ICAPP 2007 Technical Program (as of April 27, 2007)

Note:
Presentation numbers in "blue" correspond to Abstracts/Papers in **Book of Abstracts** and **CD-Rom Proceedings**.
Presentation numbers in "green" have no corresponding Abstract/Paper.
Rooms 1-14 have been corrected.

Plenary Sessions

Opening Plenary
Monday, 14 May, 2007 • 8:15-12:45 (*Auditorium*)

1st Part •
Session Chairs: A-Cl. Lacoste (*ASN*), D. Hill (*DOE/INL*)

Welcome
D. Hill (*DOE/INL*), S.H. Kim (*KNS*), Ph. Pradel (*CEA*), G. Servière (*SFEN*)

Panel on "Evolutions in Nuclear Technical Approaches"
A-Cl. Lacoste (*ASN*), B. Borchardt (*NRC*), S. Mizumoto (*METI*), R. Schenkel (*EU Com.*), Ph. Garderet (*AREVA*), E. Gonzales (*FORATOM*)

2nd Part •
Session Chairs: A. Bugat (*CEA*), A. Howard (*NEI*)

Nuclear Energy: Broadening the Vision
B. Pellaud (*Pt of the Swiss Nuclear Forum, Former Deputy Director General of IAEA*)

Panel on "The Nuclear Renaissance at Work"
A. Howard (*NEI*), B. Dupraz (*EDF*), A. Kakodkar (*IAE*), R. Adam (*NECSA*), K.I. Han (*KOPEC*), ROSATOM, CNCC

Plenary 1: The Energy Challenges: the Utilities Point of View
Monday, 14 May, 2007 • 15:30-17:15 (*Auditorium*)

Session Chair: T. Dujardin (*OECD/AEN*)

7603 Which Nuclear in the Future Energy Mix?, by J. Van Vyve (*Tractebel Engineering/Suez-Belgium*)

7605 The Energy Challenges: the US Utility Point of View, by G. Vanderheyden (*UniStar Nuclear-USA*)

7601 The Energy Challenges –Japanese Utilities' View, by S. Muto (*TEPCO-Japan*)

7597 China's Nuclear Energy Demand and CGNPC's Nuclear Power Development, by S. Rugang (*CGNPC-China*)

7606 New Plant Construction in Korea and Future Program, by K.C. Park (*KHNP-Korea*)

Plenary 2: New Plants: Design, Engineering, Safety
Tuesday, 15 May, 2007 • 10:15-12:15 (*Auditorium*)

Session Chair: N. Camarcat (*EDF-France*)

7604 EPR, Meeting the Challenges of the Nuclear Renaissance, by L. Oursel (*AREVA NP-France*)

7598 New Technologies Deployment for Advanced Power Plants, by K. Yamauchi (*MHI-Japan*)

7590 Strategy of Plant Concept Development in Hitachi, by K. Moriya (*Hitachi-Japan*)

7607 AP 1000 and Other Reactors Developed by Westinghouse/Toshiba, by S. Shiga (*Toshiba-Japan*)

7608 Development of Russian Reactors, by L. Yanko (*Atomstroyexport-Russia*)

7592 Operator-Driven CANDU Development, by J.M. Hopwood, S.K.W. Yu, I.J. Hastings (*AECL-Canada*)

7609 Evolution of the PHWR Design and Construction Experience Feedback on PHWR and PWR, by S.K. Jaïn (*NPCIL-India*)

Plenary 3: Sustainability through Fuel Cycle: Next Steps
Tuesday, 15 May, 2007 • 15:30-17:15 (*Auditorium*)

Session Chairs:

7610 The Economy of Nuclear Recycling, by R. Coulon (*AREVA-France*)

7611 EDF Strategy, by M. Debes (*EDF-France*)

7612 US Strategy for Fuel Cycle, by D. Hill (*DOE/INL-USA*)

7599 The Current Status of Active Tests at Rokkasho Reprocessing Plant and the Preparation for MOX Fuel Fabrication Plant, by A. Minematsu (*JNFL-Japan*)

7613 Nuclear Fuel Cycle with Fast Breeder Reactors - a Basis for Energy Supply Development, by A.V. Zrodnikov (*IPPE Obninsk-Russia*)

Plenary 4: Future Nuclear Power Systems: Turning Ideas into Reality
Wednesday, 16 May, 2007 • 10:15-12:15 (*Auditorium*)

Session Chairs: From USA, Ph. Pradel (CEA-France)

7586 High-Temperature Reactors - Technological Developments & Potential Market, by W. von Lensa (*FZJ-Germany*)

7520 Update on Uranium Availability; Current and Forecast Mine Production and the Resources Issue, by G. Capus (*AREVA NC-France*)

Panel: Challenges for a Renaissance of LMFR – Status & Programs

7614 US LMFR Program: Uranium Resources, Minor Actinides Management, by Ph. Finck (*DOE/INL-USA*)

7615 Status of LMFR in Russia, by A.V. Zrodnikov (*IPPE Obninsk-Russia*)

7616 Status and Plan of LMFR Development in Japan, by S. Kondo (*JAEA-Japan*)

7600 French Program for Sodium Fast Reactors, by J.-L. Carbonnier (*CEA Saclay-France*), J.-M. Delbecq (*EDF-France*), R. Assedo (*AREVA NP-France*)

7593 Status of Sodium Cooled Fast Reactors with Closed Fuel Cycle in India, by B. Raj (*Indira Gandhi Centre for Atomic Research-India*)

Plenary 5: Public Reactions on Nuclear Power
Wednesday, 16 May, 2007 • 17:30-18:15 (*Auditorium*)

Session Chairs: S. Anghaie (*Univ of Florida-USA*), D. Mouillot (*Comex Nucleaire-France*)

7580 The Nuclear Renaissance: Towards a Wonderful World? Foresight Issues Linked to the Global Development of Nuclear Power, by F. Bazile (*CEA-France*)

7617 Public Acceptance in Korea, by S.B. Yoo (*KHNP-Korea*)

Closing Plenary
Wednesday, 16 May, 2007 • 18:15-19:00 (*Auditorium*)

Session Chair: A. Rao (*IAEA*)

Conclusions
S. Anghaie (*Univ. of Florida-USA*), J.C. Gauthier (*AREVA-France*), G. Serviere (*EDF-France*), B. Vieillard-baron (*SFEN-France*)

Future ICAPP Conference Announcement

Key Note Sessions

Key Note A: Operation and Licensing Trends
Tuesday, May 15, 2007 • 8:15-10:00 (*Auditorium*)

Session Chairs: Christian Clément (*EDF-France),* Philippe Taurin (*EDF-France)*

7618 Future Evolution of the IAEA Safety Standards, by M. El Shanawary (*IAEA*)

7619 Multinational Design Evaluation Program – Current Situation and Future Activities, by Mr. REIG (*OECD/NEA-France*)

7620 Nuclear Safety Harmonization in Europe – the WENRA Approach, by Mr. Woodhouse (*UK*)

7621 Licensing Aspects of a Potential New Nuclear Program in UK, by Dr. Creswell (*UK*)

7622 Nuclear Safety Harmonization in Europe – the ENISS Contribution, by Mr. Fourest (*FORATOM-Belgium*)

7557 Outage Optimization - The US Experience and Approach, by J. LaPlatney (*AREVA NP-USA*)

Key Note B: Challenges for New NPPs Material and Structures
Monday, May 14, 2007 • 17:30-19:15 (*Auditorium*)

Session Chairs: Françoise Touboul (*CEA-France),* Pascal Yvon (*CEA-France)*

CANCEL 7315 Structural Materials for the Next Generation Nuclear Reactors - an Overview, by I. Charit, K.L. Murty (*North Carolina State Univ-USA*)

7207 Materials Modeling a Key for Design of Advanced High Temperature Reactor Components, by M. Samaras, W. Hoffelner (*Paul Scherrer Institute-Switzerland*), Ch. Fu, M. Guttmann (*CEA Saclay-France*), R.E. Stoller (*ORNL-USA*)

7182 Mechanical Behaivour of HTR Materials : Developments in Support of Defect Assessment, Structural Integrity and Lifetime Evaluation, by O. Ancelet, S. Chapuliot (*CEA-Saclay-France*)

Key Note C: Long Term Reactor Programmes
Monday, May 14, 2007 • 13:30-15:15 (*Auditorium*)

Session Chair: Claude Renault (*CEA-France)*

7596 Liquid Salt Applications and Molten Salt Reactors, by C.W. Forsberg (*ORNL-USA*), C. Renault (*CEA Saclay-France*)

7585 The Potential of LFR and ELSY Project, by L. Cinotti (*Del Fungo Giera Energia*), C.F. Smith (*LLNL*), J.J. Sienicki (*ANL*), H.A. Abderrahim (*SCK-CEN*), G. Benamati (*ENEA*), G. Locatelli (*Ansaldo Nucleare*), S. Monti (*ENEA*), H. Wider (*JRC/IE*), D. Struwe (*FZK*), A. Orden (*Empresarios Agrupados*), I.S. Hwang (*NUTRECK-KESRI*)

7146 European Research Activities within the Project: High Performance Light Water Reactor Phase 2 (HPLWR Phase 2), by J. Starflinger, T. Schulenberg (*FZK-Germany*), P. Marsault (*CEA Cadarache-France*), D. Bittermann (*AREVA NP-Germany*), C. Maraczy (*AEKI-KFKI-Hungary*), E. Laurien (*Univ of Stuttgart-Germany*), J.-A. Lycklama (*NRG Petten-The Netherlands*), H. Anglart (*KTH Nuclear Energy Technology-Sweden*), N. Aksan (*PSI-Switzerland*), M. Ruzickova (*UJV Rez plc-Czech Republic*), L. Heikinheimo (*VTT-Finland*)

7351 Status of Phenix Operation and of Sodium Fast Reactors in the World, by J. Guidez, L. Martin, C. Courtois (*CEA-France*)

Key Note D: Challenges in Reactor Modeling
Tuesday, May 15, 2007 • 13:30-15:15 (*Auditorium*)

Session Chairs: Christine Poinot-Salanon (*CEA-France),* Anne Nicolas (*CEA-France)*

7259 Progress and Challenges in the Development and Qualification of Multi-Level Multi-Physics Coupled Methodologies for Reactor Analysis, by K.N. Ivanov, M. Avramova (*Pennsylvania State Univ-USA*)

7623 Towards a European Platform for Simulation of Nuclear Reactors: The NURESM Project, by (*CEA, PSI, Univ of Madrid, FZK*)

7579 Advanced Numerical Simulation and Safety Demonstration of Generation IV Concepts, by J.C. Micaelli, G.B. Bruna, J. Couturier (*IRSN-France*)

7624 Advanced Thermal Hydraulics Modeling Methods for Actual and Future Reactors Simulation, by D. Bestion (*CEA-France*), G. Yadigaroglu (*PSI-Switzerland*)

Key Note E: Status of National HTR Program
Tuesday, May 15, 2007 • 17:30-19:15 (*Auditorium*)

Session Chair: Michel Lecomte (*AREVA NP-France)*

7625 Chinese HTR Program: HTR 10 results & Work Progress on HTR PL - Potential Market: The Example of China, by Z. Zhang (*INET-China*)

7584 Status of Japan's HTR Program, by S. Shiozawa (*JAEA-Japan*)

7626 The NGNP Program and HTR Developments in the US, by Ph. Hildebrandt (*DOE/INL-USA*)

7273 PBMR Project Developments and First of a Kind Test Facilities, by G. Claassen (*PBMR-South Africa*)

7627 Status of the Korean HTR Program, by H.C. No (*Korea*)

7602 Status of the HTR Programme in France, by B. Ballot (*AREVA-France*), F. Carré (*CEA-France*), J.-M. Delbecq (*EDF-France*), J.-C. Gauthier, D. Hittner, J.-Ph. Lebrun, M. Lecomte (*AREVA-France*)

Key Note F: Deployment and Sustainability of Nuclear Energy
Wednesday, May 16, 2007 • 8:15-10:00 (*Auditorium*)

Session Chairs: Alain Calamand (*AREVA NP-France),* Bernard Bonin (*CEA-France)*

7628 Worldwide Review of Near Term Deployment Context Issues, by K. Matsui (*IAE-Japan*)

7594 Education and Making Human Resources Activities in Japanese Universities, by T. Takeda (*Osaka Univ-Japan*), Y. Oka (*Univ of Tokyo-Japan*), S. Shiroya (*Kyoto Univ-Japan*)

7167 INPRO Study on the Development of Nuclear Energy Systems and its Impact on Energy Security, by Y. Sokolov, M. Khoroshev (*IAEA*), V. Tsibulskiy, S. Subbotin (*RRC Kurchatov Institute-Russia*)

7530 Status of the US Nuclear Hydrogen Initiative, by K. Schultz (*General Atomics-USA*), C. Sink (*US DOE-USA*), P. Pickard (*Sandia-USA*), S. Herring, J. O'Brien (*INL-USA*), B. Buckingham (*General Atomics-USA*), W. Summers (*Savannah River National Laboratory-USA*), M. Lewis (*ANL-USA*)

7629 Nuclear Economic View - ENC 2005 Update, by E. Bertel (*NEA-France*)

Key Note G: Nuclear Fuel Cycle: Technical Stakes

Wednesday, May 16, 2007 • 15:30-17:15 (*Auditorium*)

Session Chair: Jacques Bouchard (*AREVA NC-France)*

7179 Formulation of Engineering Design Principles for the Treatment of Irradiated Fuel and Associated Radioactive Waste, by A.W. Banford, B.C. Hanson, P.J. Scully, R.J. Taylor (*Nexia Solutions-UK*)

7511 Comparative Study of Plutonium Burning in Heavy and Light Water Reactors, by T.A. Taiwo, T.K. Kim, F.J. Szakaly, R.N. Hill, W.S. Yang (*ANL-USA*), G.R. Dyck, B. Hyland, G.W.R. Edwards (*AECL-Canada*)

7446 The Nuclear Waste Issue: Towards an Assessment of the Partitioning and Transmutation of Actinides, by H. Masson, D. Greneche, P. Chambrette (*AREVA NC-France*)

7169 Pyrochemistry within EUROPART- Assessment of the Studies on Spent Fuel Treatment Processes - Collective Work, by S. Bourg (*CEA-France*), C. Caravaca (*CIEMAT-Spain*), J. Finne (*EDF-France*), G. de Angelis (*ENEA-Italy*), R. Malmbeck (*ITU-Germany*), B. Lewin (*NEXIA Solutions-UK*), J. Uhlir (*NRI-Czech Republic*), T. Inoue (*CRIEPI-Japan*), V. Luca (*ANSTO-Australia*), C. Madic (*CEA-France*)

7527 Fuel Options for Efficient Plutonium Management Strategies, by D. Haas (*ITU-EC*)

7587 Survey of Candidate Fuels for Gen IV Sodium Fast Reactors with a Closed Fuel Cycle, by Ph. Brossard (*CEA/Saclay-France*), Ph. Dufour, L. Paret, M. Pelletier (*CEA/Cadarache-France*), J. Rouault, F. Storrer (*CEA/Saclay-France*), F. Varaine (*CEA/Cadarache-France*)

Key Note H: Lessons Learned for the New Build

Wednesday, May 16, 2007 • 13:30-15:15 (*Auditorium*)

Session Chairs: Bernard Debontride (*AREVA NP-France),* Samim Anghaie *(Univ of Florida-USA)*

7588 Lesson Learned from Past Experience with Building Nuclear Plants in US, by C.W. Hess (*Burns & Roe Enterprises-USA*)

