

## II. 분과별 논제 및 발표자

### 제 1 분과 A

#### 원자로시스템기술(Reactor System Technology)

– 고온 가스로 및 수소 생산 기술(VHTR and Hydrogen Technology) 5월 22일(FRI)

좌 장 • 이원재(Won Jae Lee) / 김용완(Yong-Wan Kim)

발표장소 • 크리스탈A

[Invited Paper]

#### 09:00 Perspectives of Nuclear Heat and Hydrogen

Won Jae Lee, Yong Wan Kim, and Jonghwa Chang(KAERI)

#### 09:20 Analysis of a Hybrid Type Reactor Cavity Cooling System for a VHTR

Nam-il Tak, Min-Hwan Kim, Hong Sik Lim, and Won Jae Lee(KAERI)

#### 09:40 Behavior Comparison of Stacked Graphite Blocks with and without a Pin and Socket

Woo-Seok Choi, Dong-Ok Kim, Jae-Man Noh, and Won-Jea Lee(KAERI)

#### 10:00 Coupling of a 2-D Gas Turbine Tool with a System Analysis Code for Predicting the Transient Behavior of the HTGR

Ji Hwan Kim and Hee Cheon NO(KAIST), Hong Sik Lim(KAERI)

#### 10:20 Experimental Studies of Bunsen Section for Over-azeotropic Condition in I-S Cycle

Ho-Joon Yoon, Hee-Cheon NO, Young-Soo Kim, Hyung-Gon Jin, Jeong-Ik Lee, and Byung-Jin Lee(KAIST)

#### 10:40 Coffee Break

#### 11:00 Ion Beam Bombarded SiC Coating on Hastelloy X for Nuclear Hydrogen Production System

Jae-Won Park, Hyung-Jin Kim, and Yongwan Kim(KAERI)  
Zuhair S Khan(CIIT)

#### 11:20 Preliminary Estimation of Local Bypass Flow Gap Sizes for a Prismatic VHTR Core

Min-Hwan Kim, Chang Keun Jo, and Won Jae Lee(KAERI)

#### 11:40 Preliminary Experiment of a High-Temperature Sulfuric Acid Loop for NHDD Components Test

Dong Un Seo(SNU), S. D. Hong, C. S. Kim, Y. W. Kim, and W. J. Lee(KAERI)

### 제 1 분과 B

#### 원자로시스템기술(Reactor System Technology)–Poster 5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

#### P01B01 AMBIDEXTER Dynamics and Self-regulation Capability

Se Kee Oh, Young Joon Lee, Tae Kyu Ham, Myung Hwan Seo, Sung Taek Hong, and Tae An Kwon(AJOU)

#### P01B02 A Comparison Study of the Benchmark Problem for the SIE ASME-NH Application

Chang-Gyu Park, Gyeong-Hoi Koo, and Jae-Han Lee(KAERI)

#### P01B03 A Study on the Steam Dryer Performance of Shin-Kori Units 3 and 4

Dae-Hun Kim, Tae-Jung Park, Moo-Yong Kim, and Jong-In Kim(Doosan Heavy Co., Ltd.)

#### P01B04 Analysis of a 12-Finger Rod Drop Using RETRAN / MASTER Code System for APR1400

Keuk Jong Yu, Sung Chang You, and Han Gon Kim(KHNP)

#### P01B05 Analysis of Heat Transfer Correlations for Sodium Flows in an IHX of a SFR

Seok-Ki Choi and Seong-O Kim(KAERI)

#### P01B06 Core Performance Investigation for Conversion Ratio Changes

Hoon Song, Sang Ji Kim, and Yeong Il Kim(KAERI)

#### P01B07 Corrosion Behaviors of T91 Steel in Flowing Lead-bismuth Eutectic

Jong-Hyeon Choi, Byoung-Hae Choi, Jong-Man Kim, Ji-Young Jeong, and Byung-Ho Kim(KAERI)

