

INES-3

The Third International Symposium on Innovative Nuclear Energy Systems

–Innovative Nuclear Technologies for Low-Carbon Society–

Program and Abstracts

31st October - 3rd November, 2010
Tokyo Institute of Technology, Japan

Organized by :

Center for Research into Innovative Nuclear Energy Systems (CRINES),
Tokyo Institute of Technology (Tokyo Tech)
Research Laboratory for Nuclear Reactors (RLNR), Tokyo Tech

Co-organized by :

Atomic Energy Society of Japan
Central Research Institute of Electric Power Industry
Division of Energy Engineering, Society of Chemical Engineers, Japan
Division of Environmental, Energy and Social Engineering, Iron and Steel Institute of Japan
Japan Atomic Energy Agency

Sponsored by :

The Federation of Electric Power Companies of Japan

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Tokyo Tech

INES-3 Conference Schedule

Date	31-Oct	1-Nov			2-Nov			3-Nov			
Venue	W9 Lobby	Room A (Digital hall)	Room B (Collabo)	Room C (Royal Blue)	Room A (Digital hall)	Room B (Collabo)	Room C (Royal Blue)	Room A (Digital hall)	Room D (W934)	Room E (W935)	
8:00		Registration, W9 Lobby									
					Registration, W9 Lobby			Registration, W9 Lobby			
9:00		Opening ceremony			PL-3 Prof. Grenthe			Small Reactor Development Senario	ADS, Light Water Reactors	Poster Short Presentation Session /AESJ & INES-3	
		PL-1 Dr. Omoto			PL-4 Prof. Toshinsky						
10:00		PL-2 Dr. Sagayama			Coffee break			Coffee break			
		Coffee break									
11:00		Sustainable Burning Reactors(1)	Materials for HTGR and LWR	Characterization and Analysis	Innovative Fast Reactors(1)	Innovative Nuclear Energy System	Proliferation Resistance in Fuel Cycle	High Temperature Gas Reactors			
12:00		Lunch Kuramae Hall			Lunch Kuramae Hall			Odd numbers' Poster Session Room B (Collaboration room)			
13:00								Even numbers' Poster Session Room B (Collaboration room)			
14:00		Sustainable Burning Reactors(2)	Nuclear Materials -Fundamentals-(1)	Separation Technologies(1)	Innovative Fast Reactors(2)		Partitioning and Transmutation	PL-5 Prof.Sekimoto			
								PL-6 Prof.Ning Li			
15:00		Coffee break			Coffee break (Poster Setting)						
16:00	Registration W9 Lobby	Thorium Fuel Reactors	Nuclear Materials -Fundamentals-(2) Materials for Fast Reactor	Separation Technologies(2)	Special session, Kuramae Hall Dr. Gilleland			Poster award and Closing			
17:00								Poster removing			
								Evaluation meeting (Res. Lab. for Nuclear Reactors)			
18:00											
19:00					Reception, The Prince Park Tower Tokyo (40 min from Tokyo Tech)						

INES-3 Conference Schedule

Date	31-Oct	1-Nov			2-Nov			3-Nov		
Venue	W9 Lobby	Room A (Digital hall)	Room B (Collabo)	Room C (Royal Blue)	Room A (Digital hall)	Room B (Collabo)	Room C (Royal Blue)	Room A (Digital hall)	Room D (W934)	Room E (W935)
8:00		Registration, W9 Lobby			Registration, W9 Lobby			Registration, W9 Lobby		
9:00		Opening ceremony			PL-3 Prof. Grenthe			3A-11	3D-11	Poster Short Presentation Session /AESJ & INES-3
	PL-1 Dr. Omoto	PL-4 Prof. Toshinsky			3A-12			3D-12		
10:00		PL-2 Dr. Sagayama			Coffee break			3A-13	3D-13	
				3A-14	3D-14					
				3A-15	3D-15					
11:00		Coffee break			2A-11	2B-11		Coffee break		
		1A-11	1B-11	1C-11	2A-12	2B-12	2C-11	3A-21		
		1A-12	1B-12	1C-12	2A-13	2B-13	2C-12	3A-22		
		1A-13	1B-13	1C-13	2A-14	2B-14	2C-13	3A-23		
12:00		Lunch Kuramae Hall			Lunch Kuramae Hall			Odd numbers' Poster Session Room B (Collaboration room)		
13:00		1A-21	1B-21	1C-21	2A-21			Even numbers' Poster Session Room B (Collaboration room)		
		1A-22	1B-22	1C-22	2A-22			2C-21		
14:00		1A-23	1B-23	1C-23	2A-23			2C-22		
		1A-24	1B-24	1C-24	2A-24	2C-23	2C-24	PL-5 Prof.Sekimoto		
15:00		1A-25	1B-25	1C-25	2A-25	2C-24	2C-25	PL-6 Prof.Ning Li		
	Registration W9 Lobby	Coffee break			Coffee break (Poster Setting)					
16:00		1A-31	1B-31	1C-31	Special session, Kuramae Hall Dr. Gilleland			Poster award and Closing		
		1A-32	1B-32	1C-32						
		1A-33	1B-33	1C-33						
		1A-34	1B-34	1C-34				Poster removing		
17:00			1B-35	1C-35				Evaluation meeting (Res. Lab. for Nuclear Reactors)		
18:00										
19:00								Reception, The Prince Park Tower Tokyo (40 min from Tokyo Tech)		

PROGRAM

Sunday, October 31, 2010

3:00 PM–5:00 PM

Registration (W9 Lobby)

Monday, November 1, 2010

8:00 AM–5:00 PM

Registration (W9 Lobby)

9:00 AM–9:30 AM

Opening ceremony (Room A)

Chair : Yukitaka Kato (Tokyo Institute of Technology, Japan)

Opening Addresses

Masanori Aritomi (Director, Research Laboratory for Nuclear Reactors, Tokyo Institute of Technology)