7630 Communication, by G. Hudson (*Bechtel-USA*)

7589 Lessons Learnt from the French Program, by G. Servière (*EDF-France*)

7454 Improvements in US-APWR design from lessons learned in Japanese PWRs, by K. Yamauchi, M. Kaneda, Y. Yamaura, T. Noda (*MHI-Japan*)

7591 Lessons Learned from the Spanish Programme for New Build, by M.T. Dominguez (*EA-Spain*)

Track 1.00: Water-Cooled Reactor Programs and Issues

1.01 Advanced BWRs

Tuesday, May 15, 2007 • 8:15-10:00 (*Room 3*)

Session Chairs: Hideaki Heki (*Toshiba-Japan),* Werner Brettschuh (*AREVA NP GmbH-Germany)*

7105 An Evolutionary Fuel Assembly Design for High Power Density BWRs, by A. Karahan, J. Buongiorno, M.S. Kazimi (*MIT-USA*)

7210 SWR 1000: Diversity in Reactor Protection by Safety I&C and Passive Pressure Puls Transmitter System, by M. Goldmann, F.J. Kießler, J. Meseth, P. Stribrny (*AREVA NP GmbH-Germany*)

7212 SWR 1000: The Main Design Features of the Advanced Boiling Water Reactor with Passive Safety Systems, by C. Pasler (*AREVA NP GmbH-Germany*)

7476 Experimental Verification of SWR 1000 Passive Components and Systems, by W. Brettschuh, J. Meseth (*AREVA NP GmbH-Germany*)

7535 State-of-the-Art and Prospects for Development of Innovative Simplified Boiling Water Reactor VK-300, by Yu.N. Kuznetsov (*RDIPE-Russia*)

1.02 Economics, Regulation, Licensing and Construction

Wednesday, May 16, 2007 • 8:15-10:00 (*Room 3*)

Session Chairs: Toney Mathews (*AREVA NP-USA),* James Tulenko (*Univ of Florida-USA)*

7409 Multi-project, Multi-national, Geographically Dispersed: Challenges for the Nuclear Renaissance in the United States, by T.A. Mathews (*AREVA NP-USA*)

7177 Improved Nuclear Fuel Pellet Design to Eliminate the RIM Effect, by J.S. Tulenko, J. Wang (*Univ of Florida-USA*)

7198 Establishing and Maintaining Power Conversion System Performance in New Nuclear Power Plants, by H. Estrada, E. Hauser (*Caldon Ultrasonics-USA*)

7265 The Effect of Tropicalization on Steam Generator Blowdown System Design for Standardized Nuclear Power Plant Design, by A.D. Huffman (*AREVA NP-USA*)

7532 Optimizing NSSS Power and Turbine/Generator Performance for Standardized Nuclear Power Plant Designs in Tropical Climates, by M.V. Parece, T.G. Stack, A.D. Huffman (*AREVA NP-USA*)

1.03 Advanced PWRs-I

Monday, May 14, 2007 • 17:30-19:15 (*Room 3*)

Session Chairs: Jean Van Vyve (*Tractebel Engineering-Belgium*), Bernard Debontride (*AREVA NP-France*)

7576 APR1400 Severe Accident Mitigation Design, by J.Y. Lim, J.Y. Byun (*KOPEC-Korea*)

7286 Design of APR1400 NSSS Major Components, by H.-G. Park (*Doosan Heavy Industries & Construction-Korea*)

7056 Integrated Chemical Effects Tests Program for PWR Sump Performance Assessment, by B.P. Jain (*U.S. NRC-USA*)

7085 Roles of Thermal-Hydraulic Experiments for the Development and Licensing of New Safety Features in APR1400, by C.-H. Song, W.P. Baek, J.K. Park (*KAERI-Korea*)

7129 The Development Experience and Design Characteristics of the Advanced Power Reactor 1400, by B.-S. Kim, E.-J. Lee (*KHNP-Korea*)

1.03 Advanced PWRs-II

Tuesday, May 15, 2007 • 13:30-15:15 (*Room 3*)

Session Chairs: Takashi Kanagawa (*Mitsubishi Heavy Industries-Japan),* Philippe Lauret (*AREVA NP-France)*

7578 The U.S. EPR: A Standardized Nuclear Power Plant, by F.G. Hudson (*AREVA NP-USA*)

7100 AP1000 Fuel Design and Core Operations, by S. Ray (*Westinghouse-USA*)

7250 ACR-1000: Reactor Physics and Fuelling Flexibility, by M. Ovanes, P.S.W. Chan, J.M. Hopwood (*AECL-Canada*)

7445 Conceptual Design of OPR-1000 Compatible Annular Fuel Assembly, by Y.S. Yang, K.M. Bae, C.H. Shin, T.H. Chun, J.G. Bang, K.W. Song (*KAERI-Korea*)

1.03 Advanced PWRs-III

Tuesday, May 15, 2007 • 17:30-19:15 (*Room 3*)

Session Chairs: Takashi Kanagawa (*Mitsubishi Heavy Industries-Japan),* Philippe Lauret (*AREVA NP-France)*

7581 U.S. EPR ITAAC: Coordination with Construction and Startup, by D. Magnarelli, A.E. Levin (*AREVA NP-USA*)

7260 Modeling of Silicon Carbide Duplex Cladding Designs for High Burnup Light Water Reactor Fuel, by D.M. Carpenter, G.E. Kohse, M.S. Kazimi (*MIT-USA*)

7430 I&C Design Features for Fully Computerized Systems in the US-APWR, by M. Oba, S. Ishimoto, M. Takashima (*Mitsubishi Heavy Industries-Japan*), M. Kitamura, S. Sugitani (*Mitsubishi Electric Corporation-Japan*)

1.04 Innovative Water Cooled Reactors

Wednesday, May 16, 2007 • 15:30-17:15 (*Room 3*)

Session Chairs: Marc Delpech (*CEA-France),* Richard Swinburn (*Rolls-Royce-United Kingdom)*

7417 SCOR 1000: an Economic and Innovative Conceptual Design PWR, by G.-M. Gautier, M.-S. Chenaud (*CEA Cadarache-France*), B. Tourniaire (*CEA Grenoble-France*)

7011 Conceptual Design Study on High Conversion Type Core of FLWR, by Y. Nakano, H. Akie, T. Okubo, S. Uchikawa (*JAEA-Japan*)

7389 Advanced High Conversion PWR: Preliminary Analysis, by H. Golfier, V. Bellanger, A. Bergeron, F. Dolci (*CEA Saclay-France*), B. Gastaldi, O. Koberl, G. Mignot, C. Thevenot (*CEA Cadarache-France*)

7242 Components Effects on the Performance of the Passive Residual Heat Removal System of an Advanced Integral Type Reactor, by H.S. Park, K.Y. Choi, S. Cho, C.-K. Park, S.J. Yi, M.K. Chung (*KAERI-Korea*)

Track 2.00: High Temperature Gas Cooled Reactors

2.02 Prismatic Fuel Modular Reactors

Wednesday, May 16, 2007 • 15:30-17:15 (*Room 2*)

Session Chairs: Alain Capitaine (*EDF-France),* Michel Lecomte (*AREVA NP-France)*

7130 A Small High Temperature Gas Cooled Reactor for Nuclear Marine Propulsion, by F. Brugiere, C. Sillon (*Ecole des Applications Militaires de l'Energie Atomique-France*), A. Foster (*Defence College of Electromechanical Engineering-UK*), T. Kingston (*Rolls-Royce-UK*), P. Hamilton, S. Jewer, A.C. Thompson, A.M. Williams, P.A. Beeley (*Defence College of Electromechanical Engineering-UK*)

7528 GAS-NET: A Two-Dimensional Network Code for Prediction of Core Flow and Temperature Distribution in the Prismatic Gas Reactor, by R.B. Vilim (*ANL-USA*)

7375 Basic Design and Economical Evaluation of Gas Turbine High Temperature Reactor 300 (GTHTR300), by K. Kunitomi, S. Shiozawa, X. Yan (*JAEA-Japan*)

7307 Optimization of TRU Burnup in Modular Helium Reactor, by Y. Kim (*KAERI-Korea*), F. Venneri (*General Atomics-USA*)

2.03 Test Facilities and Demonstration Reactors for HTR Design and Generic Studies
Monday, May 14, 2007 • 13:30-15:15 (*Room 2*)

Session Chairs: Finis Southworth (*INL-USA),* Hee Cheon No (*KAIST-Korea)*

7566 RAPHAEL: Materials and Components Highlights from the HTR FP5 and FP6 Programmes, by D. Buckthorpe (*AMEC NNC Limited-UK*), E. Breuil, D. Besson (*AREVA NP SAS-France*)

7565 The (European) HTR Technology Network (HTR-TN) and the Development of HTR Technology in Europe, by D. Hittner (*AREVA-France*)

7474 Status of Pre-Conceptual Design Studies for the Next Generation Nuclear Plant (NGNP), by S.A. Caspersson, R.A. Matzie (*Westinghouse-USA*), E.J. Brabazon (*Shaw Environmental & Infrastructure-USA*)

2.04 Innovative HTRs, Fuels and Materials-I
Tuesday, May 15, 2007 • 8:15-10:00 (*Room 2*)

Session Chair: Michael A. Fütterer (*JRC Petten-The Netherlands)*

7204 High Temperature Corrosion of the Nickel-based Alloy Inconel 617 in Helium containing Small Amounts of Impurities, by J. Chapovaloff, G. Girardin, D. Kaczorowski (*AREVA NP-France*), K. Wolski, M. Pijolat (*ENS des Mines de St Etienne-France*)

7175 Flow Mixing in Pebble Beds and Bundles of Twisted Rods, by S. Rimkevicius, E. Uspuras (*Lithuanian Energy Institute-Lithuania*)

7098 Low-Enriched Fuel Design Concept for the Prismatic Very High Temperature Reactor Core, by J.W. Sterbentz (*INL-USA*)

2.04 Innovative HTRs, Fuels and Materials-II
Tuesday, May 15, 2007 • 13:30-15:15 (*Room 2*)

Session Chair: Werner von Lensa (*FZJ Julich-Germany)*

7119 Neutronic Studies and Activation Calculations of Different Structural Materials for a Gas-Cooled Fast Reactor, by V. Brun-Magaud, J.C. Bosq (*CEA Cadarache-France*)

7418 Quality Control of High Temperature Reactors (HTR) Compacts via X-Ray Tomography, by D. Tisseur, J. Banchet, P.-G. Duny (*AREVA NP-France*), M.-P. Vitali (*CERCA-France*), G. Peix, J.-M. Letang (*CNDRI - INSA Lyon-France*)

7305 Final Assembly and Initial Irradiation of the First Advanced Gas Reactor Fuel Development and Qualification Experiment in the Advanced Test Reactor, by S.B. Grover (*INL-USA*)

2.06 Power Conversion
Wednesday, May 16, 2007 • 8:15-10:00 (*Room 2*)

Session Chairs: Gert Claassen (*PBMR-South Africa),* Hee Cheon No (*KAIST-Korea)*

7084 Evaluation for Reasonableness of Power Conversion System Concepts in the Gas Turbine High Temperature Reactor (GTHTR300), by I. Minatsuki, Y. Mizokami (*Mitsubishi Heavy Industries-Japan*)

7059 Nuclear Cogeneration of High Temperature Process Heat and Electricity with Heat Pump Driven Superheating, by A. Marmier, M.A. Fütterer (*EC-Joint Research Center-The Netherlands*)

7058 HTR with Downgraded Specifications for High Temperature Process Heat Applications, by A. Marmier, M.A. Fütterer, H. Wider (*EC-Joint Research Center-The Netherlands*)

7037 Energy and Economical Analysis of Direct and Indirect Brayton Power Cycles of HTGRs, by L.E. Herranz (*CIEMAT-Spain*), J.I. Linares, B.Y. Moratilla (*COMILLAS-Spain*)

7007 Power Cycle and Stress Analyses for High Temperature Gas-Cooled Reactor, by C. Oh, R. Barner, C. Davis, B. Hawkes, J. Morton, S. Sherman (*INL-USA*)

2.07 Modeling and Simulation of HTRs-I
Monday, May 14, 2007 • 17:30-19:15 (*Room 2*)

Session Chair: Pavel Hejzlar (*MIT-USA)*

7381 Experimental and Computational Analysis of Gas Natural Circulation Loop, by J.I. Lee, P. Hejzlar (*MIT-USA*)

7240 An Analysis of a Contact between a Kernel and a Buffer of a TRISO-coated Fuel Particle, by Y.M. Kim, Y.W. Lee (*KAERI-Korea*)

7234 Monte Carlo Criticality Calculations for PBMR Core, by H.-C. Kim, J.K. Kim, S.Y. Kim (*Hanyang Univ-Korea*), J.M. Noh (*KAERI-Korea*)

7345 Rotor Scale Model Tests For Power Conversion Unit of GT-MHR, by C. Baxi, R. Daugherty, A. Shenoy (*General Atomics-USA*), N.G. Kodochigov , S.E. Belov (*Experimental Design Bureau of Machine Building-Russia*)

2.07 Modeling and Simulation of HTRs-II
Tuesday, May 15, 2007 • 17:30-19:15 (*Room 2*)

Session Chair: Steven A. Wright (*Sandia-USA)*

7573 Preliminary Design of a Small Air Loop for System Analysis and Validation of CATHARE Code, by M. Marchand, M. Saez, N. Tauveron, D. Tenchine, T. Germain, G. Geffraye, J.P. Ruby (*CEA Grenoble-France*)

7052 Impact of Closed Brayton Cycle Test Results on Gas Cooled Reactor Operation and Safety, by S.A. Wright, P.S. Pickard (*Sandia-USA*)

7172 Cathare Simulation of Non Depressurized Transients for the 2400 MW Gas Fast Reactor Concept, by A. Messié, F. Bentivoglio (*CEA-France*)

7171 Cathare Simulation of a Depressurization Transient for the 2400MW Gas Fast Reactor Concept, by F. Bentivoglio, A. Messié (*CEA-France*)

2.08 Gas Cooled Fast Reactors-I
Wednesday, May 16, 2007 • 13:30-15:15 (*Room 2*)

Session Chairs: Mitch Farmer (*ANL-USA),* Jean-Claude Garnier (*CEA-France)*

7329 Control Rod Shadowing and Anti-shadowing Effects in a Large Gas-cooled Fast Reactor, by G. Girardin (*PSI, École Polytechnique Fédérale de Lausanne-Switzerland*), G. Rimpault (*CEA Cadarache-France*), P. Coddington (*PSI-Switzerland*), R. Chawla (*PSI, École Polytechnique Fédérale de Lausanne-Switzerland*)

7543 Thermal Hydraulic and Flow Vibration Analysis of Pin Bundle Designs for the GFR, by M.T. Farmer, T.Y.C. Wei (*ANL-USA*)

7330 A 2D Transient Model for the Gas-cooled Fast Reactor Plate-type Fuel, by P. Petkevich (*École Polytechnique Fédérale de Lausanne, PSI-Switzerland*), K. Mikityuk, P. Coddington (*PSI-Switzerland*), R. Chawla (*École Polytechnique Fédérale de Lausanne, PSI-Switzerland*)

7208 Status of the ETDR Design, by C. Poette, J.C. Garnier, J.C. Klein, F. Morin, A. Tosello, I. Dor, F. Bertrand (*CEA Cadarache-France*), C. Mitchell (*AMEC NNC Limited-UK*), D. Every (*NEXIA Solutions-UK*), P. Coddington (*PSI-Switzerland*)