#### P01B08 Creep-fatigue Crack Initiation and Growth Tests for Mod.9Cr-1Mo Tubular Specimens

Jong-Bum Kim, Chang-Gyu Park, Hyeong-Yeon Lee, and Jae-Han Lee(KAERI)

#### P01B09 Design Features of Regional Energy Reactor, REX-10

Jong-Won Kim, Yeon-Gun Lee, Sung-Won Lim, and Goon-Cherl Park(SNU)  
Hyeong-Min Joo and Byeong-Il Jang(HYU), Moo-Hwan Kim(POSTECH)

#### P01B10 Development of Aerosol Behavior Analysis Module for GAMMA+

Jun Soo Yoo, Nam il Tak, and Hong Sik Lim(KAERI)

#### P01B11 Linearization of Valve Flow Characteristics for Steam Turbine Control

Seong G. Kang and Kune Y. Suh(SNU)

#### P01B12 Numerical Simulation of RCCS under LPCC Accident in PMR600 Using CFD

Seong Hoon Kim, Namil Tak, and Min-Hwan Kim(KAERI)

#### P01B13 Parametric Study on an Initial Cooling Performance in the KALIMER-600

Ji-Woong Han, Jae-Hyuk Eoh, Tae-ho Lee, and Seong-O Kim(KAERI)

## 제 1 분과 C

원자로시스템기술(Reactor System Technology)  
– 액금로 기술(LMR Technology)

5월 22일(FRI)

좌 장 • 한도희(Dohee Hahn), 권영민(Young-Min KWON)

발표장소 • 크리스탈A

[Invited Paper]

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| <p><b>13:30</b>     <b>Advanced SFR Design Concepts and R&amp;D Activities</b><br/>Dohee HAHN, Young-In KIM, Yeong-il KIM, Chan Bock LEE, Seong-O KIM, Jae-Han LEE, Kwi-Seok HA, Byung-Ho KIM, and Yong-Bum LEE(KAERI)</p> <p><b>13:50</b>     <b>Acoustic Leak Detection Testing Using KAERI Sodium-water Reaction Signals for a SFR Steam Generator</b><br/>Tae-Joon Kim, Ji-Young Jeong, Jong-Man Kim, Byung-Ho Kim, and DoHee Hahn(KAERI), Valeriy S. Yugay(SSC RF)</p> <p><b>14:10</b>     <b>Assessment of the KALIMER-600 Burner Reactor Responses to an Unprotected Overpower Transient</b><br/>Young-Min KWON, Hae-Young JEONG, Kwi-Seok HA, Hoon SONG, and Sang-Ji KIM(KAERI)</p> <p><b>14:30</b>     <b>Design Features of the Passive Decay Heat Removal System of KALIMER-600</b><br/>Jae-hyuk Eoh, Tae-ho Lee, Yong-bum Lee, and Seong-O Kim(KAERI)</p> <p><b>14:50</b>     <b>Recent Research at KAERI for a Supercritical CO<sub>2</sub> Brayton ECS for a Gen-IV SFR</b><br/>J.E. Cha, J.H. Eoh, S.H. Seong, and S.O. Kim(KAERI)<br/>D.E. Kim and M.H. Kim(POSTECH)</p> <p><b>15:10</b>     <b>Coffee Break</b></p> | <p><b>15:30</b>     <b>Structural Economic-improvement Design of a Large Pool Type SFR of 1200MWe</b><br/>Lee, Jae-Han and Park, Chang-Gyu(KAERI)</p> <p><b>15:50</b>     <b>Wastage Characteristics of a Modified 9Cr-1Mo Steel Tube Material for a SFR SG</b><br/>Ji-Young Jeong, Jong-Man Kim, Tae-Joon Kim, Jong-Hyeun Choi, and Byung-Ho Kim(KAERI), Nam-Cook Park(CNU)</p> <p><b>16:10</b>     <b>Design Improvements for a 1,200MWe SFR Breakeven Core</b><br/>Hyung-Kook Joo, Jin-Wook Jang, Jae-Woon Yoo, and Yeong-Il Kim(KAERI)</p> <p><b>16:30</b>     <b>Concept Synopsis of the AMBIDEXTER Nuclear Energy Complex</b><br/>Se Kee Oh, Young Joon Lee, Tae Kyu Ham, Myung Hwan Seo, Sung Taek Hong, and Tae An Kwon(AJOU)</p> <p><b>16:50</b>     <b>Sustainomics of the AMBIDEXTER-NEC Fuel Cycle and Management</b><br/>Se Kee Oh, Young Joon Lee, Tae Kyu Ham, Myung Hwan Seo, Sung Taek Hong, and Tae An Kwon(AJOU)</p> |
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## 제 1 분과 D