Tatsuo Izawa (Executive Vice President for Research, Tokyo Institute of Technology)

Yonezo Tsujikura (President, Atomic Energy Society of Japan)

Plenary Session (Room A)

Chair : Masanori Aritomi (Tokyo Institute of Technology, Japan)

9:30 AM–10:00 AM

(PL-1) Technological and Institutional Innovation to Maximize Nuclear Energy's Contribution to Sustainable Development

Akira Omoto (Atomic Energy Commission and University of Tokyo, JAPAN)

10:00 AM–10:30 AM

(PL-2) GIF Activities and Future Perspective

Yutaka Sagayama (Chairman of Generation-IV International Forum (GIF), Japan Atomic Energy Agency, Japan)

10:30 AM–11:00 AM

Coffee break

1A-1 : Sustainable Burning Reactors (1) (Room A)

Chairs : Mochammad Subki (International Atomic Energy Agency (IAEA), Austria)

Yoichiro Shimazu (University of Fukui, Japan)

11:00 AM–11:20 AM

(1A-11) Traveling-Wave Reactors: Challenges and Opportunities

Kevan Weaver, Charles Ahlfeld, Tom Burke, Tyler Ellis, John Gilleland, Pavel Hejzlar, Stephen Mazurkiewicz, Nathan Myhrvold, Jon Mcwhirter, Ash Odedra, Robert Petroski, Nick Touran, Josh Walter, Thomas Weaver, Charles Whitmer, Lowell Wood, George Zimmerman (TerraPower, LLC, USA)

11:20 AM–11:40 AM

(1A-12) Feasibility of LBE Cooled Breed and Burn Reactors

Florent Heidet, Ehud Greenspan (University of California, Berkeley, USA)

11:40 AM–12:00 PM

(1A-13) Energy Sustainability and Economic Stability with Breed and Burn Reactors

Ehud Greenspan, Florent Heidet (University of California, Berkeley, USA)

1B-1 : Materials for HTGR and LWR (Room B)

Chairs : Ronald Ballinger (Massachusetts Institute of Technology, USA)

Shuhei Miwa (Japan Atomic Energy Agency (JAEA), Japan)

11:00 AM–11:20 AM

(1B-11) Development of High Temperature Gas-Cooled Reactor (HTGR) Fuel in Japan

Shohei Ueta, Jun Aihara, Kazuhiro Sawa (Japan Atomic Energy Agency (JAEA), Japan), Atsushi Yasuda, Masaki Honda, Noboru Furihata (Nuclear Fuel Industries, Ltd. (NFI), Japan)

11:20 AM–11:40 AM

(1B-12) General Corrosion Property and Grain Boundary Susceptibility of Modified PNC1520 Austenitic Stainless Steel in Supercritical Water as a Fuel Cladding Candidate Material

Yoshihisa Nakazono, Takeo Iwai (University of Tokyo, Japan), Hiroaki Abe (Tohoku University, Japan)

11:40 AM–12:00 PM

(1B-13) Scale Removal Oxidation Behavior of Metal in Water Modeled by Cellular Automation

Kuan-Che Lan (National Tsing Hua University, Taiwan), Yitung Chen (University of Nevada, USA), Ge-Ping Yu (National Tsing Hua University, Taiwan)

1C-1 : Characterization and Analysis (Room C)

Chairs : Ingmar Grenthe (Royal Institute of Technology (KTH), Sweden)

Noriko Asanuma (Tokai University, Japan)

11:00 AM–11:20 AM

(1C-11) Spectro-Electrochemical Studies of Actinide or Lanthanide ions in LiCl-KCl Eutectic

Sang-Eun Bae, Dae-Hyun Kim, Young-Hwan Cho, Yong Joon Park, Kyuseok Song (Korea Atomic Energy Research Institute, Korea)

11:20 AM–11:40 AM

(1C-12) Pyrochemical Reprocessing Based on Co-Electrodeposition Technique; Speciation of Uranyl Ion in Various Molten Salts and In-Situ Observation of Electrodeposition Reaction Investigated by X-ray from Synchrotron Source

Haruaki Matsuura, Atsushi Nezu, Hiroshi Akatsuka (Tokyo Institute of Technology, Japan)

11:40 AM–12:00 PM

(1C-13) Application of Laser-Based Spectroscopic Technology to Research on Nuclear Fuel Cycle

Euo Chang Jung, Hye-Ryun Cho, Wansik Cha, Sang-Eun Bae, Yong Joon Park, Kyuseok Song, Dong-Yong Chung, Kwang-Wook Kim (Korea Atomic Energy Research Institute, Korea)

12:00 PM–1:20 PM

Lunch (Kuramae Hall)

1A-2 : Sustainable Burning Reactors (2) (Room A)

Chairs : Kevan Weaver (TerraPower, LLC, USA)

Minoru Takahashi (Tokyo Institute of Technology, Japan)

1:20 PM–1:40 PM

(1A-21) Preliminary Engineering Design of Sodium-Cooled CANDU Core

Naoyuki Takaki, Tomoyuki Suganuma (Tokai University, Japan), Akihiko Mizutani (AISA, Japan), Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

1:40 PM–2:00 PM

(1A-22) Nuclear Burning Wave in Fast Reactor with Mixed Th-U Fuel

Sergii Fomin, Oleksiy Fomin, Yuri MEL'NIK, Vladimir PILIPENKO and Nikolai SHUL'GA (Kharkov Institute of Physics and Technology, Ukraine)

2:00 PM–2:20 PM

(1A-23) Non-Stationary 2D Simulation of Nuclear Burning Wave in Cylindrical Fast Reactor

Oleksiy Fomin, Sergii Fomin, Yuri Mel'nik, Vladimir Pilipenko, Nikolai Shul'ga (Kharkov Institute of Physics and Technology, Ukraine)

2:20 PM–2:40 PM

(1A-24) Numerical Studies of Nuclear Traveling Wave in a Supercritical Water Cooled Fast Reactor