7350 CFD Analysis for Flow Behavior Characteristics in the Upper Plenum during Low Flow/ Low Pressure Transients for the Gas Cooled Fast Reactor (GCFR), by P. Sabharwall, T. Marshall, K. Weaver, H. Gougar (*INL-USA*)

2.08 Gas Cooled Fast Reactors-II

Wednesday, May 16, 2007 • 15:30-17:15 (*Room 7*)

Session Chairs: Colin Mitchel (*AMEC NNC-UK),* Christian Poette (*CEA Cadarache-France)*

7178 Status of GFR Pre-conceptual Design Study, by J.C. Garnier, J.C. Bosq, T. Cadiou, N. Chauvin, O. Cioni, P. Dumaz, D. Lorenzo, F. Morin, A. Ravenet, P. Richard, A. Tosello (*CEA Cadarache-France*)

7342 The DHR Systems of the GFR, Preliminary Design and Safety Analysis, by J.Y. Malo, N. Alpy, C. Bassi, P. Dumaz, B. Mathieu, P. Quellien, P. Saignes (*CEA Cadarache-France*)

7340 A GFR Benchmark Comparison of Transient Analysis Codes Based on the ETDR Concept, by E. Bubelis (*PSI-Switzerland*), D. Castelliti (*CIRTEN-Italy*), P. Coddington (*PSI-Switzerland*), I. Dor (*CEA-France*), C. Fouillet (*AREVA NP-France*), E. de Geus (*NRG-Netherlands*), T. D. Marshall (*INL-USA*), W. van Rooijen (*TUD-Netherlands*), M. Schikorr (*JRC-IE EURATOM-Germany*), R. Stainsby (*AMEC NNC-UK*)

7274 Uncertainties and Safety Margins for the Determination of Pressure within the GFR's Containment, by E. Cavalieri d'Oro (*MIT-USA*)

7292 Nuclear Facility with the Gas Cooled Fast Reactor BGR-1000 Using Coated Particles and Technologies of Light Water Reactors, by P.N. Alekseev, A.L. Balanin, P.A. Fomichenko, E.I. Grishanin, E.A. Ivanov, A.S. Ponomarev, A.A. Sedov, Yu.A. Zakharko (*Kurchatov Institute-Russia*)

Track 3.00: Long Term Reactor Programs and Strategies

3.01 Sodium-cooled Fast Reactors-I

Wednesday, May 16, 2007 • 8:15-10:00 *(Room 11)*

Session Chairs: Masakazu Ichimiya *(JAEA-Japan),* Philippe Martin (*CEA-France)*

7567 A Loop Sodium Reactor with a Cold Resting Bottom Vessel, by D. Costes (*Consultant-France*)

7408 Studies of Passive Safety Tests by Using Experimental Fast Reactor Joyo - Verification of Joyo Plant Dynamics Analysis Code Mimir-N2, by M. Takamastu (*JAEA-Japan*), T. Kuroha (*NESI-Japan*), T. Aoyama (*JAEA-Japan*)

7348 BN-800 Reactor is a New Stage in Transition to Innovative Nuclear Power, by V.M. Poplavsky, A.N. Chebeskov, V.I. Matveev (*IPPE-Russia*)

7308 Neutronic Characterization of Sodium-cooled Fast Reactor in an MHR-SFR Synergy for TRU Transmutation, by S.G. Hong, Y. Kim (*KAERI-Korea*), F. Venneri (*General Atomics-USA*)

CANCEL 7041 Impact of Fast Reactors Operating Experience on Design and Construction of Prototype Fast Breeder Reactor, by S.C. Chetal, P. Chellapandi, T.K. Mitra, P. Puthiyavinayagam, S. Raghupathy, P. Selvaraj (*Indira Gandhi Centre for Atomic Research-India*)

3.01 Sodium-cooled Fast Reactors-II
Wednesday, May 16, 2007 • 13:30-15:15 *(Room 11)*

Session Chair: Jacques Rouault (*CEA-France)*

7452 A Comparative Analysis of Sodium-cooled and Gas-cooled Fast Reactors, by P. Anzieu, C. Renault (*CEA Saclay-France*), Ph. Martin, J. Rouault, G.L. Fiorini (*CEA Cadarache-France*)

7547 Investigation of Sodium - Carbon Dioxide Interactions with Calorimetric Studies, by N. Simon, C. Latgé, L. Gicquel (*CEA Cadarache-France*)

7383 Innovating Core Design for Generation IV Sodium Cooled Fast Reactors, by L. Buiron, Ph. Dufour, G. Rimpault, G. Pruhliere, C. Thevenot, J. Tommasi, F. Varaine, A. Zaetta (*CEA / DEN-France*)

7301 A Concept of Prospective Sodium Fast Reactor with Ductless Fuel Subassemblies in the Core, by A.A. Sedov, P.N. Alekseev, P.A. Fomichenko, N.N. Ponomarev-Stepnoy, A.A. Proshkin, A.S. Ponomarev, V.A. Stukalov (*Kurchatov Institute-Russia*)

7263 Core Design Studies for Advanced Burner Test Reactor, by W.S. Yang, T.K. Kim, R.N. Hill (*ANL-USA*)

3.01 Sodium-cooled Fast Reactors-III
Wednesday, May 16, 2007 • 15:30-17:15 *(Room 11)*

Session Chairs: Baldev Raj (*Indira Gandhi Centre for Atomic Research-India),* Dohee Hahn (*KAERI-Korea)*

7506 A New Design Concept of the KALIMER-600 Reactor Core, by S.G. Hong, S.J. Kim, Y.I. Kim (*KAERI-Korea*)

7398 A Program on Innovative SFR in France, by P. Anzieu (*CEA Saclay-France*), J.-P. Serpantie (*AREVA NP-France*), D. Verwaerde (*EDF-France*), Ph. Dufour, Ph. Martin (*CEA Cadarache-France*)

7376 Characteristics of Fast Reactor Core Designs and Closed Fuel Cycle, by V.M. Poplavsky, V.A. Eliseev, V.I. Matveev, Yu.S. Khomyakov, A.M. Tsyboulya, A.G. Tsykunov, A.N. Chebeskov (*IPPE-Russia*)

7132 Thermal Analysis on Shipping Cask for LMFR Fresh Trans-Uranium Fuel Transportation, by Y. Chikazawa, C. Grandy (*ANL-USA*)

3.02 Lead-cooled Fast Reactors
Wednesday, May 16, 2007 • 8:15-10:00 *(Room 9)*

Session Chairs: Luciano Cinotti (*DFGE-Italy),* Craig F. Smith (*LLNL-USA)*

7497 Multiphase Flow Phenomena of Steam Generator Tube Rupture in a Lead-Cooled Reactor System: A Scoping Analysis, by T.N. Dinh (*KTH-Sweden*)

7536 Progresses in the Operation of Large Scale LBE Loop: HELIOS, by J. Lim, S.H. Jeong, Y.J. Oh, H.O. Nam, C.B. Bahn, J.D. Bae, W.C. Nam, K.H. Ryu, T.H. Lee, S.G. Lee, N.Y. Lee, I.S. Hwang (*Seoul National Univ-Korea*)

7469 Safety Features of a Pb-Bi Cooled Transmutation Reactor, by J.-Y. Lim, M.-H. Kim (*Kyung Hee Univ-Korea*)

7280 Safety Design/Analysis and Scenario for Prevention of CDA with ECCS in Lead-Bismuth-Cooled Fast Reactor, by M. Takahashi, A.R. Khalid, V. Dostal, Novitrian, Y. Yamada (*Tokyo Tech-Japan*)

7193 Lead-Cooled Fast Reactors with Th-based Fuels - Neutronics and Safety, by K. Tucek, J. Carlsson, H. Wider (*JRC/IE-The Netherlands*)

7015 Advanced Burner Test Reactor Concept, by Y.A. Shatilla (*King Abdulaziz Univ-Saudi Arabia*)

3.03 Supercritical Water Reactors
Tuesday, May 15, 2007 • 13:30-15:15 *(Room 11)*

Session Chairs: Joerg Starflinger (*FZK-Germany),* Hussam Khartabil (*AECL-Canada)*

7206 A Study of Fuel Behavior in a SCWR Core with High Power Density, by S. Higughi, S. Sakurai, T. Ishida (*Toshiba-Japan*)

7124 SuperCritical Light Water Reactor with Intermediate Heat Exchangers, by W. Van Hove (*Tractebel Engineering-Belgium*)

7502 Conceptual Design of 1400 MWe Supercritical Water Cooled Reactor Core Design with a Cruciform Type of U/Zr Solid Moderator, by K.-M. Bae, H.K. Joo, Y.Y. Bae (*KAERI-Korea*)

7494 Preliminary Calculations of Coolant Flow in a SCWR Fuel Assembly with the Code ANSYS CFX 10.0, by A. Kiss, A. Aszódi (*Budapest Univ of Technology and Economics-Hungary*)

7423 Neutron-Physical and Thermal-Hydraulic Characteristics of a New SCWR Fuel Assembly, by X.J. Liu, X. Cheng (*Shanghai Jiao Tong Univ-China*)

7309 Safety Characteristics of the Super LWR Design Concept, by Y. Ishiwatari, Y. Oka, S. Koshizuka, J. Liu (*Univ of Tokyo-Japan*)

3.04 Molten Salt and Liquid Salt Reactors
Monday, May 14, 2007 • 13:30-15:15 *(Room 11)*

Session Chairs: Charles Forsberg (*ORNL-USA),* Claude Renault (*CEA-France)*

7424 MSR – SPHINX Concept Program EROS (Experimental zeRO power Salt reactor SR-0): The Proposed Experimental Program as a Basis for Validation of Reactor Physics Methods, by M.J. Hron, V. Juricek, J. Kyncl, M. Mikisek, V. Rypar (*NRI Rez-Czech Republic*)

7548 Progress in Development of Na,Li,Be/F Molten Salt Actinide Recycler & Transmuter Concept, by V. Ignatiev, O. Feynberg, I. Gnidoi, A. Merzlyakov, V. Smirnov, A. Surenkov, I. Tretiakov, R. Zakirov (*Kurchatov Institute-Russia*), V. Afonichkin, A. Bovet (*Institute of High Temperature Electrochemisty-Russia*), V. Subbotin, A. Panov, A. Toropov, A. Zherebtsov (*Institute of Technical Physics-Russia*)

7186 Optimized Transition from the Reactors of Second and Third Generations to the Thorium Molten Salt Reactor, by E. Merle-Lucotte, D. Heuer, M. Allibert, V. Ghetta, C. Le Brun, L. Mathieu, R. Brissot, E. Liatard (*LPSC/IN2P3/CNRS-France*)

7405 Fuel Geometry Options for Salt-Cooled Advanced High-Temperature Reactors, by C.W. Forsberg (*ORNL-USA*)

3.06 Liquid Metal Fast Reactors (SFR/LFR)
Wednesday, May 16, 2007 • 15:30-17:15 *(Room 9)*

Session Chairs: Joel Guidez (*CEA-France),* V.N. Karaulov (*NIKIET-Russia)*

7545 Numerical Optimization of Wire-Wrapped Fuel Assembly of Liquid Metal Reactor with 3-D RANS Analysis, by W. Raza, K.Y. Kim (*Inha Univ-Korea*)

7499 Self-organized Regime of Nuclear Burning Wave in Safe Fast Reactor, by S.P. Fomin, Yu.P. Mel'nik, V.V. Pilipenko, N.F. Shul'ga (*NSC KIPT-Ukraine*)

7303 Power DRAC for Rapid LMFBR Deployment and Consequent CO2 Mitigation, by W.E. Schenewerk (*Consultant-USA*)

7133 Active Zone of the Safe Fast Uranium-Plutonium Reactor Working Without a Reactivity Margin During Long Time, by V.Ya. Gol'din, E.N. Aristova, G.A. Pestryakova, M.I. Stoynov, Yu.V. Troshchiev (*Institute for Mathematical Modeling RAS-Russia*)

7104 Liquid Metal Cooled Variable Geometry Reactor Structure, by L. Popa-Simil (*Consultant-USA*)

3.07 Innovative Conversion Systems
Monday, May 14, 2007 • 17:30-19:15 *(Room 4)*

Session Chairs: Jacopo Buongiorno (*MIT-USA),* Patrick Dumaz (*CEA-France)*

7072 Supercritical CO2 Gas Turbine Cycle Systems, by Y. Kato, T. Ishizuka, Y. Muto, M. Mito, K. Tozawa (*Tokyo Institute of Technology-Japan*)

7071 Efficiency Improvement of the Indirect Supercritical CO2 Turbine System for Fast Reactors by Applying Micro-Channel Intermediate Heat Exchanger, by Y. Muto, M. Mito, Y. Kato, N. Tsuzuki (*Tokyo Institute of Technology-Japan*)

7039 Design Study for CO2-Na Reaction Events of Super-Critical CO2 Indirect Cycle Gas Turbine Fast Reactor, by K. Ohyama, M. Kishida, M. Mito, N. Yoshioka, Y. Kato (*Tokyo Institute of Technology-Japan*)

Track 4.00: Operation, Performance & Reliability Management

4.01 Industry Initiatives to Optimize Outage
Wednesday, May 16, 2007 • 8:15-10:00 *(Room 8)*

Session Chair: Joel Woodcock (*Westinghouse-USA)*

7561 Chemical Degassing on EDF Units - Feed Back Experience and Method, by J-L. Bretelle (*EDF UNIE-France*), F. Bardet, A. Tigeras (*EDF CEIDRE-France*), F. Dacquait (*CEA Cadarache-France*)

7400 Knowledge Integrated Management System for Maintenance Service at NPP ISAR, by R. Griedl (*E.ON Kernkraft GmbH-Germany*), M. Weinrauch, R. Buschart (*AREVA NP GmbH-Germany*)

7358 On-line 4-face Colour CCD Fuel Inspection During Offload, by J. Roudén (*Ringhals AB-Sweden*), G. Kniedler (*Tennessee Valley Authority-USA*), P. Legath (*Ahlberg Electronics AB-Sweden*), K. Kang (*KHNP-Korea*)

7219 Shortened Outage Duration and Increased Safety with Head Assembly Upgrade Packages, by L.M. Lisien, K. Plute, J. Duran (*Westinghouse-USA*)

7190 Permanent Cavity Seal Ring for Narrow Gap Pressurized Water Reactor Applications, by P.M. Toniolo, A.W. Harkness (*Westinghouse-USA*)

4.02 Industry Initiatives to Improve Performance and Reliability-I
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 8)*

Session Chair: Philippe Clergue (*AREVA-France),* Manfred Blank (*AREVA)*

7203 Application of Improved Technologies for Ensuring High Quality in Safety, Maintenance and Operation Activities of Units 5&6 of Kozloduy - A Successful Project, by N. Naydenov (*Kozloduy NPP-Bulgaria*), G. Hoch (*AREVA NP GmbH-Germany*), A. Krasnocharov (*Kozloduy NPP-Bulgaria*)

7142 An Approach to Reduce Measurement Uncertainty of Fuel Channel Coolant Flow Rate for CANDU Plants with an CROSSFLOW Ultrasonic Flow Meter, by W.Y. Yun (*KINS-Korea*), M.H. Park (*GNEST Inc-Canada*)

7067 Safety Relief Valves Serviceability Enhancement by Spring Compression Stability, by M.D. Ratiu, N.T. Moisidis P.E. (*CALCET Company-USA*)