## 원자로시스템기술(Reactor System Technology)–Poster

5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

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| <p><b>P01D01</b>     <b>A Benchmark CFD Calculation for a Cross Flow between Fuel Blocks of a Prismatic VHTR</b><br/>Nam-il Tak, Min-Hwan Kim, and Won Jae Lee(KAERI)</p> <p><b>P01D02</b>     <b>Analysis of Americium Migration in the Metal Fuel for SFR</b><br/>Byoung Oon Lee, Jin Sik CHEON, and Chan Bock LEE(KAERI)</p> <p><b>P01D03</b>     <b>Analysis of Power Excursion in KALIMER-600</b><br/>S.D.Suk and Y.B. Lee(KAERI)</p> <p><b>P01D04</b>     <b>Investigation of Safety Margins Associated with the KALIMER Station Blackout Accident</b><br/>Won-Pyo Chang and Yong-Bum Lee(KAERI)</p> <p><b>P01D05</b>     <b>Analysis of the Burner Core Characteristics at Different Power Levels</b><br/>Hoon Song, Sang Ji Kim, and Yeong Il Kim(KAERI)</p> <p><b>P01D06</b>     <b>Applied Thermodynamic Models for a S-I Thermochemical Cycle</b><br/>Byung Heung Park, Jihwan Kim, Youngjoon Shin, Kiyoung Lee, Wonjae Lee, and Jonghwa Chang(KAERI)</p> | <p><b>P01D07</b>     <b>CFD Analysis of Natural Convective Non-darcy Flow in Porous Medium</b><br/>Byung Soo Shin, Jewhan Lee, and Soon Heung Chang(KAIST)</p> <p><b>P01D08</b>     <b>Combined Electricity and Heat Generations Using SMART</b><br/>Han-Ok Kang, Quun S. Zee, and Keung Koo Kim(KAERI)</p> <p><b>P01D09</b>     <b>Prerequisite for Adopting a Passive Safety System with a Safeguard Vessel for SMART</b><br/>Han-Ok Kang, Quun S. Zee, and Keung Koo Kim(KAERI)</p> <p><b>P01D10</b>     <b>Design Study and Animation on an Integrated In-vessel Fuel Handling and Inspection System in a SFR</b><br/>S. H. Kim, Y. S. Joo, and J. H. Lee(KAERI)</p> <p><b>P01D11</b>     <b>Development of the Log-in Process and the Operation Process for the VHTR-SI Process Dynamic Simulation Code</b><br/>Jiwoon Chang, Youngjoon Shin, Jihwan Kim, Kiyoung Lee, Wonjae Lee, and Jonghwa Chang(KAERI), Cheung Youn(CNU)</p> <p><b>P01D12</b>     <b>Development of UCMS for Analysis of Designed and Measured Core Power Distribution</b><br/>Sang-Rae Moon, Sun-Kwan Hong, and Sung-Tae Yang(KHNP)</p> |
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## Ⅱ.분과별 논제 및 발표자

**P01D13 Estimating the Natural Circulation Flow Rate through the Core in a Research Reactor**

Jae-Min Oh, Kyoungwoo Seo, Cheon-Tae Park, Ju-hyeon Yoon, and Doo-Jeong Lee(KAERI)