Dalin Zhang (Karlsruhe Institute of Technology, Germany, Xi'an Jiaotong University, China), Xue-Nong Chen, Andrei Rineiski, Werner Maschek, Thomas Schulenberg (Karlsruhe Institute of Technology, Germany)

2:40 PM–3:00 PM

(1A-25) Development and Prospects of TWR Project in China

Zheng Mingguang, Yang Bo, Shentu Jun, Tang Chuntao, Zhao Dongjian (Shanghai Nuclear Engineering Research & Design Institute, China)

1B-2 : Nuclear Materials-Fundamentals – (1) (Room B)

Chairs : Tomohiro Furukawa (Japan Atomic Energy Agency (JAEA), Japan)

Jun Onoe (Tokyo Institute of Technology, Japan)

1:20 PM–1:40 PM

(1B-21) An Approach for Evaluating Fuel System Applied in Innovative Nuclear Energy System

Nobuo Nakae (Tokyo Institute of Technology, Japan)

1:40 PM–2:00 PM

(1B-22) Densification of Magnesia-Based Inert Matrix Fuels Using the Asbestos Waste-Derived Materials as a Sintering Additive

Shuhei Miwa, Masahiko Osaka (Japan Atomic Energy Agency (JAEA), Japan), Toshiyuki Usuki, Toyohiko Yano (Tokyo Institute of Technology, Japan)

2:00 PM–2:20 PM

(1B-23) Reformation of Hazardous Wastes into Useful Supporting Materials for Fast Reactor Fuels

Masahiko Osaka, Shuhei Miwa, Kosuke Tanaka (Japan Atomic Energy Agency (JAEA), Japan), Kaoru Ikeda, Hitoshi Mimura (Tohoku University, Japan), Toshiyuki Usuki (Japan Atomic Energy Agency (JAEA), Japan), Toyohiko Yano (Tokyo Institute of Technology)

2:20 PM–2:40 PM

(1B-24) Integrated Software for Radiation Damage, Activation, and Transmutation of Materials Studies of Advanced Nuclear Systems

Yury Korovin, Andrey Andrianov, Andrey Evdokimov, Ilya Kuptsov (Obninsk Institute for Nuclear Power Engineering NNRU MEPhI, Russia)

2:40 PM–3:00 PM

(1B-25) Irradiation Damage in Ceramics Induced by 30MeV Electron Linac

Masafumi Akiyoshi, Hidetsugu Tsuchida, Toshimasa Yoshiie, Xu Qiu, Koichi Sato (Kyoto University, Japan), Toyohiko Yano (Tokyo Institute of Technology, Japan)

1C-2 : Separation Technologies (1) (Room C)

Chairs : Sang-Eun Bae (Korea Atomic Energy Research Institute, Korea)
Tomoo Yamamura (Tohoku University, Japan)

1:20 PM–1:40 PM

(1C-21) A Nanofluidic Device for Selective Separation of Radionuclides

Takehiko Tsukahara, Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

1:40 PM–2:00 PM

(1C-22) Selective Uptake and Recovery of Cs, Pd, Re and Mo from Simulated Spent Fuel Solution by Column Loaded with Hybrid Microcapsules

Takashi Ohnishi, Hiroshi Ohbayashi, Shin-ichi Koyama (Japan Atomic Energy Agency (JAEA), Japan), Hitoshi Mimura (Tohoku University, Japan)

2:00 PM–2:20 PM

(1C-23) Development of Counter-Current Centrifugal Extractor with Taylor-Couette Flow for Nuclide Separation

Kenji Takeshita, Hitoshi Rokkaku, Hiroshi Kinuhata (Tokyo Institute of Technology, Japan)

2:20 PM–2:40 PM

(1C-24) Development of Hybrid Reprocessing Technology Based on Solvent Extraction and Pyro-Chemical Electrolysis

Hisao Omura, Koji Mizuguchi, Shohei Kanamura, Tetsuo Osato, Reiko Fujita, Takashi Omori, Kazuhiro Utsunomiya (Toshiba Corporation Power Systems Company, Japan)

2:40 PM–3:00 PM

(1C-25) Extraction Mechanisms of Uranyl Ions by 1-Butyl-3-Methylimidazolium Nonafluorobutanesulfonate Containing N-Dodecyl-2-Pyrrolidone

Noriko Asanuma, Yu Takahashi (Tokai University, Japan), Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

3:00 PM–3:30 PM

Coffee break

1A-3 : Thorium Fuel Reactors (Room A)

Chairs : Sergii Fomin (Kharkov Institute of Physics and Technology, Ukraine)

Naoyuki Takaki (Tokai University, Japan)

3:30 PM–3:50 PM

(1A-31) (Th-U-Pu) - Mixed Fuel Cycle and Proliferation Protection of Fissile Materials

Eduard Kryuchkov, Gennady G. Kulikov, Anatoly N. Shmelev, Evgeny G. Kulikov, Vladimir A. Apse, Varvara A. Yufereva (National Research Nuclear University “MEPhI”, Russia)

3:50 PM–4:10 PM

(1A-32) Reactor Physics Ideas for Large Scale Utilization of Thorium in Gas Cooled Reactors

Argala Srivastava (Tokai University, Japan), V. Jagannathan (Bhabha Atomic Research Centre, India), Naoyuki Takaki (Tokai University, Japan)

4:10 PM–4:30 PM

(1A-33) Feasibility Study of a Fast Seed - High Burnup Thorium Blanket Core Design

Anselmo Cisneros, Ehud Greenspan (University of California, Berkeley, USA)

4:30 PM–4:50 PM

(1A-34) Evaluation of Implementation of Thorium Fuel Cycle with LWR and MSR

Takashi Kamei (International Institute of Advanced Studies, Japan)

1B-3 : Nuclear Materials-Fundamentals- (2) Materials for Fast Reactor (Room B)