7412 Nonlinear Dynamic Characteristics and Stability of LPM Type CEDM, by D.O. Kim, S. Choi, K.B. Park, S.Q. Zee (*KAERI-Korea*)

7347 Steam Generator Asset Management Model Overview, by M.G. Pop, P. Shoemaker, K. Colgan, J. Griffith (*AREVA NP-USA*)

4.02 Industry Initiatives to Improve Performance and Reliability-II

Tuesday, May 15, 2007 • 13:30-15:15 *(Room 8)*

Session Chairs: Philippe Clergue (*AREVA-France),* Manfred Blank (*AREVA)*

7563 Design and Installation of Upgraded Retrofit ECCS Sump Strainers, by D.B. Rhodes, G.L. Strati (*AECL-Canada*), P. Gros-Gean, B. Mutius (*Comex Nucléaire-France*), K. Shibato (*Mitsubishi Heavy Industries-Japan*)

7395 Advanced Monitoring Systems for Nuclear Power Plants, by R. Surmann, K. Einzmann (*AREVA NP GmbH-Germany*)

7147 A Prediction Method based on Grey System Theory in Equipment Condition based Maintenance, by Y. Shengyuan (*Harbin Univ of Science and Technology-China*), Z. Zhijian, P. Minjun, Y. Ming, Z. Hongguo (*Harbin Engineering Univ-China*)

7108 Implementation of Uncertainty Analysis in Evaluation of Small Disturbances, by P.V. Petkov (*Kozloduy NPP-Bulgaria*)

7036 Modernization of Kernkraftwerk Beznau's Core Monitoring System with Studsvik Scandpower's GARDEL System, by A. Noël (*Studsvik Scandpower Suisse GmbH -Switzerland*), R. Vielma (*NOK/Kernkraftwerk Beznau-Switzerland*), A. DiGiovine (*Studsvik Scandpower-USA*)

4.03 In-service Inspection

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 8)*

Session Chairs: François Champigny (*EDF-France)*

7438 Nuclear Containment Systems and Inservice Inspection Status of Korea Nuclear Power Plants, by J. Park, J. Hong, B. Park (*Korea Institute of Machinery & Materials-Korea*)

7359 Non destructive Examinations and Degradations: The Use of Feedback Experience to Improve Maintenance Policy, by F. Champigny (*EDF Ceidre-France*)

7226 Development of Piping Thickness Monitoring System using Equipotent Switching Direct Current Potential Drop Method, by K.H. Ryu, N.Y. Lee, I.S. Hwang (*Seoul National Univ-Korea*)

7360 NDE Qualification Process at EDF, by P. Blin (*EDF-France*)

7460 A Flow Analysis in the Surroundings of the Impingement Baffle of the Extracting Nozzle for Disclosing Shell Wall Thinning of a Feedwater Heater, by K.H. Kim, S.H. Jung (*Kyunghee Univ-Korea*), K.M. Hwang (*KOPEC-Korea*), W. Lee (*Daeji Metal Co-Korea*)

4.04 Industry Initiatives to Manage the Impact of Materials Aging Degradation

Monday, May 14, 2007 • 13:30-15:15 *(Room 8)*

Session Chairs: Pascal Blin, (*EDF-France)*

7353 Extended Scope and Responsibility in Large Component Replacements, by S. Sills (*SGT*), Ch.Gloaguen, R. Thévenet (*AREVA NP-France*)

7230 Wall Thinning Trend for Carbon Steel Piping of OPR-1000, by K.M. Hwang, J.S. Yoon, H. Yoon, H.W. Jin, T.E. Jin (*KOPEC-Korea*), S.H. Lee (*KEPRI-Korea*), S.K. Park (*KHNP-Korea*)

7060 Application of Risk-informed Approaches for Optimization of Control of WWER 1000 Pipelines Metal, by V.N. Kolykhanov, Yu.A. Komarov, V.I. Skalozubov (*Scientific and Production Centre-Ukraine*), Yu.L. Kovrizhkin (*Department of Fuel and Energy-Ukraine*)

4.05 Human Reliability and Operations
Monday, May 14, 2007 • 17:30-19:15 *(Room 8)*

Session Chairs: Denis Lecocp (*AREVA)*, Mark Reinhart (*IAEA)*

7109 Creating a Culture Where Employee Engagement Thrives, by D. Groover (*Behavioral Science Technology-USA*)

7148 A Human-Centered Approach Based on Multilevel Flow Models for Diagnosing Fault In Nuclear Power Plant, by Y. Ming, Z. Zhijian, P. Minjun, Y. Shengyuan (*Harbin Engineering Univ-China*)

7064 Human Factors Engineering Applied to the Design of New Nuclear Power Plants, by A.B. Manrique, J.C. Valdivia (*TECNATOM-Spain*)

7517 Human Performance for the Success of Equipment Reliability Programs, by J. Woodcock (*Westinghouse-USA*)

Track 5.00: Plant Safety Assessment and Regulatory Issues

5.01 LOCA Plant Analysis and Methodologies-I
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 1)*

Session Chair: Jonathan Birchley (PSI-Switzerland)

7365 Licensing in Be System Code Calculations: Applications and Uncertainty Evaluation by CIAU Method, by A. Petruzzi, F. D'Auria (*Univ of Pisa-Italy*)

7498 Development of CIAU Database for NPP Safety Analysis by Cathare 2 Code, by A. Del Nevo, F. D'Auria (*Univ of Pisa-Italy*)

7406 Study of the Transients of Loss of Coolant Accident in an Installation Pressurized with the RELAP5/mod3.2 Code System, by A. Baha, A. Hadjam (*Centre de Recherche Nucléaire de Birine-Algeria*)

7047 Thermal Hydraulic Analysis of CANDU 6 100% Reactor Outlet Header Break Using RELAP5 Code, by D. Dupleac, I. Prisecaru, P. Ghitescu (*Politehnica Univ-Romania*), G. Negut (*Institute for Nuclear Research-Romania*)

5.01 LOCA Plant Analysis and Methodologies-II
Tuesday, May 15, 2007 • 13:30-15:15 *(Room 1)*

Session Chair: Sandra Sloan (*AREVA NP-USA)*

7525 The Approach to the Optimization of the NPP Characteristics on a Basis of the Use of Best Estimate Codes and of Information Technologies, by Yu.B. Vorobyov, V.D. Kuznetsov (*MPEI-Russia*)

7377 Parameter Changes of Core Designs and Safety Analyses Due to Power Uprate in Kori 3&4 and Yonggwang 1&2, by S.-J. Lee, G.-S. Lee, J.-R. Park, D.-H. Ahn (*KNFC-Korea*)

7184 Thermal Hydraulic Analysis of LOCA for Justification of RBMK-1500 Success Criteria, by A. Kaliatka, E. Uspuras, S. Rimkevicius (*Lithuanian Energy Institute-Lithuania*)

5.02 Development in Severe Accident Analysis, Codes and Management

Monday, May 14, 2007 • 13:30-15:15 *(Room 3)*

Session Chairs: Eric Williams (*AREVA NP-USA),* Pascal Gandrille (*AREVA NP SAS-France)*

7489 AP-1000 Passive In-Vessel Retention Design for a Severe Accident, by C.P. Keegan, R.F. Wright (*Westinghouse-USA*)

7512 A Study of Ex-Vessel Debris Formation in a LWR Severe Accident, by P. Kudinov, A. Karbojian, W. Ma, M. Davydov, T.-N. Dinh (*Royal Institute of Technology-Sweden*)

7106 Enhancement of the In-Vessel Retention Capabilities of Advanced Light Water Reactors through the Use of Nanofluids, by R. Hannink, J. Buongiorno, L.-W. Hu, G.E. Apostolakis (*MIT-USA*)

7560 Severe Damage Analysis of VVER 1000 Following a Large Break LOCA Using ASTEC Code, by B. Chatterjee, D. Mukhopadhyay, H.G. Lele, A.K. Ghosh, H.S. Kushwaha (*Bhabha Atomic Research Centre-India*)

7121 Improved FFTBM by Signal Mirroring as a Tool for Code Assessment, by A. Prosek, M. Leskovar (*Jozef Stefan Institute-Slovenia*)

7027 Study on Entry Criteria for Severe Accident Management during Hot Leg LBLOCAs in a PWR, by L. Zhang, D. Zhang, S. Wang (*Naval Univ of Engineering-China*)

5.03 Severe Accident Phenomena: Experiment and Modeling-I
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 6)*

Session Chair: Weimin Ma (Royal Institute of Technology-Sweden)

7484 Thermo-physical Properties of Corium: Development of an Assessed Data Base for Severe Accident Application, by V.F. Strizhov, R.G. Galimov, V.D. Ozrin (*Nuclear Safety Institute of the Russian Academy of Sciences-Russia*), V.Yu. Zitserman, G.A. Kobzev, L.R. Fokin (*High-Temperature Institute (IVT) of the Russian Academy of Sciences-Russia*), P. Piluso (*CEA Cadarache-France*), H. Chalaye (*CEA Saclay-France*)

7328 Oxide-Metal Corium-concrete Interaction Test in the VULCANO Facility, by C. Journeau, P. Piluso, J.F. Haquet, S. Saretta, E. Bocacccio, J.M. Bonnet (*CEA Cadarache-France*)

7327 Thermitic Melting of Prototypic Corium at the PLINIUS Platform, by P. Piluso, K. Mwamba, C. Journeau (*CEA Cadarache-France*)

7275 Layer Inversion Tests with Metal-added Corium in the TROI Experiment, by J.H. Kim, B.T. Min, S.W. Hong, S.H. Hong, I.K. Park, J.H. Song, H.D. Kim (*KAERI-Korea*)

7552 Severe Fuel Damage Analysis for PHEBUS - FP Tests, by D. Mukhopadhyay, H.G. Lele, A.K. Ghosh, H.S. Kushwaha (*Bhabha Atomic Research Centre-India*)

5.03 Severe Accident Phenomena: Experiment and Modeling-II
Tuesday, May 15, 2007 • 13:30-15:15 *(Room 6)*

Session Chairs: Eric Williams (*AREVA NP-USA)*

7544 A Summary of Findings from the Melt Coolability and Concrete Interaction (MCCI) Program, by M.T. Farmer, S. Lomperski, D. Kilsdonk, R.W. Aeschlimann (*ANL-USA*), S. Basu (*US NRC-USA*)

7521 Predictability of Iodine Chemistry in the Containment of a Nuclear Power Plant under Hypothetical Severe Accident Conditions, by L.E. Herranz, M. Vela-García, J. Fontanet (*CIEMAT-Spain*)

7337 The Results From the Second High-Pressure Melt Ejection Test Completed in the Molten Fuel Moderator Interaction Facility at Chalk River Laboratories, by T. Nitheanandan, G. Kyle, R. O'Connor (*AECL-Canada*)

7312 Crust Formation and Dissolution during Corium-concrete Interaction, by L. Carenini, J.F. Haquet, C. Journeau (*CEA Cadarache-France*)

5.03 Severe Accident Phenomena: Experiment and Modeling-III
Tuesday, May 15, 2007 • 17:30-19:15 *(Room 1)*

Session Chair: T. (Nithy) Nitheanandan (*AECL-Canada)*

7300 Computation and Analysis of the Direct Containment Heating Dispersion Process with the Multiphase Flow Software MC3D, by S. Mikasser, R. Meignen (*IRSN-France*)

7299 Analysis of the Thermal Fragmentation as a Mechanism for the Initiation of Steam Explosion, by J. Lamôme, R. Meignen (*IRSN-France*)

7031 VVER-1000/V320 Decay Heat Analysis, Involving TVS-M and TVS-A Fuel Assemblies, by P.V. Petkov, D.V. Hristov (*Kozloduy NPP-Bulgaria*)

7028 Regulatory Assessment of Severe Accident Management Guideline for Kori-1 NPP, by N. Suh, J. Park, Y. Ryu (*KINS-Korea*)

5.04 Development in Life Extension Issues and in Regulatory Safety Assessment
Wednesday, May 16, 2007 • 8:15-10:00 *(Room 1)*

Session Chair: Christian Clément (*EDF-France)*

7341 Life Assessment and Ageing Management of LOCA Qualified Electrical Equipment, by L. Warnken, P. Weber (*AREVA NP GmbH-Germany*), H. Wisken (*E.ON Kernkraft GmbH-Germany*)

7287 German Nuclear Power Plants Utility Ageing Management (AM) - Current AM-Activities, by U. Wilke, R. Koring (*E.ON Kernkraft-Germany*)

7126 Optimized Maintenance Concept of Safety Relevant Valves Related to Ageing Management Features in Nuclear Power Plants, by R. Koring (*E.ON Kernkraft-Germany*)

7583 Contribution of Enterprise Asset Management (EAM) Systems and CAP Programs to Support NPP Life Extension Program, by E. Luanco (*INDUS-France*)

5.06 PRA and Risk Informed Decision Making: Methodology and Advances in Practice-I
Wednesday, May 16, 2007 • 13:30-15:15 *(Room 1)*

Session Chairs: Kazuo Ishiguma (*JAPC-Japan),* Dan Serbanescu (*EC-DG JRC-Institute of Energy-The Netherlands)*

7477 Dealing with Phenomenological Uncertainties in PRAs for Risk-Informed Decisions, by H.P. Nourbakhsh (*NRC-USA*)

7470 Application of PSA Methodology for Optimization of Repair, Maintenance and Tests Modes of the Equipment of NPPs with RBMK Types Reactors, by S.V. Koukhar (*Leningrad NPP-Russia*), B.I. Vinnikov (*RRC-Russia*)

7153 The Development of a HRA Calculator for Nuclear Power Plants, by S.H. Kim, D.I. Kang, W. Jung (*KAERI-Korea*)

7001 Some Aspects of Integrating Risk and Security Aspects for Complex Systems Analyses, by C. Kirchsteiger, D. Serbanescu (*EC-DG JRC-Institute of Energy-The Netherlands*)

5.06 PRA and Risk Informed Decision Making: Methodology and Advances in Practice-II
Wednesday, May 16, 2007 • 15:30-17:15 *(Room 1)*

Session Chairs: Kazuo Ishiguma (*JAPC-Japan),* Mark Reinhart (*IAEA)*

7513 A Probabilistic Approach for the Determination of Extreme Actions with Respect to the Structural Design, by H.-J. Niemann (*Ruhr-Univ Bochum-Germany*), N. Hölscher (*Niemann&Partner Consultants-Germany*), R. Meiswinkel (*E.ON Kernkraft-Germany*)

7158 Development and Verification of a Leningrad NPP Unit1 Living PSA-Model in the INL SAPHIRE Code Format for Prompt Operational Safety Level Monitoring, by B. Vinnikov (*Kurchatov Institute-Russia*)

7083 Risk-Informed Decision Making - A Keystone in Advanced Safety Assessment, by M. Reinhart (*IAEA*)

5.07 Development in Safety Analysis Methodologies for Future Plants-I
Wednesday, May 16, 2007 • 13:30-15:15 *(Room 6)*

Session Chair: Sandra Sloan (*AREVA NP-USA)*

7168 Safety Approach for the Design and the Assessment of Future Nuclear Systems, by C. Clement, B. Maliverney, D. Mulet-Marquis, J.F. Sauvage (*EDF-France*), B. Guesdon, B. Carluec, S. Ehster (*AREVA NP-France*), D. Greneche (*AREVA NC-France*), P. Anzieu, G.L. Fiorini (*CEA-France*), M. Rozenholc, F. Vitton, J.L. Rouyer (*Consultant-France*)