**P01D14 Estimation of Fission Products Plate-out Throughout Gas-cooling Loop Systems**

Hyedong JEONG and Soon Heung CHANG(KAIST)

**P01D15 Estimation on the Flow Phenomena and the Pressure Loss for the Inlet Part of a Research Reactor Vessel**

Kyoungwoo Seo, Jae-Min Oh, Jae-Kwang Seo, Juhyeon Yoon, and Doo-Jeong Lee(KAERI)

**P01D16 Evaluation of Structural Integrity for the Magazine Housing of Fuelling Machine**

Yong-Sun Ju, Sung-Bong Han, Jung-Ho Chu, and Jeong-Yoon Lee(GNEC)  
Dae-Il Kwak, Tae-Youn Park, Wan-Kyu Park, and Kang-Yong Lee(KHNP)

**P01D17 Loads on the Latch Tips of the Magnetic Jack Type CEDM**

Dong-Ok Kim, Jea-Seon Lee, Suhn Choi, and Chul-Hwa Song(KAERI)

**P01D18 Optimization of the Hybrid Sulfur Cycle for Nuclear Hydrogen Production Using UniSim Design**

Yong Hun Jung and Yong Hoon Jeong(KAIST)

**P01D19 Safety Analyses on a Safety Valve Stuck-open for the HANARO Fuel Test Loop**

S. K. Park, B. S. Sim, D. Y. Chi, J. M. Lee, C. Y. Lee, and S. H. Ahn(KAERI)

**P01D20 Sensitivity Analysis on the Control Rod Withdrawal Accident (CRW) ATWS with GAMMA+**

Seyun Kim and Sang Jun Ha(KEPRI), Nam-il Tak and Hong Sik Lim(KAERI)

**P01D21 Simulation of Loss-of-flow Tests Using MARS-LMR**

Kwi-Seok Ha, Hae-Young Jeong, Young-Min Kwon, Won-Pyo Chang, Soo-Dong Suk, Yong-Bum Lee, and Dohee Hahn(KAERI)

**P01D22 Sulfur Trioxide Decomposer Sizing for a Nuclear Hydrogen Production by a SI Process**

Jihwan Kim, Jiwoon Chang, Youngjoon Shin, Kiyoun Lee, Wonjae Lee, and Jonghwa Chang(KAERI)

**P01D23 Thermal-fluid Analysis of the PMR 200MW<sub>th</sub> Reactor System at the Steady State and Transient Conditions**

Ji Su Jun, Hong Sik Lim, Chang Keun Jo, and Jae Man Noh(KAERI)

**P01D24 An Assessment on the Electricity and Potable Water Production of a Combined Cycle with High Temperature Gas Cooled Reactor**

Young Jin Lee, Jonghwa Chang, and Won Jae Lee(KAERI)

**P01D25 Design Optimization of Inlet Plenum of PBMR Using Kriging Modeling Technique**

Kwang-Yong Kim and Sang-Moon Lee(IHU)

**P01D26 Development of a Lab-scale Hybrid Acid Cooler for Very High-temperature Process Heat Condition**

S. D. Hong, D. W. Seo, C. S. Kim, Y. W. Kim, and W. J. Lee(KAERI)

## 제 2 분과 A

원자로물리 및 계산과학(Reactor Physics and Computational Science)  
– 원자로물리 I (Reactor Physics I)

5월 22일(FRI)

좌 장 • 김용희(Kim Yonghee) / 이영욱(Young-Ouk Lee)

발표장소 • 다이아몬드A

[Invited Paper]