Chairs : Yury Korovin (Obninsk Institute for Nuclear Power Engineering NNRU MEPhI, Russia)

Yoshihisa Nakazono (University of Tokyo, Japan)

3:30 PM–3:50 PM

(1B-31) Relativistic Density-Functional Study of Nuclear Materials

Jun Onoe (Tokyo Institute of Technology, Japan), Masaru Hirata (Japan Atomic Energy Agency (JAEA), Japan), Masayoshi Kurihara (Japan)

3:50 PM–4:10 PM

(1B-32) Compatibility of FBR Structural Materials with Supercritical Carbon Dioxide

Tomohiro Furukawa, Yoshiyuki Inagaki (Japan Atomic Energy Agency (JAEA), Japan),

Masanori Aritomi (Tokyo Institute of Technology, Japan)

4:10 PM–4:30 PM

(1B-33) Modeling of Clad Fatigue Failure for LBE Cooled ADS Accidental Analysis

Danilo D'Andrea, Xue-Nong Chen, Claudia Matzerath Boccaccini, Werner Maschek, Andrei Rineiski (Karlsruhe Institute of Technology (KIT), Germany)

4:30 PM–4:50 PM

(1B-34) Decontamination Efficiency of Metal Mesh Polonium Filter for Lead Alloy Cooled Reactors

Toru Obara, Yu Yamazawa (Tokyo Institute of Technology, Japan), Toshinobu Sasa (Japan Atomic Energy Agency (JAEA), Japan)

4:50 PM–5:10 PM

(1B-35) Corrosion Resistance of Ceramics SiC and Si₃N₄ in Flowing Lead-bismuth Eutectic

Minoru Takahashi (Tokyo Institute of Technology, Japan), Masatoshi Kondo (National Institute for Fusion Science, Japan)

5:10 PM–5:30 PM

(1B-36) A Functionally Graded Composite for Service in Lead-Bismuth Cooled Fast Reactors

Michael Short, Jeongyoun Lim, Sara Ferry, Sean Morton, Ronald Ballinger (Massachusetts Institute of Technology, USA), Ning Li (Xiamen University, China)

1C-3 : Separation Technologies (2) (Room C)

Chairs : Euo Chang Jung (Korea Atomic Energy Research Institute, Korea)

Takehiko Tsukahara (Tokyo Institute of Technology, Japan)

3:30 PM–3:50 PM

(1C-31) Use of the Noninflammable HFC and TBP at Atmospheric Pressure for Nuclear Fuel Reprocessing

Tomoo Yamamura, Suguru Ohta, Isamu Satoh, Tatsuo Shikama (Tohoku University, Japan), Yoshihisa Fujimoto, Hiroshi Tomiyasu (Joint Laboratory for Environment and Energy, Japan)

3:50 PM–4:10 PM

(1C-32) Rare Earth-Resource Mining from Nuclear Cycles

Akira Ohtaki, Tatsuro Matsumura, Masahiko Osaka, Masaki Ozawa, Shinichi Koyama (Japan Atomic Energy Agency (JAEA), Japan)

4:10 PM–4:30 PM

(1C-33) Separation of Am(III) from Eu(III) Using Polymer Gels Cross-Linked with TPEN Analogs

Takeshi Ogata, Kenji Takeshita, Hiroshi Oaki, Yusuke Inaba (Tokyo Institute of Technology, Japan), Atsunori Mori (Kobe University, Japan)

4:30 PM–4:50 PM

(1C-34) Synthesis and Properties of Hydrophobic TPEN derivatives for MA/Ln SEPARATION

Yusuke Inaba (Tokyo Institute of Technology, Japan), Tatsuya Kida, Wataru Watanabe, Atsunori Mori (Kobe University, Japan), Tatsuro Matsumura (Japan Atomic Energy Agency (JAEA), Japan), Daiki Kuwae, Takeshi Ogata, Kenji Takeshita (Tokyo Institute of Technology, Japan)

4:50 PM–5:10 PM

(1C-35) Selectivity and Stability of 1, 3-Dimethyl-2-imidazolidone for Precipitation of U(VI) in Nitric Acid Media

Masanobu Nogami (Tokyo Institute of Technology, Japan, Kinki University, Japan), Masayuki Harada, Yuichi Sugiyama, Takeshi Kawasaki (Tokyo Institute of Technology, Japan), Yoshihisa Kawata (Japan Atomic Energy Agency (JAEA), Japan, Mitsubishi Materials Corporation, Japan), Yasuji Morita (Japan Atomic Energy Agency (JAEA), Japan), Toshiaki Kikuchi (Mitsubishi Materials Corporation, Japan), Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

Tuesday, November 2, 2010

8:30 AM–3:30 PM

Registration (W9 Lobby)

Plenary Session (Room A)

Chair : Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

9:00 AM–9:30 AM

(PL-3) Can Quantum Chemical Methods be Used as a Predictive Tool for Describing the Chemistry of Trivalent Lanthanides and Actinides in Solution?

Ingmar Grenthe (Royal Institute of Technology (KTH), Sweden)

Chair : Minoru Takahashi (Tokyo Institute of Technology, Japan)

9:30 AM–10:00 AM

(PL-4) Nuclear Power Technologies at the Stage of Sustainable Nuclear Power Development

Georgy Toshinsky, O.G. Komlev, K.G. Mel'nikov (FSUE State Scientific Center Institute for Physics and Power Engineering, Russia)

10:00 AM–10:20 AM

Coffee break

2A-1 : Innovative Fast Reactors (1) (Room A)

Chairs : Georgy Toshinsky (FSUE State Scientific Center Institute for Physics and Power Engineering, Russia)

Koji Fujimura (Hitachi, Ltd., Japan)

10:20 AM–10:40 AM

(2A-11) Optimization of Small Pb-Bi Cooled Modified Candle Burnup Based Long Life Fast Reactors