7486 Stochastic Safety Analysis of Natural Circulation Decay Heat Removal in Liquid Metal Reactor, by A. Yamaguchi, S. Wada, T. Takata (*Osaka Univ-Japan*)

7349 Evolutionary Approaches for the Safety Evaluation of the Nuclear Fuel Cycle Facilities: Lessons Learnt from French Experience and Assessment of Future Challenges, by D. Greneche (*AREVA NC-France*)

7066 Application of Best Estimate Methodology to MTR Research Reactors, by A. Bousbia-salah (*Univ of Pisa-Italy*), T. Hamidouche (*Centre de Recherche Nucléaire d'Alger (CRNA)-Algeria*), F. D´Auria (*Univ of Pisa-Italy*)

5.07 Development in Safety Analysis Methodologies for Future Plants-II
Wednesday, May 16, 2007 • 15:30-17:15 *(Room 6)*

Session Chair: Gian-Luigi Fiorini (*CEA-France)*

7111 Development of a PSA Information Management System, by H. Seok, D.K. Kim, S.K. Kang (*KOPEC-Korea*)

7082 Towards Standardizing Uncertainty Estimations in Reactor Safety, by C. Unal, B. Williams, D. Higdon, R. Nelson (*LANL-USA*)

CANCEL 7042 Safety Design of Prototype Fast Breeder Reactor, by S.C. Chetal, P. Chellapandi, P. Mohanakrishnan, C.P. Pillai, P. Puthiyavinayagam, P. Selvaraj, T.K. Shanmugam, C. Sivathanu Pillai (*Indira Gandhi Centre for Atomic Research-India*)

7040 Uncertainty Analysis of the PBMR Reactor Unit Seismic Response, by F. du Plooy (*Pebble Bed Modular Reactor-South Africa*)

5.08 Non-LOCA Plant Analysis and Methodologies
Monday, May 14, 2007 • 13:30-15:15 *(Room 6)*

Session Chairs: Tomasz Kozlowski (*Royal Institute of Technology-Sweden),* Jonathan Birchley (*PSI-Switzerland)*

7478 A Study of Reactor Systems During a Loss of Offsite Electric Power in Forsmark-1 Plant, by S. Roshan, W. Ma, T. Kozlowski, N. Dinh (*Royal Institute of Technology-Sweden*)

7115 Output Signal Analysis for Variation of R-C Passive Elements in the 4~2mA R-L-C Equivalent Circuit Modeling under High Temperature Accident Condition in NPPs, by K.M. Koo, S.B. Kim, H.D. Kim, G.T. Kim (*KAERI-Korea*)

7014 MELCOR Analysis of Loss of Residual Heat Removal during Mid-loop Operation in a Westinghouse Two-loop PWR, by J. Birchley, T.J. Haste (*PSI-Switzerland*), M. Richner (*NOK-Switzerland*)

7555 Validation of CATHENA Fuel Channel Model for Post Blowdown Analysis against High Temperature Thermal-Chemical Experiment for Aged CANDU Fuel Channel, by B.W. Rhee, H.T. Kim, J.H. Park (*KAERI-Korea*)

7213 Development of Additional Module to Neutron-Physic and Thermal-Hydraulic Computer Codes for Coolant Acoustical Characteristics Calculation, by K.N. Proskuryakov, D.N. Bogomazov, N. Poliakov (*Moscow Power Engineering Institute-Russia*)

7432 Simulation Technology to Develop the Automatic Control Rod Operation System in ABWR, by Y. Ishii, A. Fushimi, N. Ishida, H. Ochi, M. Yuzuki, H. Hanami (*Hitachi-Japan*)

5.09 Containment and non-Radiological Inventory

Wednesday, May 16, 2007 • 8:15-10:00 *(Room 6)*

Session Chair: Cesare Frepoli (*Westinghouse-USA)*

7436 Performance Analysis of the Recirculation Sump in Kori 1 NPP for the Resolution of GSI-191, by S.I. Lee, S.W. Kim (*KOPEC-Korea*), J.W. Park (*KHNP-Korea*)

7245 Calculation of Flow Field and Debris Transport during Blowdown/Washdown Phases, by Y.S. Bang, B.G. Huh, I.-S. Lee, I.-G. Kim, S.W. Woo (*KINS-Korea*)

7143 Effects of Debris Source, Chemical Environments, and Design Options on the ECCS Recirculation Sump Performance, by J.W. Park, C.H. Kim, C.K. Moon (*KHNP-Korea*)

7475 Experimental Study of Plant Specific Head Loss Induced by LOCA-generated Debris at Containment Sump of PWR, by Y.W. Chung, Y.M. Hwang, J.U. Kim, B.G. Park, B.C. Lee (*FNC Tech.-Korea*), J.W. Park (*KHNP-Korea*)

7285 Modelling of Nonhomogeneous Atmosphere in NPP Containment Using Lumped-Parameter Model Based on CFD Calculations, by I. Kljenak, M. Babic, B. Mavko (*Jozef Stefan Institute-Slovenia*)

7044 Fragility Analysis for Pressure Capacity of ESBWR Primary Containment System, by R.J. James, L. Zhang, Y.R. Rashid (*ANATECH-USA*), A.S. Liu, B. Gou (*GE Nuclear Energy-USA*)

5.10 Radiological Inventory and Emergency Situations

Tuesday, May 15, 2007 • 17:30-19:15 *(Room 6)*

Session Chair: Christian Clément (*EDF-France)*

7471 CFD Study for Aerosol Deposition in Turbulent Isokinetic Sampling Probe, by S. Hu, A.R. McFarland, Y.A. Hassan (*Texas A&M Univ-USA*)

7425 Development of Dose Assessment Program to Recommend Emergency Protective Actions for Public, by Y.J. Lee, C.H. Lee, C.Y. Chung (*KOPEC-Korea*)

7090 Ruthenium Transport Experiments in Air Ingress Accidents Conditions, by T. Kärkelä, U. Backman, A. Auvinen, R. Zilliacus, M. Lipponen, T. Kekki, U. Tapper (*VTT-Finland*), J.K. Jokiniemi (*VTT, Univ of Kuopio-Finland*)

Track 6.00: Thermal Hydraulic Analysis and Testing

6.01 Advances in Two-Phase Flow & Heat Transfer

Monday, May 14, 2007 • 13:30-15:15 *(Room 14)*

Session Chair: Yassin Hassan (*Texas A&M Univ-USA)*

CANCEL 7562 Natural Circulation in a Liquid Metal One-Dimensional Loop, by G. Benamati, S. De Grandis (*C.R. ENEA Brasimone-Italy*), F. Oriolo, M. Tarantino (*DIMNP, Univ di Pisa-Italy*)

7319 Towards the Prediction of Local Thermal-hydraulics in Real PWR Core Conditions Using NEPTUNE_CFD Software, by M. Boucker, A. Guelfi, S. Mimouni, P. Péturaud (*EDF R&D-France*), D. Bestion, E. Hervieu (*CEA-Grenoble-France*)

7257 Mechanistic Multidimensional Analysis of Two-Phase Flow in Horizontal Tube with 90° Elbow, by E.A. Tselishcheva, S.P. Antal, M.Z. Podowski (*RPI-USA*), S. Marshall (*US NRC-USA*)

7256 Effect of Physical Properties of Fluids at Supercritical Conditions on Local Flow and Heat Transfer in Heated Channels, by T. Gallaway, M.Z. Podowski, S.P. Antal (*Rensselaer Polytechnic Institute-USA*)

6.02 Advances in CHF and Rod Bundle Thermal Hydraulics

Monday, May 14, 2007 • 17:30-19:15 *(Room 14)*

Session Chairs: Hae-Yong Jeong (*KAERI-Korea),* Yassin Hassan (*Texas A&M Univ-USA)*

7549 Thermal Hydraulics Performance Optimization of CANDU Fuel Using ASSERT Subchannel Code, by Y.F. Rao, L.K.H. Leung (*AECL-Canada*)

7233 Subchannel Flow Analysis in CANDU and ACR Pressure Tubes with Radial and Axial Flow Tube Diameter Variation, by A. Catana (*RAAN, Institute for Nuclear Research-Romania*), N. Danila, I. Prisecaru, D. Dupleac (*Univ Politehnica of Bucharest-Romania*), I. Prodea (*RAAN, Institute for Nuclear Research-Romania*)

CANCEL 7332 CFD Analysis of Liquid Metal Cooled Rod Assembly, by H.M. Son, K.Y. Suh (*Seoul National Univ-Korea*)

7269 Inter-Subchannel Heat Transfer Modeling for a Subchannel Analysis of Liquid Metal-Cooled Reactors, by H.-Y. Jeong, K.-S. Ha, Y.-M. Kwon, Y.-B. Lee, D. Hahn (*KAERI-Korea*)

7264 Lessons Learned from the Quench-11 Training Exercise, by J.K. Hohorst, C.M. Allison (*Innovative Systems Software-USA*)

6.03 CFD Applications to Water, Liquid Metal, and Gas Reactors-I

Tuesday, May 15, 2007 • 8:15-10:00 *(Room 14)*

Session Chair: Yassin Hassan (*Texas A&M Univ-USA)*

7216 A Computational Approach for the Performance Prediction of High Temperature Heat Exchangers, by M.-H. Kim, W.-J. Lee, J.-H. Chang (*KAERI-Korea*)

7165 An Effective Convectivity Conductivity Model for Simulation of In-Vessel Core Melt Progression in Boiling Water Reactor, by C.T. Tran, T.N. Dinh (*Institute of Technology-Sweden*)

7092 Development of an Euler-Euler Two-Phase Model for Application in the Windowless XT-ADS Spallation Target Design, by F. Roelofs, N.B. Siccama, S.M. Willemsen (*NRG-The Netherlands*)

7481 Detached Eddy Simulation and Large Eddy Simulation Models for the Simulation of Gas Entrainment, by E. Merzari, H. Ninokata (*Tokyo Insitute of Technlogy-Japan*), E. Baglietto (*CD Adapco-USA*)

7479 Numerical Investigations of Different Geometrical Designs of the Windowless XT ADS Spallation Target, by A. Batta, A. Class (*FZK-Germany*)

6.03 CFD Applications to Water, Liquid Metal, and Gas Reactors-II

Tuesday, May 15, 2007 • 13:30-15:15 *(Room 14)*

Session Chair: Richard F. Wright (*Westinghouse-USA)*

7069 Flow Distribution Analysis in a Nuclear Steam Generator Tube Bundle Using Computational Fluid Dynamics, by J.-I. Kim, J.-W. Jung, M.-Y. Kim (*DOOSAN Heavy Industries & Construction-Korea*)

7448 Feasibility Study on Debris Transport Analysis in Recirculation Mode Using Three Dimensional Computational Fluid Dynamics Code, by S.J. Hong, J. Kim, B.C. Lee (*FNC Tech.-Korea*), J.W. Park (*NETEC-Korea*)

7431 Sensitivity Study of CFD Turbulent Models for Natural Convection Analysis, by Y.S. Park (*KAIST-Korea*)

7310 RANS and URANS Simulations for Accurate Flow Predictions inside Fuel Rod Bundle, by E. Baglietto (*CD-Adapco-USA*)

7075 Test of Large Eddy Simulation Sub-Grid-Scale Models for Flows in Annular Channels, by E. Merzari, H. Ninokata (*Tokyo Institute of Technology-Japan*)

6.04 Separate Effects Thermal Hydraulic Experiments & Analysis-I

Monday, May 14, 2007 • 13:30-15:15 *(Room 13)*

Session Chair: Nusret Aksan *(PSI-Switzerland)*

7510 Numerical Investigation of Sodium-Water Reaction Phenomenon in a Tube Bundle Configuration, by T. Takata, A. Yamaguchi (*Osaka Univ-Japan*), A. Uchibori, H. Ohshima (*JAEA-Japan*)

7361 Heat Transfer and Average Friction Coefficients for Laminar, Transitional and Turbulent Flow of Gas (N2, He, He-N2) in a Cylindrical Tube, by T. Muller, J.M. Sautel, G. Francois (*AREVA NP-France*)

7357 Horizontal-Jets Impinging on the Vertical Wall of a Containment Compartment, by D. Paladino, R. Zboray, P. Benz (*PSI-Switzerland*)

7279 Condensation Heat Transfer on Natural Convection at the High Pressure, by J.W. Kim, H.K. Ahn, G.C. Park (*Seoul National Univ-Korea*)

6.04 Separate Effects Thermal Hydraulic Experiments & Analysis-II

Monday, May 14, 2007 • 17:30-19:15 *(Room 13)*

Session Chair: Nusret Aksan *(PSI-Switzerland)*

7191 HORUS3D/TH: Thermal-Hydraulic Modelling of the Jules Horowitz Reactor Core with FLICA4, by E. Royer, O. Grégoire, J.-P. Magnaud (*CEA-France*), L. Roux, X. Masson (*AREVA TA-France*)

7144 Modeling of High Pressure Steam Condensation in the Presence of Noncondensable Gas in a Vertical Tube with a Secondary Pool Condition, by K.-Y. Lee, M.H. Kim (*Pohang Univ of Science and Technology-Korea*)

7026 Gas Entrainment in Scaled Model of Pool Type LMFBR, by I. Banerjee, L. Chandra, D. Laxman, A. Kumar, C.A. Gopal, N.S. Shivakumar, G. Padmakumar, C. Anand Babu, G. Vaidyanathan (*IGCAR-India*)

6.05 Integral Systems Thermal Hydraulic Experiments-I

Tuesday, May 15, 2007 • 8:15-10:00 *(Room 13)*

Session Chair: Bernard Faydide (*CEA-France)*

7550 Integral Experiment and RELAP5 Analysis for DVI Line Break SBLOCA in APR1400, by B.U. Bae, K.H. Lee, G.C. Park (*Seoul National Univ-Korea*)

7492 Code Validation and Scalation of the LOBI BL-30 Experiment, by P. Pla (*Technical Univ of Catalonia-Spain, Univ of Pisa-Italy*), F. Reventós, C. Pretel (*Technical Univ of Catalonia-Spain*), W. Giannotti, F. D'Auria (*Univ of Pisa-Italy*), A. Annunziato (*Joint Research Centre of the European Commission-Italy*), I. Sol (*Associació Nuclear Ascó-Vandellòs II-Spain*)

7453 Effect on Code Predictions by Changing the Code Version of Relap5 on SBLOCA for Test 9.1B in BETHSY Test Facility, by S.K. Dubey (*AERB-India*), A. Petruzzi, W. Giannotti, F. D'Auria (*Univ of Pisa-Italy*), S.K. Gupta (*AERB-India*)

7202 PSB-VVER Experimental and Analytical Investigation of Station Blackout Accident in VVER-1000, by I.A. Lipatov, A.V. Kapustin, S.M. Nikonov, A.A. Rovnov, A.V. Basov (*EREC-Russia*), I.V. Elkin (*Kurchatov Institute-Russia*)

7131 An Experimental Study on Natural Draft-dry Cooling Tower as Part of the Passive System for the Residual Decay Heat Removal, by G. Caruso, M. Fatone, A. Naviglio (*Univ of Rome, La Sapienza-Italy*)

6.05 Integral Systems Thermal Hydraulic Experiments-II

Tuesday, May 15, 2007 • 17:30-19:15 *(Room 14)*

Session Chairs: Nusret Aksan *(PSI-Switzerland),* Bernard Faydide (*CEA-France)*

7490 CATHARE 2 Prediction of Large Primary to Secondary Leakage (PRISE) at PSB-VVER Experimental Facility, by L. Sabotinov, P. Chevrier (*IRSN-France*)

