings V.V. Rondinella J. Somers	EC	Fast neutron reactor fuel cycle research programme at the Joint Research Centre
07-02	F. Varaine G. Rimpault G. Mignot L. Paret A. Zaetta J. Rouault	France	Comparative review on different fuels for Gen-IV sodium fast reactors: merits and drawbacks
07-03	O.N. Nikitin F.N. Kryukov S.V. Kuzmin B.D. Rogozkin Yu.A. Ivanov L.M. Zabudko I.S. Kurina B. Syriac J. Noiroit	Russian Federation	Results of post-irradiation examinations of inert matrices fuels irradiated in BOR-60 reactor up to 19 at% of burnup in frame of Russian-French BORA-BORA experiment
07-04	J.P. Panakkal H.S. Kamath	India	Fabrication and quality control of MOX fuel for prototype fast breeder reactor (PFBR)
07-05	A.V. Bychkov A.A. Mayorshin O.V. Skiba V.A. Kisly O.V. Shishalov M.V. Kormilitsyn Yu.M. Golovchenko	Russian Federation	Vibropac MOX – fuel for fast reactors – experience and prospects
07-06	M. Kato K. Maeda T. Ozawa M. Kashimura Y. Kihara	Japan	Development of Np and Am bearing MOX fuels for Japan sodium cooled fast reactors

PARALLEL SESSION 7.2: Advanced fast reactor fuels

07-07	R.N. Jayaraj	India	Manufacture of core sub-assemblies and fertile fuel assemblies for Indian fast breeder programme
07-08	B.O. Lee J.S. Cheon H.J. Ryu J.H. Kim S.W. Yang C.B. Lee	Korea, Republic of	Performance evaluation of metallic fuel for SFR
07-09	H. Ohta T. Ogata D. Papaioannou M. Kurata T. Koyama J.P. Glatz V. Rondinella	Japan	Development of minor actinide-containing metal fuels
07-10	T.K. Kim C. Grandy R.N. Hill	United States of America	Carbide and nitride fuels in Advanced Burner Reactor
PARALLEL SESSION 8: Improvements in fast reactor components and system design			
08-01	P. Chellapandi P. Puthiyavinayagm V. Balasubramanian S. Ragupathy V. Rajanbabu S.C. Chetal B. Raj	India	Design concepts for reactor assembly components of 500 MWe future FRs
08-02	B.A. Vasilyev Yu.L. Kamanin V.V. Gladkov V.N. Bartenev S.F. Shepelev N.G. Kuzavkov V.V. Denisov V.I. Karsonov	Russian Federation	Fast neutron reactor plant equipment upgrading
08-03	N. Kasahara K. Sato K. Tsukimori N. Kawasaki	Japan	Development of elevated temperature structural design methods to realize compact reactor vessels
08-04	M. Chassignet S. Dumas C. Majot G. Prèle G. Rodriguez E. Sanseigne	France	Challenges and innovative technologies on fuel handling systems for future sodium cooled fast reactors
08-05	M.K. Birznek B.S. Chatskiy Y.A. Bovsha	Russian Federation	Prospects for improvement of supporting systems of BN reactors based on BN-600 and BN-800 engineering experience
08-06	S. Fujiwara R. Aizawa Y. Oyamatsu M. Funato K. Katsuki H. Ota	Japan	Development of a large diameter electromagnetic pump and a back-up power supply system for the 4S
08-07	T. Handa Y. Oda Y. Ono K. Miyagawa I. Matsumoto K. Shimoji A. Ide H. Ishikawa H. Hayafune	Japan	Research and development for the integrated IHX/pump
08-08	Y. Chikazawa S. Kotake S. Sawada	Japan	Comparison of pool/loop configurations in the JAEA fast reactor feasibility study
08-09	H. Yamano M. Tanaka A. Ono T. Murakami	Japan	Unsteady elbow pipe flow to develop a flow-induced vibration evaluation methodology for JSFR

Y. Iwamoto
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S. Hayakawa

PARALLEL SESSION 9: Past twenty years with fast reactors and experimental facilities: experience and prospects

09-01	P.J. D'hondt C. Nordborg D.R. Weaver	Belgium	Availability of research and test facilities for fast reactor development
09-02	S. Maeda M. Yamamoto T. Soga T. Sekine T. Aoyama	Japan	Core Modification for the High Core Burn-up to improve Irradiation Efficiency of the Experimental Fast Reactor Joyo
09-03	T.H. Lee J.H. Eoh H.Y. Lee J.H. Lee T.J. Kim J.Y. Jeong S.K. Park J.W. Han, Y.B. Lee D.H. Hahn	Korea, Republic of	Scientific design of large scale sodium thermal-hydraulic test facility in KAERI
09-04	A.V. Bychkov	Russian Federation	Status and basic lines of development of experimental and material science base for fast reactor technologies

PARALLEL SESSION 10: Fast reactor knowledge management, education and training

10-01	A. Pryakhin A. Stanculescu Y. Yanev	IAEA	International fast reactor knowledge organization system
10-02	G. Rodriguez F. Baqué C. Latgé A. Leclerc L. Martin B. Vray T. Montanelli	France	The French Sodium School: Teaching sodium technology for the present and future generations of SFR users
10-03	M. Sawada N. Koyagoshi K. Sasaki M. Nishida	Japan	Human development in Japan and abroad using the prototype FBR "Monju" towards the next-generation age
10-04	S.A.V. Satya Murty P. Swaminathan B. Raj	India	Knowledge management in fast reactors and related fuel cycles

Tsuruga Session

Tsuruga-01	Y. Akimoto	Japan	No fast reactor, no survival beyond 21st century
Tsuruga-02	H. McFarlane	United States of America	On US fast reactor experience and the importance of Monju
Tsuruga-03	M. Xu	China	Prospect on Chinese fast reactor development and expectations to Monju