Zaki Su'ud, Imam T. (Bandung Institute of Technology, Indonesia), H. Sekimoto (Tokyo Institute of Technology, Japan)

10:40 AM–11:00 AM

(2A-12) Innovative Multi-Purpose Battery-Type Liquid-Metal Fast Reactor

Hyung M. Son (Seoul National University, Korea), Kune Y. SUH (Seoul National University, Korea, PHILOSOPHIA, Inc., Korea)

11:00 AM–11:20 AM

(2A-13) Some Advantages in Using Molten Lead Enriched with Stable Isotope Lead-208 as Coolant for Small Sized FRs and ADSs

Georgy Khorasanov (Institute for Physics and Power Engineering named after A.I. Leypunsky, Russia)

11:20 AM–11:40 AM

(2A-14) Neutronic Design of LBE Cooled Long-Life Core with Small Burnup Reactivity Swing

Liu Xiaoli Li, Li Qing, Yu Yingrui (Nuclear Power Institute of China, China)

11:40 AM–12:00 PM

(2A-15) Optimization of Small and Medium Sized Long Life Gas Cooled Fast Reactors with Natural Uranium as Fuel Cycle Input

Menik Ariani, Fiber Monado, Z. Su'ud (Bandung Institute of Technology, Indonesia), Ferhat A. (National Nuclear Energy Agency of Indonesia(BATAN), Indonesia), H. Sekimoto (Tokyo Institute of Technology, Japan)

2B-1 : Innovative Nuclear Energy Systems (Room B)

Chairs : Masao Hori (Nuclear Systems Association, Japan)

Yukitaka Kato (Tokyo Institute of Technology, Japan)

10:20 AM–10:40 AM

(2B-11) Control Strategies for the Transients of Hydrogen Production Plant in VHTR Co-Generation Systems

Hiroyuki Sato (Japan Atomic Energy Agency (JAEA), Japan, Tokyo Institute of Technology, Japan), Shinji Kubo, Xing L. Yan, Yukio Tachibana (Japan Atomic Energy Agency (JAEA), Japan), Yukitaka Kato (Tokyo Institute of Technology, Japan)

10:40 AM–11:00 AM

(2B-12) Purification Process Analysis for Bunsen Reaction Product

Yoshiyuki Imai (Japan Atomic Energy Agency (JAEA), Japan), Laijun Wang, Hanfei Guo (Tsinghua University, China), Seiji Kasahara, Shinji Kubo (Japan Atomic Energy Agency (JAEA), Japan)

11:00 AM–11:20 AM

(2B-13) An Indirect Effect of Green Technology by Japanese Light Water Reactors

Kazuaki Yanagisawa (Japan Atomic Energy Agency (JAEA), Japan)

11:20 AM–11:40 AM

(2B-14) Performance Analysis of Active Carbon Recycling Energy System

Yukitaka Kato, Toru Obara, Junichi Ryu, Ichiro Yamanaka, Shinsuke Mori, Masaaki Suzuki (Tokyo Institute of Technology, Japan), Yutaka UJISAWA (Sumitomo Metal Industries, Ltd., Japan)

11:40 AM–12:00 PM

(2B-15) Nuclear Carbonization and Gasification of Biomass for Effective Removal of Atmospheric CO₂

Masao Hori (Nuclear Systems Association, Japan)

2C-1 : Proliferation Resistance in Fuel Cycle (Room C)

Chairs : Shin-ichi Koyama (Japan Atomic Energy Agency (JAEA), Japan)

Tatsuya Suzuki (Tokyo Institute of Technology, Japan)

10:40 AM–11:00 AM

(2C-11) Irradiation Analysis of U, Am Samples Irradiated in Experimental Fast Reactor “Joyo” for Protected Plutonium Production in Fast Breeder Reactor Blanket

Hiroshi Sagara (Tokyo Institute of Technology, Japan), Shin-ichi Koyama (Japan Atomic Energy Agency (JAEA), Japan), Masaki Saito (Tokyo Institute of Technology, Japan)

11:00 AM–11:20 AM

(2C-12) Basic Evaluation on Material Attractiveness of Isotopic Plutonium Barrier

Sidik Permana, Mitsutoshi Suzuki (Japan Atomic Energy Agency (JAEA), Japan)

11:20 AM–11:40 AM

(2C-13) Effect of Minor Actinides Doping on Plutonium Produced in Large-Scale FBR Blanket

Yoshitalia Meiliza, Shigeo Ohki, Tsutomu Okubo (Japan Atomic Energy Agency (JAEA), Japan)

11:40 AM–12:00 PM

(2C-14) Consideration on Establishing Process of Proliferation Resistance in Tokai Reprocessing Plant (TRP)

Koichi Ishiyama, Osamu Yamamura (Nuclear Fuel Cycle Engineering Laboratories, Japan)

12:00 PM–1:20 PM

Lunch (Kuramae Hall)

2A-2 : Innovative Fast Reactors (2) (Room A)

Chairs : Zaki Su'ud (Bandung Institute of Technology, Indonesia),
Akio Minato (Tokyo Institute of Technology, Japan)

1:20 PM–1:40 PM

(2A-21) Activities for 4S USNRC Licensing

Kyoko Ishii, Hisato Matsumiya, and Norihiko Handa (Toshiba Corporation, Japan)

1:40 PM–2:00 PM

(2A-22) Fast Breeder Reactor Core Concept for Improving Nuclear Proliferation Resistance by Loading Minor Actinides to Axial Blanket

Koji Fujimura (Hitachi, Ltd., Japan), Satoshi Itooka, Takeshi Nitawaki (Hitachi-GE Nuclear Energy, Ltd., Japan)

2:00 PM–2:20 PM

(2A-23) Prevention and Mitigation of Severe Accident Developments and Recriticalities in Advanced Fast Reactor Systems