7222 Numerical Modeling of the OSU MASLWR Test Facility using RELAP5-3D, by B.G. Woods (*Oregon State Univ-USA*)

7091 Thermal-Hydraulic Experimental Investigations on Safety of NPP with VVER, by S.M. Nikonov, A.V. Kapustin, A.A. Rovnov, I.A. Lipatov, A.V. Basov, I.V. Elkin, S.S. Pylev (*EREC-Russia*)

7073 Capability of the Best Estimate Code RELAP5/MOD3.2 to Analyze the Steady State and Stability of Boiling Two-Phase Natural Circulation Systems, by M.R. Gartia, A.K. Nayak, P.K. Vijayan, D. Saha, R.K. Sinha (*BARC-India*)

6.06 Systems Analysis & Assessment-I

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 14)*

Session Chair: Francesco D'Auria (*Univ di Pisa-Italy)*

7434 Hydrogen Distribution Analysis for PHWR Containment and Inter-Code Comparison, by R.S. Rao, D.B. Nagrale (*AERB-India*), S. Kumar, S.C. Utkarsh, S.K. Gupta (*Nuclear Power Corporation Limited-India*)

7321 Numerical Simulation of the Restart of the Cooling System in a Storage Pool Under Boiling Conditions, by P. Aude, M. Sakiz, I. Rupp (*EDF-France*)

7459 Assessment of Fuel Damage of Pool Type Research Reactor in The Case of Fuel Plates Blockage, by J. Jafari, S. Khakshournia (*AEOI-Iran*), F. D'Auria (*Univ of Pisa-Italy*)

7373 Application of Fractional Scaling Analysis and Local Scaling to Design a Test Facility of IRIS Pressurizer, by D.A. Botelho, P.A.B. De Sampaio, M. de Lourdes Moreira (*Instituto de Engenharia Nuclear-Brazil*), A.C.O. Barroso (*Instituto de Pesquisas Energéticas e Nucleares-Brazil*)

7164 Analysis of Post-LOCA Long Term Cooling Performance and Effect of Recirculation Flow, by B.G. Huh, Y.S. Bang, D.Y. Oh, I.G. Kim, S.W. Woo (*KINS-Korea*)

6.06 Systems Analysis & Assessment-II

Wednesday, May 16, 2007 • 15:30-17:15 *(Room 14)*

Session Chair: Bernard Faydide (*CEA-France)*

7116 Evaluation of a Coolant Injection into the In-Vessel with a RCS Depressurization using SCDAP/RELAP5, by R.J. Park, S.B. Kim, H.D. Kim (*KAERI-Korea*)

7048 Studies on Scaled Models for Gas Entrainment in the Surge Tank of LMFBR, by D. Ramdasu, N.S. Shivakumar, G. Padmakumar, C. AnandBabu, G. Vaidyanathan (*IGCAR-India*), S. Rammohan, S.K Sreekala, S. Manikandan, S. Saseendran (*Fluid Control Research Institute-India*)

7217 Application of Three-Dimensional Thermal-Hydraulic Code BAGIRA for Modeling Complex Two-Phase Flows in Primary and Secondary Circuits of NPP's with VVER-1000, by S.D. Kalinichenko, A.E. Kroshilin, A.V. Smirnov (*VNIIAES-Russia*), V.E. Kroshilin (*Moscow State Univ-Russia*), P. Kohut (*BNL-USA*)

7050 Validation of the ATHLET System Code on Integral Experimental Facilities, by J. Macek, R. Meca, M. Bencik, F. Lahovsky (*Nuclear Research Institute Rez-Czech Republic*)

6.07 Thermal Hydraulics Measurement and Modeling Fundamentals

Wednesday, May 16, 2007 • 8:15-10:00 *(Room 14)*

Session Chairs: T. Takata (*Osaka Univ-Japan),* Yassin Hassan (*Texas A&M Univ-USA)*

7334 Time Resolved Particle Image Velocimetry Measurements Inside a Packed Bed Reactor, by E.E. Dominguez - Ontiveros, C. Estrada-Perez, Y. Hassan (*Texas A&M Univ-USA*)

7170 Characterization of TiO2 Agglomerates for the Investigation of Aerosol Behaviour in a Steam Generator Tube Rupture Event, by T. Lind, S. Danner, D. Suckow, S. Güentay (*PSI-Switzerland*), U. Tapper, A. Auvinen (*VTT-Finland*)

7114 Water Level Gauging in a Bellows Tube by Combination of a Special Shoe and a Position Control System, by K.M. Koo, S.B. KIM, Y.G. Cho, H.S. Jung, I.C. Lim, C.S. Park (*KAERI-Korea*)

7480 Operating and Mathematical Representation of Resonances between Flow Parameters Oscillations and Structure Vibrations of NPP, by K.N. Proskuryakov, S. Yang, E. Afshar, N.I. Polyakov (*MPEI-Russia*)

7061 Modification of Godunov Computation Method for Modeling Non-Stationary Gas-Liquid Flow, by B.L. Kantsyrev (*Research Institute for Nuclear Power Plant Operation-Russia*)

CANCEL 7008 Two-layer Model of Impurities Distribution in Flow Boiling, by G.R. Jahanfarnia (*Islamic Azad Univ-Iran*)

6.08 System Simulation Models and Codes-I

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 13)*

Session Chair: Bernard Faydide (*CEA-France)*

CANCEL 7331 Development of Computer Code for Steam Turbine System Control, by Y.H. Yoo (*PHILOSOPHIA, Seoul National Univ-Korea*), S.H. Cho, H.W. Lee (*Seoul National Univ-Korea*), K.Y. Suh (*PHILOSOPHIA, Seoul National Univ-Korea*), J.Y. Yoo (*Seoul National Univ-Korea*)

7323 Assessment of Rod-To-Rod Thermal Radiation Heat Transfer Contribution During Reflood in PWR Fuel Assemblies, by C. Frepoli (*Westinghouse-USA*)

7189 Qualification of the 3D Thermal-Hydraulics Model of the Code System TRACE Based on Plant Data, by V.H. Sanchez, W. Jäger (*Forschungszentrum Karlsruhe-Germany*), T. Kozlowski (*Royal Institute of Technology -KTH Stockholm-Sweden*)

7086 A New Algorithm Soar of the Coupled Solver for an Incompressible Flow, by T. Morii (*JNES-Japan*)

6.08 System Simulation Models and Codes-II

Wednesday, May 16, 2007 • 15:30-17:15 *(Room 13)*

Session Chair: Nusret Aksan (PSI-Switzerland)

7551 Development of Computational Two-phase Flow Analysis Code with Interfacial Area Transport Equation, by B.U. Bae (*Seoul National Univ-Korea*), H.Y. Yoon, D.J. Euh, C.H. Song (*KAERI-Korea*), G.C. Park (*Seoul National Univ-Korea*)

7539 Relating System-to-CFD Coupled Code Analyses to Theoretical Framework of a Multiscale Method, by F. Cadinu, T. Kozlowski, T.-N. Dinh (*Royal Institute of Technology-Sweden*)

7363 Development of a Versatile Plant Simulation Code with PC, by H. Mochizuki (*JAEA-Japan*)

7314 Recent Heat Transfer Improvements to the RELAP5-3D Code, by R.A. Riemke, C.B. Davis, C.H. Oh (*INL-USA*)

6.10 Thermal Hydraulics of BWR Systems
Wednesday, May 16, 2007 • 8:15-10:00 *(Room 13)*

Session Chairs: Francesco D'Auria (*Univ di Pisa-Italy),* Nusret Aksan *(PSI-Switzerland)*

7483 Development and Validation of an Extended Two-Phase Computational Fluid Dynamics Model for the Analysis of Boiling Flow in Reactor Fuel Assemblies, by A. Tentner, D. Pointer, T. Sofu, D. Weber (*ANL-USA*), S. Lo, A. Splawski (*CD Adapco-UK*)

7276 Thermal-Hydraulic Stability Analysis of a Natural Circulation BWRs, by R. Hu, J. Zhao, S.-P. Kao, M.S. Kazimi (*MIT-USA*)

7074 Reliability Analysis of a Boiling Two-phase Natural Circulation System Using the APSRA Methodology, by A.K. Nayak, M.R. Gartia, A. Anthony, G. Vinod, R.K. Sinha (*BARC-India*)

6.11 Thermal Hydraulics of SCWR Systems
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 11)*

Session Chair: Nusret Aksan (PSI-Switzerland)

7271 Prediction and Analysis of Onset of Turbulent Convective Heat Transfer Deterioration in Supercritical Water Flows, by H. Anglart (*KTH-Sweden*), T. Gallaway, S.P. Antal, M.Z. Podowski (*RPI-USA*)

7089 Secondary Flows in the Cooling Channels of the High-Performance Light-Water Reactor, by E. Laurien, T. Wintterle (*Univ of Stuttgart-Germany*)

7043 CFD Validation of a Supercritical Water Flow for SCWR Design Heat and Mass Fluxes, by F. Roelofs, J.A. Lycklama à Nijeholt, E.M.J. Komen (*NRG-The Netherlands*), M. Löwenberg, J. Starflinger (*FZK-Germany*)

7223 Heat Transfer to Water at Supercritical Pressures, by J.R. Licht, M.H. Anderson, M.L. Corradini (*Univ of Wisconsin at Madison-USA*)

Track 7.00: Core and Fuel Cycle Concepts and Experiments

7.01 Partitioning and Transmutation Issues-I
Monday, May 14, 2007 • 13:30-15:15 *(Room 7)*

Session Chairs: Hervé Masson (*AREVA NC-France),* Toshikazu Takeda (*Osaka Univ-Japan)*

7523 Effect of Spectral Characterization of Gaseous Fuel Reactors on Transmutation and Burning of Actinides, by C. Fung, S. Anghaie (*Univ of Florida-USA*)

7457 Red-Impact: A European Research Programme to Assess the Impact of Partitioning and Transmutation on Nuclear Waste Reduction, by W. von Lensa (*FZJ-Germany*), L. Boucher (*CEA-France*), E. Gonzales (*CIEMAT-Spain*), D. Greneche (*AREVA NC-France*), W. Gudowski (*KTH-Sweden*), J. Marivoet (*SCK.CEN-Belgium*), R. Nabbi (*FZJ-Germany*), R. Odoj (*FZJ-Germany*), C.H. Zimmerman (*Nexiasolutions-United Kingdom*)

7382 Economic Assessment of Partitioning, Transmutation and Waste Reduction Technologies, by U. Lauferts, A. van Heek, J. Hart (*NRG-Netherlands*)

7181 PUMA - Plutonium and Minor Actinides Management in Thermal High-Temperature Reactors, by J.C. Kuijper (*NRG-The Netherlands*)

CANCEL 7034 Preparation of Ferrocyanide Molybdate and Their Selective Uptake Properties for Palladium and Cesium Ions, by H. Mimura, A. Asakura, Y. Wu, Y. Niibori, M. Ozawa (*Tohoku Univ-Japan*)

7.01 Partitioning and Transmutation Issues-II

Monday, May 14, 2007 • 17:30-19:15 *(Room 7)*

Session Chairs: Dominique Greneche (*AREVA NC-France),* James Tulenko (*Univ of Florida-USA)*

7322 Preliminary T/H and Transient Analyses for EFIT Reactor Design, by G. Bandini (*ENEA-Italy*), M. Casamirra, G. Castiglia (*Univ di Palermo-Italy*), L. Mansani (*ANSALDO-Italy*), P. Meloni, M. Polidori (*ENEA-Italy*)

7293 TRANSURANUS Modelling of Irradiated Inert Matrix Fuels from Halden IFA-652 Experiment, by R. Calabrese, F. Vettraino (*ENEA-Italy*), T. Tverberg (*OECD Halden Reactor Project-Norway*)

7183 Status and Future Application of Pilot Lead-Bismuth Target Circuit TC-1 for ADS, by S. Ignatiev, M. Leonchuk, Y. Orlov, D. Pankratov, G. Suvorov (*IPPE-Russia*), A. Hechanova, J. Ma (*Univ of Nevada, Las Vegas-USA*), N. Li (*LANL-USA*)

7176 Sensitivity Study of the Unprotected Loss-of-Flow Accident for the EFIT Reactor, by R. Bolado Lavín, J. Carlsson (*Institute for Energy, DG-JRC-EC*)

7080 The Effect of Ln(III)/An(III) Separation on TRU Multi-Recycling in CONFU Assembly, by E. Fridman, E. Shwageraus (*Ben-Gurion Univ of the Negev-Israel*)

7.02 Spent Fuel Recycling Technologies

Tuesday, May 15, 2007 • 8:15-10:00 *(Room 7)*

Session Chair: Philippe Bossard (*CEA-France)*

7197 Moving Towards Industrialization - The Strategy Behind the Science and Engineering of Pyrochemistry in Nexia Solutions, by R. Lewin, G. Fairhall, D. Farrant (*Nexia Solutions-UK*)

7482 Activities of OECD/NEA Expert Group on Assay Data of Spent Nuclear Fuel, by Y. Rugama (*OECD NEA-France*), K. Suyama (*JAEA-Japan*), M. Brady Raap (*PNNL-USA*)

7253 R&D on Fluoride Volatility Method for Reprocessing of LWR and FR Oxide-type Fuels, by J. Uhlíř, M. Mareček, M. Přeček (*Nuclear Research Institute Rez-Czech Republic*)

7151 Uranium Removal Processing for an Advanced Fuel Cycle System, the Flexible Fuel Cycle Initiative (FFCI), by K. Hoshino, K. Fujimura, A. Sasahira, T. Fukasawa, J. Yamashita (*Hitachi-Japan*)

7.03 Strategies for Sustainable Fuel Cycle-I

Tuesday, May 15, 2007 • 13:30-15:15 *(Room 7)*

Session Chairs: Dominique Greneche (*AREVA NC-France),* Didier Hass (*ITU-EU)*

7174 A Silicon Carbide Inert Matrix Fuel for Plutonium Disposition, by J. Wang, J.S. Tulenko (*Univ of Florida-USA*)

7496 Trends on Future Energy Needs and Implication on Uranium Demand, by M. Delpech, F. Thais, C. Loaec, A. Bashwitz (*CEA Saclay-France*), A. Vasile (*CEA Cadarache-France*)

7367 Rethinking the Thorium Fuel Cycle: An Industrial Point of View, by D. Greneche, W.J. Szymczak, J.M. Buchheit (*AREVA-France*), M. Delpech, A. Vasile, H. Golfier (*CEA-France*)

7288 Evaluation of Various Fuel Cycles to Control Inventories of Plutonium and Minor Actinides in Advanced Fuel Cycles, by L.F. Miller, T. Anderson, J. Preston, M. Humberstone, J. Hou, J. McConn (*Univ of Tennessee-USA*), L. Van Den Durpel (*ANL-USA*)

7.03 Strategies for Sustainable Fuel Cycle-II
Tuesday, May 15, 2007 • 17:30-19:15 *(Room 7)*

Session Chairs: Marc Delpech (*CEA-France),* Temitope Taiwo (*ANL-USA)*

7173 HTR Performances for Pu and Waste Management, by L. Buiron (*CEA-France*), D. Greneche, H. Mouliney (*AREVA-NC/DRI-France*)

7103 Isotopic Nuclear Reactor with On-line Separation, by L. Popa-Simil (*Consultant-USA*)

7441 Breeding and Void Reactivity Performances of Different Driver Fuel on Water Cooled Thorium Reactor, by S. Permana, N. Takaki, H. Sekimoto (*Tokyo Institute for Technology-Japan*)