<b>09:00</b>	<b>Some Outstanding Problems in Neutron Transport Computation</b> Nam Zin Cho(KAIST), Jong Hwa Chang(KAERI)	<b>11:00</b>	<b>Evaluation of Safety Parameters for the Deformation of CANDU Fuel Channels</b> Geun-Suk Choi and Myung-Hyun Kim(KHU)
<b>09:20</b>	<b>Optimization of Gad Pattern with Geometrical Weight</b> Do Ik Chang, Hae Seuk Woo, and Seong-Min Choi(KNF)	<b>11:20</b>	<b>Monte Carlo Assessment of Neutronic Impact of Pressure Tube Creep in a CANDU Lattice</b> Gyuhong Roh, Yonghee Kim, and Joo-Hwan Park(KAERI) Hak-Sung Kim(ACT Co., Ltd.)
<b>09:40</b>	<b>Online Core Monitoring Method in WH Type PWR</b> Hae-Chan Lee, Do-Ik Chang, Sung-Min Choi, and Tae-Je Kwon(KNF)	<b>11:40</b>	<b>Verification of KARMA GEOM/TRPT Module with Given Multi-group Cross Sections</b> Bon-Seung Koo, Ser-Gi Hong, and Jae-Seung Song(KAERI)
<b>10:00</b>	<b>Estimation of a Reactor Core Power Peaking Factor Using Support Vector Regression and Uncertainty Analysis</b> In Ho Bae and Man Gyun Na(CSU), Yoon Joon Lee(JNU) Goon Cherl Park(SNU)	<b>12:00</b>	<b>Fuel to Moderator Ratio Sensitivity Study Using Water Rod Moderator in SCWR Conceptual Core Design</b> Seong Man Bae, Yong Bae Kim, Dong Hwan Park, and Kwang Ho Lee(KEPRI)
<b>10:20</b>	<b>A Constructive Calibration of Axial Spatial Weighting Functions of Ex-core Detectors</b> Moon Ghu Park and Ho Cheol Shin(KEPRI)	<b>12:20</b>	<b>A Monte Carlo Depletion Method with Leakage Corrected Critical Spectrum</b> Sunghwan Yun and Nam Zin Cho(KAIST)
<b>10:40</b>	<b>Coffee Break</b>		

## 제 2 분과 B

## 원자로물리 및 계산과학(Reactor Physics and Computational Science)–Poster

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

<b>P02B01</b>	<b>Digital Process Management Technology for Nuclear Power Plants</b> Young M.You and Kune Y. Suh(SNU)	<b>P02B07</b>	<b>Numerical Simulation of Load-Following Operation for APR1400</b> Yu Sun Choi, Seung Ok Yang, and Moon Gyu Park(KEPRI) Man Gyun Na(CSU)
<b>P02B02</b>	<b>Study of Characteristics about Pressure Applied CO<sub>2</sub> Operation in Vertical Small Circular Tube</b> Heung G.Yang and Kune Y.Suh(SNU)	<b>P02B08</b>	<b>Analyses of the ZPPR-15A Critical Experiments with ENDF/B-V.2 and -VII.0 Data</b> Sang Ji Kim and Yeong-il Kim(KAERI) Changho Lee and Won Sik Yang(ANL)
<b>P02B03</b>	<b>Estimation of Physical Properties for Hydrogen Isotopes Using Aspen Plus Simulator</b> Jungho Cho and Sei-Hun Yun(KNU) Seungyon Cho, Min Ho Chang, Hyun-Goo Kang, and Ki Jung Jung(NFRI) Dong Min Kim(HIU)	<b>P02B09</b>	<b>Self-Annealing in ZrCo Degradation during Hydriding &amp; De-hydriding Reaction</b> Sei-Hun Yun, Seungyon Cho, Min Ho Chnag, Hyun-Goo Kang, and Ki Jung Jung(NFRI), Hongsuk Chung and Dae Seo Koo(KAERI) Kyu-Min Song(KEPRI)
<b>P02B04</b>	<b>Validation of Recently Available and Newly Evaluated Nuclear Data Files for Tungsten</b> Do Heon kim, Hyeong Ill Kim, Choong-Sup Gil, and Young-Ouk Lee(KAERI)	<b>P02B10</b>	<b>The Evaluation of IFPE Database by FRAPCON-3 Code -IFA-432, AECL Bundle NR</b> Yeonseung Kim, Hyounju Yoon, Jungsoo Kim, Hyonggun Shim, and Kwangheon Park(KHU)
<b>P02B05</b>	<b>A Power Synthesis Module of DPCM3D Coupled by the Neutronics Code of ASTRA</b> Jin-Young Cho, Bon-Seung Koo, and Jae-Seung Song(KAERI) Bum-Jin Cho(KNF)	<b>P02B11</b>	<b>On-line Inverse Count Rate Ratio Measurement System during Core Reload</b> Ho-Cheol Shin and Dong-Hwan Park(KEPRI) Sae-Hyun Oh and Seok-Jean Ryu(USERS)
<b>P02B06</b>	<b>Development of a CANDU Full-core Model with MCNP for a Characterization of Decommissioning Wastes</b> Dong-Keun Cho, GwangMin-Sun, Jongtae Jeong, Heui-Joo Choi, and Jong-Won Choi(KAERI), Donghyeun Hwang, Hak-Soo Kim, Ho-Yeon Yang, and Tae-Won Hwang(KHNP)		