Werner Maschek, Xue-Nong Chen, Michael Flad, Fabrizio Gabrielli, Vladimir Kriventsev, Donella Pellini, Claudia Matzerath Boccaccini, Andrei Rineiski, Shisheng Wang (Karlsruhe Institute of Technology (KIT), Germany), Koji Morita (Kyushu University, Japan)

2:20 PM–2:40 PM

(2A-24) Advanced Nuclear Reactors from Fiction to Reality

Liviu Popa-Simil, (LAVM LLC., USA)

2:40 PM–3:00 PM

(2A-25) Methodology on Comparing Heterogeneous Model with Homogeneous One

Kuniyoshi Takamatsu (Japan Atomic Energy Agency (JAEA), Japan)

2C-2 : Partitioning and Transmutation (Room C)

Chairs : Masanobu Nogami (Kinki University, Japan)
Kenji Takeshita (Tokyo Institute of Technology, Japan)

1:20 PM–1:40 PM

(2C-21) Recovery of Minor Actinides from Spent Molten Salt Waste and Decontamination of Molten Salt Waste

Tatsuya Suzuki, Maiko Tanaka (Tokyo Institute of Technology, Japan), Shin-ichi Koyama (Japan Atomic Energy Agency (JAEA), Japan)

1:40 PM–2:00 PM

(2C-22) Plant Designing of Ion Exchange Chemical Uranium Enrichment and Its Non-Proliferation Aspects

Fumiaki Kawakami, Moriyasu Tokiwai, Yasuhiko Fujii (Tokyo Institute of Technology, Japan)

2:00 PM–2:20 PM

(2C-23) Theoretical Study of Nuclear Volume Effects in Uranium Enrichment

Minori Abe (Tokyo Metropolitan University, Japan), Tatsuya Suzuki, Yasuhiko Fujii (Tokyo Institute of Technology, Japan), Masahiko Hada (Tokyo Metropolitan University, Japan)

2:20 PM–2:40 PM

(2C-24) Current Status and Future Plan of Advanced ORIENT Cycle Strategy

Shin-ichi Koyama, Isao Yamagishi (Japan Atomic Energy Agency (JAEA), Japan), Tatsuya Suzuki (Tokyo Institute of Technology, Japan), Hitoshi Mimura (Tohoku University, Japan), Reiko Fujita (TOSHIBA Corporation Power Systems Company, Japan), Masaki Ozawa (Japan Atomic Energy Agency (JAEA), Japan, Tokyo Institute of Technology, Japan)

2:40 PM–3:00 PM

(2C-25) Thermochemical Safety Evaluation of Tertiary Pyridine Resin for the Application to Multi-Functional Reprocessing Process - Adv.-ORIENT Cycle Development -

Yoshihiko Sato, Ken Okada, Miyako Akiyoshi, Takehiro Matsunaga (National Institute of Advanced Industrial Science and Technology (AIST), Japan), Shin-ichi Koyama (Japan Atomic Energy Agency (JAEA), Japan), Tatsuya Suzuki (Tokyo Institute of Technology, Japan), Masaki Ozawa (Japan Atomic Energy Agency (JAEA), Japan)

3:00 PM–3:30 PM

Coffee break

Special Session (Kuramae Hall)

Chair : Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

3:30 PM–5:00 PM

The History of TerraPower and Travelling Wave Reactor Development, 2006 to Present

John Gilleland (TerraPower, LLC, USA)

7:00 PM–9:00 PM

Reception Party (The prince Park Tower Tokyo)

Wednesday, November 3, 2010

8:30 AM–12:00 PM

Registration (W9 Lobby)

3A-1 : Small reactor Development Senario (Room A)

Chairs : Georgy L. Khorasanov (Institute for Physics and Power Engineering named after A.I. Leypunsky, Russia)

Toru Obara (Tokyo Institute of Technology, Japan)

9:00 AM–9:20 AM

(3A-11) IAEA Program on Common Technologies and Issues for Small-and Medium-Sized Reactors (SMRs)

Mochammad Subki (International Atomic Energy Agency (IAEA), Austria)

9:20 AM–9:40 AM

(3A-12) Current Status and Innovative Improvement of Small Type Commercial Reactor in China

Mingguang Zheng, Jun Shentu (Shanghai Nuclear Energy Research and Design Institute, China)

9:40 AM–10:00 AM

(3A-13) Feasibility and Market Studies of Small Reactors for Mongolia

Akio Minato, Hiroshi Sekimoto (Tokyo Institute of Technology, Japan), Ts. Amartaivan (National University of Mongolia, Mongolia)

10:00 AM–10:20 AM

(3A-14) Challenges for Human Resource Development in Nuclear Science and Engineering in Mongolia

Suren Davva, Tsenddavaa Amartaivan, Nanzad Norov (National University of Mongolia, Mongolia)

10:20 AM–10:40 AM

(3A-15) Software for Multicriterial Optimization of Nuclear Power System Structures

Andrey Andrianov, Yury Korovin (Obninsk Institute for Nuclear Power Engineering NNRU MEPhI, Russia)

3D-1 : ADS, Light Water Reactors (Room D)

Chairs : Abdul Waris (Institut Teknologi Bandung, Indonesia)

Hiroshi Sagara (Tokyo Institute of Technology, Japan)

9:00 AM–9:20 AM

(3D-11) Comparative Studies of Ceric and Cermet Fuels for EFIT from the Viewpoint of Core Performance and Safety

Xue-Nong Chen, Xue-Nong Chen, Andrei Rineiski, Werner Maschek, Ping Liu (Karlsruhe Institute of Technology, Germany), Vitaly Sobolev (SCK-CEN, Belgium), Fabienne Delage, Gérald Rimpault (CEA, France)

9:20 AM–9:40 AM

(3D-12) Light Water Breeders with Nitride Fuel

Bo Feng, Eugene Shwageraus, Benoit Forget, Mujid S. Kazimi (Massachusetts Institute of Technology, USA)