7033 TRIGA Spent Fuel Bundles Safe Storage, by G. Negut, S. Covaci (*Institute for Nuclear Research-Romania*), I. Prisecaru, D. Dupleac (*Univ Politehnica Bucharest-Romania*)

Track 8.00: Materials and Structural Issues

8.01 Materials and Structures Testing and Analysis-I
Monday, May 14, 2007 • 13:30-15:15 *(Room 4)*

Session Chairs: Changheui Jang (*KAIST-Korea),* Wolfgang Hoffelner (*PSI-Switzerland)*

7333 Post Irradiation Examination of the Lower Part of the Phebus FPT2 Degraded Bundle, by D. Bottomley (*ITU Karlsruhe-Germany*), S. Schlutig (*IRSN-France*), S. Brémier (*ITU Karlsruhe-Germany*), M. Barrachin, A. De Bremaecker (*IRSN-France*), C.T. Walker, J.-P. Glatz, D. Papaioannou, J-L. Arnoult, D. Baudot, Th. Romero (*ITU Karlsruhe-Germany*), B. Simondi-Teissière (IRSN-France)

7320 Heat Capacity in Two-phase Fields and Heat of Phase Transitions of Some Alloys in Zr-Nb and Zr-Sn Systems, by S.G. Popov, V.N. Proselkov (*Kurchatov Institute-Russia*)

7371 Long Duration Performance of High Temperature Irradiation Resistant Thermocouples, by J.L. Rempe, D.L. Knudson, K.G. Condie, J.I. Cole (*INL-USA*), S.C. Wilkins (*Consultant-USA*)

7243 Wear Mechanism between Alloy 600 and SS 409 by Fretting Including Impact and Sliding Motion at High Temperature Conditions, by J.K. Lee, C. Yong, T.R. Kim (*KEPRI-Korea*)

7139 IGSCC Mitigation Technology in BWR, by Y.-J. Kim (*GE Global Research Center-USA*)

8.01 Materials and Structures Testing and Analysis-II
Tuesday, May 15, 2007 • 13:30-15:15 *(Room 4)*

Session Chairs: Kunihiro Itoh (*Nuclear Development Corp-Japan),* Céline Cabet (*CEA-France)*

7261 Examination of Parameters Affecting Overload Fracture Behavior of Flaw-Tip Hydrides in Zr-2.5Nb Pressure Tubes in CANDU Reactors, by J. Cui, G.K. Shek (*Kinectrics-Canada*), Z.R. Wang (*Univ of Toronto-Canada*)

7122 An Integrated Deterministic Model for Activity Build-up and Corrosion Phenomena in LWRs, by I.G. Betova (*Institute of Electrochemistry and Energy Systems-Bulgaria*), M.S. Bojinov (*Univ of Chemical Technology and Metallurgy-Bulgaria*), P.E. Kinnunen, J. Lehikoinen (*VTT-Finland*), K. Lundgren (*ALARA Engineering AB-Sweden*), T. Saario (*VTT-Finland*)

7076 Influence of the Silicon Compounds on the SA 508 Corrosion in High Temperature and Pressure Water, by D. Lucan, M. Fulger (*Institute for Nuclear Research-Romania*), G. Lucan (*Academy of Economic Studies-Romania*)

7003 New Materials for Decreasing of Radioactive Iodine in the Water Coolant on the Working and New Developed NPPs, by S.A. Kulyukhin, L.V. Mizina, I.A. Rumer, E.P. Krasavina (*Russian Academy of Sciences-Russia*), V.M. Meshkov, A.A. Noskov (*ROSENERGOANOM-Russia*)

8.02 Materials and Structures Modeling-I

Tuesday, May 15, 2007 • 8:15-10:00 *(Room 4)*

Session Chairs: Ram Srinivasan (*Energy Solutions-USA),* Françoise Touboul (*CEA-France)*

7336 Calculation of Deuteron Interactions within Microcracks of a D2 Loaded Crystalline Lattice at Room Temperature, by F. Frisone (*Univ of Catania-Italy*)

7045 Stress Concentration Analysis of RV Capped CEDM Nozzle Threaded Joint in APR1400, by S.H. Kim, J.M. Kim, M.K. Park (*Doosan Heavy Industries & Construction-Korea*)

7157 Method of Determination of Thermoacoustic Coolant Instability Boundaries in Core Reactor at NPPs with WWER, by V.I. Skalozubov, V.N. Kolykhanov (*SPC Energoatom-Ukraine*), Yu.L. Kovrigkin (*Department of Fuel and Energy-Ukraine*)

8.02 Materials and Structures Modeling-II

Tuesday, May 15, 2007 • 17:30-19:15 *(Room 4)*

Session Chairs: Ram Srinivasan (*Energy Solutions-USA),* D. Acker (*CEA-France)*

7495 Structural Modules in AP1000 Plant Design, by N. Prasad, L. Tunon-Sanjur (*Westinghouse-USA*)

7356 Analytical and Experimental Studies of Fretting-corrosion and Vibrations of Fuel Assemblies of a VVER-1000 Water Cooled and Water Moderated Power Reactor, by Yu.N. Drozdov (*IMASH Machine Study Institute-Russia*), Al.A. Tutnov, A.A. Tutnov, E.E. Alexeyev (*Kurchatov Institute-Russia*), V.V. Makarov, A.V. Afanasyev (*Gidropress-Russia*)

7241 Orbital Vibratory Motion of a Fuel Rod in a 5x5 Partial Fuel Assembly in a Confined Axial Flow, by K.-H. Lee, K.-H. Yoon, J.-Y. Kim, K.-N. Song, D.-S. Oh (*KAERI-Korea*)

7077 Experimental Evidence of Imperfection Influence on the Buckling of Thin Cylindrical Shell under Uniform External Pressure, by G. Forasassi, R. Lo Frano (*DIMNP, Univ of Pisa-Italy*)

8.03 Material Issues for Next Generation Plants: Design and Analysis-I

Wednesday, May 16, 2007 • 8:15-10:00 *(Room 4)*

Session Chairs: Pascal Yvon (*CEA-France),* D. Acker (*CEA-France)*

7123 Surface Film Electrochemistry of AISI316 Stainless Steel and its Constituents in Supercritical Water, by I. Betova (*Institute of Electrochemistry and Energy Systems-Bulgaria*), M. Bojinov (*Univ of Chemical Technology and Metallurgy-Bulgaria*), P. Kinnunen, V. Lehtovuori, S. Penttilä, T. Saario (*VTT-Finland*)

7419 Oxidation Characteristics of Nickel-base Superalloys at High Temperature in Air and Helium Atmospheres, by D. Lee, D. Kim, C. Jang (*KAIST-Korea*)

7374 Super ODS Steels R&D for Cladding of Highly Efficient Nuclear Plants, by A. Kimura (*IAE, Kyoto Univ-Japan*), H. Cho, N. Toda (*Kyoto Univ-Japan*), R. Kasada, H. Kishimoto, N. Iwata (*IAE, Kyoto Univ-Japan*), S. Ukai, S. Ohnuki (*Japan Nuclear Cycle Development Institute-Japan*), T. Fujisawa (*Kobelco Research Institute, INC-Japan*)

7192 Benchmark CEA - AREVA NP - EDF of the Corrosion Facilities for VHTR Material Testing, by C. Cabet, A. Terlain (*CEA-France*), G. Girardin, D. Kaczorowski (*AREVA NP-France*), M. Blat, J.L. Séran (*EDF R&D-France*), S. Dubiez Le Goff (*AREVA NP SAS-France*)

8.03 Material Issues for Next Generation Plants: Design and Analysis-II

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 4)*

Session Chairs: Hong Pyo Kim (*KAERI-Korea),* Céline Cabet (*CEA-France)*

7102 Micro-hetero Fuel Structure with Minimized Radiation Damage, by L. Popa-Simil (*Consultant-USA*)

7407 Assessment of Corrosion in Liquid NaK Systems, by J. Zhang, T.F. Marcille (*LANL-USA*)

7396 Sulfuric Acid Corrosion Behaviour of the Materials for the NHDD Project, by H.P. Kim, D.-J. Kim, H.C. Kwon, W.S. Ryu, Y.W. Kim (*KAERI-Korea*)

7284 Corrosion Behavior of Al-Fe-Sputtering-Coated Steel, High Chromium Steels, Refractory Metals and Ceramics in High Temperature Pb-Bi, by A.K. Rivai, M. Takahashi (*Tokyo Institute of Technology-Japan*)

7211 Effects of Surface Roughness, Shot Peening, and Plasma-Assisted Elemental Surface Modification on Corrosion Resistance of Steels for use in Lead-Alloy Cooled Fast Reactors, by M. Machut, K. Sridharan (*Univ. of Wisconsin-Madison-USA*), N. Li (*LANL-USA*), T. Allen (*Univ. of Wisconsin-Madison-USA*)

8.03 Material Issues for Next Generation Plants: Design and Analysis-III

Wednesday, May 16, 2007 • 15:30-17:15 *(Room 4)*

Session Chairs: Woo-Seog Ryu (*KAERI-Korea),* S. Pascal (*CEA-France)*

7447 Material Development for Supercritical Water-cooled Reactors, by H. Matsui, Y. Sato (*Tohoku Univ-Japan*), N. Saito, F. Kano, K. Ooshima (*Toshiba-Japan*), J. Kaneda, K. Moriya (*Hitachi-Japan*), S. Otsuka (*JAEA-Japan*), Y. Oka (*The Univ of Tokyo-Japan*)

7571 Preliminary Results From High Temperature Scoping Irradiation Experiments of Selected Gen IV Structural Metallic Materials, by R.K. Nanstad, D.A. McClintock, D.T. Hoelzer (*ORNL-USA*)

7449 Irradiation of Hydride Fuels in JMTR, by K. Konashi, B. Tuchiya, M. Narui (*Tohoku Univ-Japan*), S. Sozawa, S. Sampei (*Japan Atomic Energy Agency-Japan*), M. Yamawaki (*Tokai Univ-Japan*), K. Itoh (*Nuclear Development Corporation-Japan*)

7302 Creep Curves Modeling of the Hastelloy-X alloy Using the Theta Projection Method, by W.G. Kim, S.-N. Yin (*KAERI-Korea*), W.-S. Ryu (*Soong-sil Univ-Korea*), J.-H. Chang (*KAERI-Korea*)

7021 Irradiation Property of High Cr Ferritic/Martensitic Steel, by W.S. Ryu, S.H. Kim, W.G. Kim, K.N. Choo, J. Chang (*KAERI-Korea*)

8.05 Structural Mechanics Issues for Next Generation Plants

Tuesday, May 15, 2007 • 13:30-15:15 *(Room 10)*

Session Chairs: Stephane Marie (*CEA-France),* Ram Srinivasan (*Energy Solutions-USA)*

7500 Material Properties of Stainless Steels Modified with Addition of Zirconium for Supercritical Water-Cooled Reactor, by J. Kaneda, S. Kasahara, J. Kuniya (*Hitachi-Japan*), F. Kano (*Toshiba-Japan*), H. Takahashi (*Hokkaido Univ-Japan*), H. Matsui (*Tohoku Univ-Japan*)

7439 HAZ Impact Properties of SA-516 Gr.70 Weld, and Comparison of HAZ Impact Test Requirements in ASME Sec. III, RCC-M and KEPIC MN Code, by J. Hong, J. Park, J. Lee, B. Park (*Korea Institute of Machinery & Materials-Korea*), S. Yoon (*Korea Electric Association-Korea*)

7379 Design of Uniaxial and Multiaxial Fatigue Test Specimens for Characterization of the PBMR Core Structures' Graphite, by J.G. Roberts, M.N. Mitchell (*North-West Univ, Potchefstroom-South Africa*)

7289 Fluid Free Surface Effect on the Vibration Analysis of Cylindrical Shells, by A.A. Lakis, G. Brusque (*Ecole Polytechnique of Montreal-Canada*), M. Toorani (*Iran Univ of Science and Technology-Iran*)

7081 Large Airplane Crash on a Nuclear Plant, by G. Petrangeli, G. Forasassi (*Univ of Pisa-Italy*)

Track 9.00: Nuclear Energy and Sustainability including Hydrogen, Desalination and Other Applications

9.01 The Use of Nuclear Energy for non-Electrical Applications-I

Tuesday, May 15, 2007 • 13:30-15:15 *(Room 9)*

Session Chair:

7577 Status of the INERI Sulfur-Iodine Integrated-Loop Experiment, by P. Pickard (*Sandia National Lab-USA*), P. Carles (*CEA-France*), R. Buckingham (*General Atomics-USA*), G. Besenbruch (*General Atomics-USA*)

7529 Power Requirements at the VHTR/HTE Interface for Hydrogen Production, by R.B. Vilim (*ANL- USA*)

7016 A Dynamic Study on the Sulfuric Acid Distillation Column for VHTR-assisted Hydrogen Production Systems, by Y. Shin, H. Shin, J. Jang, K. Lee, J. Chang (*KAERI-Korea*)

9.01 The Use of Nuclear Energy for non-Electrical Applications-II

Tuesday, May 15, 2007 • 17:30-19:15 *(Room 9)*

Session Chair:

7462 Preliminary Design and Development of a Key Component of the Iodine Sulfur Thermochemical Cycle: The SO3 Decomposer, by G. Rodriguez, J.C. Robin, L. Cachon (*CEA /Cadarache-France*), P. Tochon, P. Bucci, V. Chaumat, O. Gillia (*CEA/Grenoble-France*), A. Terlain (*CEA/Saclay-France*)

7427 Nuclear Power for Commercial High-Speed Sealift, by A.J. Donaldson, S. Holiday (*Rolls-Royce-UK*)

7138 Effect of Electrolyzer Configuration and Performance on Hybrid Sulfur Process Net Thermal Efficiency, by M.B. Gorensek (*Savannah River National Laboratory-USA*)

7070 Economic Evaluation of Dual Purpose Desalination Plants by Fuel Type in Korea, by S.-S. Kim, M.-K. Lee (*KAERI-Korea*)

9.02 Economics of Nuclear Systems

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 9)*

Session Chair:

7569 Smaller Sized Reactors Can Be Economically Attractive, by M.D. Carelli, B. Petrovic, C. Mycoff (*Westinghouse-USA*), P. Trucco, M.E. Ricotti, G. Locatelli (*Polytechnic of Milan-Italy*)

7503 A Comparative Dynamic Analysis of the Economics and Radioactive Waste Management of the Fast Reactor Cycles with Different Coolants, by H. Shiotani, K. Mukaida (*JAEA-Japan*), M. Heta, N. Yasumatsu (*NESI Inc.-Japan*), K. Ono (*JAEA-Japan*)

7266 Development of a Tool for Comparing Different Nuclear Power Reactor Technologies: Mexican Choice, by C. Martin-del-Campo, J. L. Francois, R. Reyes (*Univ Nacional Autónoma de México*)

7239 Top-down and Bottom-up Approaches for Cost Estimating New Reactor Designs, by P. Berbey (*EDF-France*), G.M. Gautier (*CEA-France*), D. Duflo, J.L. Rouyer (*Consultant-France*)

9.03 Long-term Deployment-I
Monday, May 14, 2007 • 13:30-15:15 *(Room 9)*

Session Chair:

7582 How and When 4th Generation Nuclear Systems Could Deploy?, by H. Safa, B. Bonin (*CEA Saclay-France*)

7572 Social Responsibility (SR) of Nuclear Research and its Practice for Pursuing Integrity and Sustainability of Nuclear Research with Society, by T. Sawada, N. Yamano, Y. Aoyama, A. Shioda, J. Mizuo, Y. Fujii (*Tokyo Inst. Tech-Japan*)

7443 Cost-benefit Analysis of Multi-regional Nuclear Energy Systems Deployment, by L.G.G. Van Den Durpel, D.C. Wade, A.M. Yacout (*ANL-USA*)

7136 Design and Deployment Strategies for Small and Medium Sized Reactors (SMRs) to Overcome Loss of Economies of Scale and Incorporate Increased Proliferation Resistance, by V. Kuznetsov (*IAEA-Austria*)

7101 Nuclear Energy as almost Unique Alternative for Future Clean Reliable Power, by L. Popa-Simil (*Consultant-USA*)

9.03 Long-term Deployment-II
Monday, May 14, 2007 • 17:30-19:15 *(Room 9)*

Session Chair:

7570 Iran's Sustainable Development and the Need to a Reform in Energy Consumption Policy, by S.M.J. Mortazavi, Z. Hashemi (*Rafsanjan Univ-Iran*)

7236 Designed and Operational Characteristics of the AMBIDEXTER-NEC with Uranium-Reduced DUPIC Fuel Material, by S.K. Oh, Y.J. Lee, H.S. Kim, T.G. Ham, M.H. Seo (*Ajou Univ-Korea*)

7221 Advanced Safeguards Research and Development Plan with an Emphasis on Its Impact on Nuclear Power-Plant Design, by S.J. Tobin, S.F. Demuth, M.C. Miller, M.T. Swinhoe, K.E. Thomas (*LANL-USA*)

7096 ISTC: Experimental and Technology Programs Toward Novel Reactor Concepts, by L.V. Tocheny (*ISTC-Russia*)

Track 10.00: Near-Term Deployment Context Issues

10.01 R&D Programs - Nuclear Technology Innovation
Monday, May 14, 2007 • 13:30-15:15 *(Room 10)*

Session Chair: Kazuaki Matsui *(IAE-Japan)*

7010 EURATOM Research Framework Programmes on Reactor Systems, by M. Deffrennes, M. Hugon, P. Manolatos, G. Van Goethem, S. Webster (*European Commission*)

7020 Innovation in Nuclear Energy Technology, by T. Dujardin, E. Bertel (*OECD/NEA-France*), K.S. Lee (*KAERI-Korea*), K. Foskolos (*PSI-Switzerland*)

7429 Use of Virtual Environments to Reduce the Construction Costs of the Next Generation Nuclear Power Reactors, by V.E. Whisker, A.J. Baratta (*Penn State Univ-USA*)

LATE CANCEL 7005 EPRI Activities in Support of New Nuclear Plant Deployment, by T. Mulford (*EPRI-USA*)

10.02 National Nuclear Outlooks
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 10)*

Session Chair: Richard F. Wright (*Westinghouse-USA)*

7318 Romanian Network of Nuclear Education RONEN, by P. Ghitescu, I. Prisecaru, D. Dupleac (*Univ Politehnica of Bucharest-Romania*)

7473 Introducing Nuclear Power into Currently Non-nuclear States, by G. Claassen (*PBMR-South Africa*)

7268 Deriving Human Resource Requirements for New Nuclear Plants, by C.T. Goodnight (*Goodnight Consulting-USA*)

10.03 Multinational Approaches - Public Acceptance
Wednesday, May 16, 2007 • 15:30-17:15 *(Room 10)*

Session Chair: Alain Calamand (*AREVA NP-France)*

7062 A Comparison of International Regulatory Organizations and Licensing Procedures for New Nuclear Power Plants, by A. Bredimas, W.J. Nuttall (*Univ of Cambridge-UK*)

7249 A Non-Traditional Multinational Approach to Construction Inspection Program, by R. Srinivasan (*EnergySolutions-USA*), M.E. Smith, T.F. Walker (*STP Nuclear Operating Company-USA*)

7188 An Apparent Dichotomy in Public Opinion Pertaining to the Acceptance of Future Nuclear Power in the U.S., by K.E. Holbert (*Arizona State Univ-USA*)

7094 The Communication of Value the and Public Acceptance of Nuclear Plants, by J. Apparecido Ribeiro Jr., A.C. de Oliveira Barroso, K. Imakuma (*IPEN-Brazil*)

7595 European Utility Requirements (EUR), by K.-F. Ingemarsson (*Vattenfall AB-Sweden*)

Track 11.00: Reactor Physics and Analysis

11.01 Cross-section Libraries, Monte-carlo and Deterministic Transport Calculation
Wednesday, May 16, 2007 • 13:30-15:15 *(Room 10)*

Session Chairs: Anne Nicolas (*CEA-France),* Dubravko Pevec (*Univ of Zagreg-Croatia)*

7018 Los Alamos Science Center Contributions to the Development of Future Nuclear Power Reactors, by A. Gavron, T. Hill, E. Pitcher, F. Tovesson (*LANL-USA*)

7568 Nuclear Data Sensitivity Calculations on Void Effect with Advanced CANDU Fuel Projects, by I. Prodea, C.A. Margeanu, A. Rizoiu (*Institute for Nuclear Research-Romania*)

7380 Review of the TRIPOLI4 Monte Carlo Code Transport Code, by C.M. Diop, O. Petit, E. Dumonteil, F.X. Hugot, Y.K. Lee, A. Mazzolo, J.C. Trama (*CEA Saclay-France*)

7141 Estimation of Skyshine Dose from Turbine Building of BWR Plant using Monte Carlo Code, by Y. Nemoto, T. Tsukiyama, S. Nemezawa (*Hitachi -Japan*), T. Yamasaki, H. Okada (*Chubu Electric Power Company -Japan*)

7117 Tritium Production within Thermal Reactor Nuclear Fuel, by R.W. Mills (*Nexia Solutions-UK*)

11.02 Reactor Physics Methods and Validation-I
Monday, May 14, 2007 • 13:30-15:15 *(Room 1)*

Session Chairs: Kostadin Ivanov (*Penn State Univ-USA),* Jae-Man Noh (*KAERI-Korea)*

7137 Feasibility Study on Embedded Transport Core Calculations, by B.D. Ivanov, K.N. Ivanov (*Penn State Univ-USA*)

7205 HEMERA: a 3D Coupled Core-plant System for Accidental Reactor Transient Simulation, by G.B. Bruna, F. Fouquet, F. Dubois (*IRSN/DSR-France*), J.C. Le Pallec, E. Richebois, E. Hourcade, C. Poinot-Salanon, E. Royer (*CEA Saclay-France*)

7227 Two-Dimensional Semi-Analytic Nodal Method for Multigroup Pin Power Reconstruction, by S.G. Baek, H.G. Joo, U.C. Lee (*Seoul National Univ-Korea*)

7364 CONSUL - Code Package for Comprehensive LWR Core Calculations, by A.V. Chibinyaev, P.S. Teplov (*RNC KI-Russia*)

11.02 Reactor Physics Methods and Validation-II
Monday, May 14, 2007 • 17:30-19:15 *(Room 1)*

Session Chairs: Christine Poinot-Salanon (*CEA-France),* Han Gyu Joo (*Seoul National Univ-Korea)*

7440 Steady-State and Transient Neutronic and Thermal-hydraulic Analysis of ETDR Using the FAST Code System, by S. Pelloni, E. Bubelis, P. Coddington (*PSI-Switzerland*)

7387 Sub-Plane Scheme for a Radial Transport and Axial Diffusion Code, by J.-Y. Cho, K.-S. Kim, C.-C. Lee (*KAERI-Korea*), H.-G. Joo (*Seoul National Univ-Korea*)

7054 Comparison of Two-Step Diffusion Solutions and Monte Carlo Solutions to the IAEA CRP-5 Pebble Box Benchmark Problem, by H.C. Lee, Q. Hong, K.-S. Kim, J.M. Noh (*KAERI-Korea*)

11.03 Advances in Computational Reactor Analysis: Special Highlight on New Fuel Design and Core Management-I
Tuesday, May 15, 2007 • 8:15-10:00 *(Room 9)*

Session Chairs: Christine Chabert (CEA Cadarache-France), J. L. François (Universidad Nacional Autónoma de México)

7291 Neutronics Performances Study of Silicon Carbide as an Inert Matrix Fuel to Achieve Very High Burn-up for Light Water Reactor, by C. Chabert, E.Coulon-Picard, M. Pelletier (*CEA Cadarache-France*)

7134 Investigations on Monte Carlo Based Coupled Core Calculations, by C. Tippayakul, M. Avramova, F. Puente Espel, K. Ivanov (*Pennsylvania State Univ-USA*)

7262 BWR Fuel Design for Actinide Recycling, by J.L. François, J.R. Guzmán (*UNAM-Mexico*)

7155 Current Status of Development of Erbia-bearing Super High Burnup Fuel, by M. Yamasaki, T. Kuroishi (*Nuclear Fuel Industries-Japan*), T. Takeda (*Osaka Univ-Japan*), A. Yamamoto (*Nagoya Univ-Japan*), H. Unesaki (*Kyoto Univ-Japan*), M. Mori (*Nuclear Engineering-Japan*)

11.03 Advances in Computational Reactor Analysis: Special Highlight on New Fuel Design and Core Management-II
Tuesday, May 15, 2007 • 13:30-15:15 *(Room 12)*

Session Chairs: Hervé Golfier (*CEA/Saclay-France),* Bojan Petrovic (*Westinghouse-USA)*

7247 A Load-Following Controller for PWRs Using Fuzzy Model Predictive Method, by M.G. Na, I.J. Hwang (*Chosun Univ-Korea*), Y.J. Lee (*Cheju National Univ-Korea*)

7209 Effects of Thermal-hydraulic Feedback on Burnup Modeling of the Deep Burn Modular High Temperature Reactor (DB-MHR), by B. Ye, W. Wu, D. Yun (*Univ of Illinois-USA*), F. Venneri (*General Atomics-USA*), J.F. Stubbins (*Univ of Illinois-USA*)

7220 Streamlined Analysis Technique for the Evaluation of Pellet Clad Interaction in PWR Reload Cores, by C. Beard, T. Morita, J. Brown (*Westinghouse-USA*)

7252 Analysis of PBMR Transients Using a Coupled Neutron Transport/Thermal-Hydraulics Code DORT-TD/THERMIX, by B.M.Tyobeka, K.N. Ivanov, A. Pautz (*Penn State Univ-USA*)

11.03 Advances in Computational Reactor Analysis: Special Highlight on New Fuel Design and Core Management-III

Tuesday, May 15, 2007 • 17:30-19:15 *(Room 12)*

Session Chairs: Anne Nicolas (*CEA-France),* Kostadin Ivanov (*Penn State Univ-USA)*

7415 Evaluation of Control Rod Worth in Pressurized Water Reactors Using Neutron Count Rate during a Control Rod Drop Testing, by K. Okazaki, Y. Shimazu, M. Tsuji (*Hokkaido Univ-Japan*)

7403 Control Rod Pattern Design Using Scatter Search, by A. Castillo, J.J. Ortiz, R. Perusquía, J.L. Montes, J.L. Hernández (*Instituto Nacional de Investigaciones Nucleares-Mexico*)

7466 Analysis of the Neutron Flux Spectral Differences and Effects on the Depletion in the Fuel Kernels of the PBMR Fuel Spheres, by M. Grimod, Z. Karriem, W.R. Joubert, F. Reitsma (*PBMR-South Africa*)

7013 Xenon Oscillation Control in Large PWRs Using a Characteristic Ellipse Trajectory Drawn by Three Axial Offsets, by Y. Shimazu (*Hokkaido Univ-Japan*)

Track 12.00: Innovative and Space Reactor Systems

12.01 Design of Nuclear Power Systems for Space Applications

Monday, May 14, 2007 • 13:30-15:15 *(Room 12)*

Session Chairs: Charles Fribourg (*AREVA TA-France),* Thomas F. Marcille (*LANL-USA)*

7325 ESA's Approach to Nuclear Power Sources for Space Applications, by L. Summerer, G. Giacinto, B. Gardini (*ESA-The Netherlands*)

7352 PU-238 Radio-Isotopic Thermoelectric Generators (RTG) for Planets Exploration, by A Pustovalov, V. Gusev, N. Rybkin, M. Pankin (*BIAPOS-Russia*), J.P. Roux (*AREVA TA-France*), E. Grinberg (*FSUE Krasnaya Zvezda-Russia*)

7128 Low-Temperature Thermionics in Space Nuclear Power Systems with the Safe-Type Fast Reactor, by A.V. Zrodnikov, V.I. Yarygin, G.E. Lazarenko, A.N. Zabudko, M.K. Ovcharenko, A.P. Pyshko, V.S. Mironov, R.V. Kuznetsov (*SSC RF-IPPE-Russia*)

7012 An Integral PWR for a Planetary Base, by E. Finzi, C.V. Lombardi (*Politecnico di Milano-Italy*), L. Summerer (*ESA-The Netherlands*)

7488 Planet Surface Power Complex Based on Thermionic Nuclear Power System, by V.S. Vasilkovsky, P.V. Andreev, E.M. Strakhov (*FSUE Krasnaya Zvezda-Russia*)

12.02 Innovative Power Systems and Thermal Hydraulics in Space Applications

Tuesday, May 15, 2007 • 8:15-10:00 *(Room 12)*

Session Chairs: Olivier Gregoire (*CEA-France),* Thomas F. Marcille (*LANL-USA)*

7369 A Forced Convective Heat Transfer Model for Two-Phase Hydrogen Systems, by J. Pasch, S. Anghaie (*Univ of Florida-USA*)

7267 The Effect of Gravity Level on the Stability of a Rankine Cycle Power System, by W. Schlichting, R.T. Lahey, Jr., M.Z. Podowski (*Rensselaer Polytechnic Institute-USA*)

7372 Nuclear Enhanced MHD-MPD Thruster, by S. Anghaie (*Univ of Florida-USA*), A. Ferrari (*NeTech-USA*)

7099 Intergalactic Nuclear Power Systems, by L. Popa-Simil (*Consultant-USA*)

7095 Recent Developments of the MOA Thruster Concerning its Application for Nuclear Electric and Thermal Propulsion, by N. Frischauf, M. Hettmer, A. Grassauer, T. Bartusch (*QASAR Technologies-Austria*), O. Koudelka (*Graz Univ of Technology-Austria*)

12.03 Innovative Power Systems: Terrestrial Applications

Wednesday, May 16, 2007 • 13:30-15:15 *(Room 12)*

Session Chairs: Jean-Pierre Roux (*AREVA TA-France),* Xavier Raepsaet (*CEA-France)*

7030 Neutronic and Mechanical Design of the Reactor Core of the OPUS System, by X. Raepsaet, S. Pascal (*CEA-France*)

7228 Role of Small Lead-Cooled Fast Reactors for International Deployment in Worldwide Sustainable Nuclear Energy Supply, by J.J. Sienicki, D.C. Wade, A. Moisseytsev (*ANL-USA*)

7218 Status of Development of the Small Secure Transportable Autonomous Reactor (SSTAR) for Worldwide Sustainable Nuclear Energy Supply, by J.J. Sienicki, A. Moisseytsev, D.C. Wade (*ANL-USA*), A. Nikiforova (*MIT-USA*)

7428 Optimal Equilibrium Core Designs for the ENHS Reactor, by K.-B. Lee (*KAERI-Korea*), E. Greenspan, L. Monti (*UC Berkeley-USA*)