9:40 AM–10:00 AM

(3D-13) Thorium Self-Sustaining BWR Cores

Francesco Ganda, Jasmina Vujic, Ehud Greenspan (University of California, Berkeley, USA)

10:00 AM–10:20 AM

(3D-14) Extension of the SIMMER Cross-Section Processing Scheme for Core Degradation Analyses in Thermal Systems

Fabrizio Gabrielli, Andrei Rineiski, Werner Maschek (Karlsruhe Institute of Technology (KIT), Germany)

(3D-15) 10:20 AM–10:40 AM

Phenomenological Prediction of CHF under Boiling water Reactor (BWR) Conditions

Dinesh Chandraker, P. K. Vijayan, D. Saha, R. K. Sinha (Bhabha Atomic Research Centre, India), M. Aritomi (Tokyo Institute of Technology, Japan)

10:40 AM–11:00 AM

Coffee break

3A-2 : High Temperature Gas Reactors (Room A)

Chairs : Dinesh Chandraker (Bhabha Atomic Research Centre, India)

Nobuo Nakae (Tokyo Institute of Technology, Japan)

11:00 AM–11:20 AM

(3A-21) Small-Sized High Temperature Reactor (MHR-50) for Electricity Generation - Plant Concept and Characteristics

Katsusuke Shimizu, Isao Minatsuki, Koji Fujimori, Yorikata Mizokami (Mitsubishi Heavy Industries, Ltd., Japan), Atsuhiko Terada (Japan Atomic Energy Agency (JAEA), Japan)

11:20 AM–11:40 AM

(3A-22) Small-Sized High Temperature Reactor (MHR-50) for Electricity Generation-Core Design with Long Refueling Interval-

Atsuhiko Terada, Satoshi Shimakawa, Taiju Shibata, Shusaku Shiozawa, Isao Minatsuki (Japan Atomic Energy Agency (JAEA), Japan)

11:40 AM–12:00 AM

(3A-23) Study on Plutonium and Minor Actinides Utilization in HTTR with Carbon Dioxide Coolant

Abdul Waris, Z. Su'ud, R. Kurniadi, Novitrian, S. Permana (Institut Teknologi Bandung, Indonesia), H. SEKIMOTO (Tokyo Institute of Technology, Japan)

Poster Short Presentation Session/ AESJ&INES-3 (Room E)

9:00 AM–12:00 PM

Poster Session (Room B)

12:00 PM–1:00 PM : Odd number's poster session

1:00 PM–2:00 PM : Even number's poster session

(P-101) Numerical Simulation of Impact Force Caused by Liquid Droplet Impingement in BWRs

Rui Li, Hisashi Ninokata (Tokyo Institute of Technology, Japan)

(P-102) Design Study on Pb-208 Cooled CANDU Burning Reactors toward Practical Application for Future Nuclear Energy Source

Tsuyoshi Okawa, Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

(P-103) Power Control of CANDU Reactor by Coolant Flow Rate

Shinsuke Nakayama, Tsuyoshi Ohkawa, Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

(P-104) Study on Thermal Interactions of Lead Alloy and Water

Rongyuan SA, Minoru Takahashi (Tokyo Institute of Technology, Japan), Kiyofumi Moriyama (Japan Atomic Energy Agency (JAEA), Japan)

(P-105) A Search for Optimal Blanket Design for the LIFE Fusion-Fission Reactor

Ryan Bergman, Tommy Cisneros, Christian Di Sanzo, Brian Frisbie, Ehud Greenspan (University of California, Berkeley, USA)

(P-106) TRU Burning by Double Tier System of LWR-SFR

Kazumi Ikeda, Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

(P-107) Conjugate Heat Transfer Calculation of Tight-Lattice Fuel Bundle at Low Reynolds Number of Small Liquid Metal Fast Reactor

Azizul Khakim, Hisashi Ninokata (Tokyo Institute of Technology, Japan)

(P-108) Design Concept of Small Reactor for Large Diameter Neutron Transmutation Doping Using Conventional PWR Fuel Assemblies

Munkhbat Byambajav, Toru Obara (Tokyo Institute of Technology, Japan)

(P-109) Modified Deployment Scenario of Heavy Water Cooled Thorium Breeder Reactor

Deby Mardiansah, Ayumu Takeda, Naoyuki Takaki (Tokai University, Japan)

(P-110) A Study on Nuclear Characteristics of METMET Fuel

Yuta Takada (Hokkaido University), Yoichiro Shimazu (University of Fukui)

(P-111) Modeling LOFA of a Thermionic Fuel Element for Nuclear Space Reactors

Abdullah Al-Kheliewi (National Center for Radiation Protection, King Abdulaziz City for Science and Technology, Saudi Arabia)

(P-112) A Numerical Study of Fuel Assembly Performance during Natural Circulation Decay Heat Removal in Fast Reactors

Syeilendra Pramuditya, Hisashi Ninokata (Tokyo Institute of Technology, Japan)

(P-113) 2-Dimensional Core Temperature Profile during Operation in the Small Simplified Pebble Bed Reactor with Peu a Peu Fuel Loading Scheme

Dwi Irwanto, Toru Obara, Yukikata Kato, Ichiro Yamanaka (Tokyo Institute of Technology, Japan)

(P-114) Ultrasonic Measurement Method for Investigating Ejection and Sweep Phenomena in Rectangular Channel Turbulent Flow

Muhammad Biddinika, Noriyuki Watanabe, Masanori Aritomi (Tokyo Institute of Technology, Japan)

(P-115) The Evaluation of Centrifugal Compressor Experiment and CFD Analysis using Supercritical CO₂

Kazuhisa Takagi, Yasushi Muto, Takao Isizuka, Masanori Aritomi (Tokyo Institute of Technology, Japan)

(P-116) Effect of Thermal Stratification in FBR Horizontal Piping on Natural Convection during Protected Accident Scenario

Marco Pellegrini, Hisashi Ninokata (Tokyo Institute of Technology, Japan)

(P-117) Experimental Study on Bubble Behaviors and Shapes for Estimating Bubble Volume in Subcooled Boiling Flow

Noriaki Inaba, Noriyuki Watanabe, Masanori Aritomi (Tokyo Institute of Technology, Japan)

(P-118) Choosing a Suitable Type of Research Reactor for Mongolia

Nanzad Norov, Sambuu Odmaa, Gonchigdorj Khuukhenkhuu, Suren Davaa (National University of Mongolia, Mongolia)

(P-119) Reducing Risks through Innovation: Building Nuclear Power Plants in the Gulf Countries

Saeed Hakami (North Terrace University of South Australia, Australia), Takashi Kamei (Kyoto University, Japan)

(P-120) Transmutation of Minor Actinides in Accelerator Driven System with Uranium Spallation Target

Kairat Ismailov, Masaki Saito, Hiroshi Sagara (Tokyo Institute of Technology, Japan), Kenji Nishihara (JAEA, Japan)

(P-121) Study on Fusion-Fission Hybrid Reactor for Transmutation of Nuclear Waste

Shintarou Fujimoto, Youji Someya, Tetsuo Matsumoto (Tokyo City University, Japan)

(P-122) Structural and Kinetic Studies on Bis (n-alkyl-2-pyrrolidone) dioxouranium (VI) nitrate in Non-Aqueous Solutions

Yohei Sato, Yuya Takahashi (Tokyo Institute of Technology, Japan), Tsuyoshi Arai (Shibaura Institute of Technology, Japan), Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

(P-123) Diffusion Control of Zeolite Adsorbents for HLW by using a High Temperature CVD Method

Ryuhei Ono, Masako Kawasaki, Koichi Onodera, Mikihiro Nomura (Shibaura Institute of Technology, Japan)

(P-124) Interactions between Oxo Groups of Bis (decafluoroheptanedionate) (dimethyl sulfoxide) dioxouranium (VI) and $B(C_6F_5)_3$ in Supercritical Carbon Dioxide

Naomi Miyamoto, Takehiko Tsukahara, Yoshihiro Kachi, Masayuki Harada (Tokyo Institute of Technology, Japan), Kazuo Yoshino (Shinshu University, Japan), Yaushisa Ikeda (Tokyo Institute of Technology, Japan)

(P-125) Feasibility Study of Pyrochemical Reprocessing using Molten Lithium-Calcium Fluoride Mixtures in Salt Treatment Process for Molten Salt Reactor

Masahiko Numakura, Hiroshi Akatsuka, Atsushi Nezu, Keisuke Tajima, Yasuaki Shimohara, Haruaki Matsuura (Tokyo Institute of Technology, Japan)

(P-126) Lithium Isotope Effects Accompanying Electrochemical Intercalation into Graphite

Yuta Takami, Shun Saito, Satoshi Yanase, Takao Oi (Sophia University, Japan)

(P-127) Highly Selective Extraction of ReO_4^- in HNO_3 Solution Using New Extractant, 2,2-(methylimino)bis(n, n-diethylacetamide)

Mohammad Chand Ali, Masanobu Nogami, Takeshi Kawasaki (Tokyo Institute of Technology, Japan), Yuji Sasaki (Japan Atomic Energy Agency (JAEA), Japan), Yasuhisa Ikeda (Tokyo Institute of Technology, Japan)

(P-128) Reactivity Enhancement of Chemical Materials for Packed Bed Reactor of Chemical Heat Pump

Seon Tae Kim, Junichi Ryu, Yukitaka Kato (Tokyo Institute of Technology, Japan)

(P-129) Experimental Study on Radial Uniformity of Neutron Transmutation Doping of Silicon

Haksung Kim, Cheol Ho Pyeon, Jae-Yong Lim, Tsuyoshi Misawa (Kyoto University, Japan)

(P-130) Recovery Behavior of Neutron-Irradiation-Induced Damage of AlN by Thermal Annealing

Yuusuke Futamura, Masamitsu Imai, Katsumi Yoshida, Toyohiko Yano (Tokyo Institute of Technology, Japan)

(P-131) Corrosion Behavior of Heat-treated Fe-Al Coated Steel in Lead-bismuth Eutectic under Loading

Eriko Yamaki, Shunichi Numata, Minoru Takahashi (Tokyo Institute of Technology, Japan)

(P-132) Investigation of Cavitation Phenomena for Innovative Sodium- and Lead-Bismuth-Cooled Fast Reactors

Teddy Ardiansyah, Minoru Takahashi (Tokyo Institute of Technology, Japan)

(P-133) Study on Corrosion of Welded Steel for LBE-Cooled Fast Reactors

Asril Mustari, Minoru Takahashi (Tokyo Institute of Technology, Japan)

(P-134) Fabrication and Characterization of Silicon Nitride Based Inert Matrix Fuels

Toshiyuki Usuki (Japan Atomic Energy Agency (JAEA), Japan, Tokyo Institute of Technology, Japan), Katsumi Yoshida, Masamitsu Imai, Toyohiko Yano (Tokyo Institute of Technology, Japan), Shuhei Miwa, Masahiko Osaka (Japan Atomic Energy Agency (JAEA), Japan)

Plenary Session (Room A)

Chair : Ehud Greenspan (University of California, Berkeley, USA)

2:20 PM–2:50 PM

(PL-5) Memoir of Studies on Innovative Nuclear Energy Systems

Hiroshi Sekimoto (Tokyo Institute of Technology, Japan)

Chair : Toru Obara (Tokyo Institute of Technology, Japan)

2:50 PM–3:20 PM

(PL-6) Nuclear Energy R&D in China ? Growing by Leaps and Bounds

Ning Li (Xiamen University, China)

3:50 PM–4:30 PM

Poster award and closing ceremony (Room A)

4:30 PM–5:00 PM

Poster removing