## II.분과별 논제 및 발표자

### P02B12 Test on Similarity between the Flooded and Optimum Moderation Conditions of the Spent Fuel Storage Pool

Gil Soo Lee, Chang Sun Jang, and Sweng Woong Woo(KINS)

### P02B13 Sensitivity Study on Input Parameters Used in the Spent Fuel Pool Cooling Capacity Evaluation

Hyung Seok Kim, Dong Keon Kim, and Won Tae Kim(ENESYS Co.,)

## 제 2 분과 C

원자로물리 및 계산과학(Reactor Physics and Computational Science)

– 원자로물리 II (Reactor Physics II)

5월 22일(FRI)

좌 장 • 노재만(Jae Man Noh) / 주한규(Joo Han Gyu)

발표장소 • 다이아몬드A

### 13:30 A Comparison of Two Spatial Difference Schemes with an Unstructured Triangular Mesh for a Two-dimensional Geometry

Jong Woon Kim, Ser Gi Hong, and Young-Ouk Lee(KAERI)

### 13:50 A Preliminary Study on Calculation of Inter-pebble Dancoff Factor in a Pebble Type Core

Songhyun Kim, Hong Chul Kim, and Jong Kyung Kim(HYU)  
Soon Young Kim(ITRS), Jae Man Noh(KAERI)

### 14:10 Feasibility Study on TRU Deep-burn with Inert Matrix Fuel in an MHR

Chang Keun Jo, Yonghee Kim, and Jae Man Noh(KAERI)  
F. Venneri(LT)

### 14:30 Decay Heat Analysis of a PMR200 VHTR Core by Using McCARD and ORIGEN2 Codes

Hyun Chul Lee, Wei Li, Chang Keun Jo, and Jae Man Noh(KAERI)

### 14:50 Dynamic Analysis of Fast Reactor Scenario by Using DANESS Code

Chang Joon Jeong and Won. Il. Ko(KAERI)

### 15:10 Coffee Break

### 15:30 Benchmark Analysis of KALIMER-600 Simplified Core Model by Using ECCO/ERANOS2.1 System

Jae Woon Yoo, Jin Wook Jang, and Yeong Il Kim(KAERI)

### 15:50 An SP<sub>3</sub> Nodal Method Applied to Fast Reactor Core Analysis

Yeong-il Kim, Jaewoon Yoo, and Dohee Hahn(KAERI)  
Chang Hyo Kim(SNU)

### 16:10 Preliminary Development of the MARS/FREK Spatial Kinetics Coupled System Code for Square Fueled Fast Reactor Applications

Moo Hoon Bae and Han Gyu Joo(SNU)

### 16:30 Analysis of Metallic Uranium Fueled BFS Experiments Using McCARD

Ho Jin Park, Min Su Kwak, Han Gyu Joo, and Chang Hyo Kim(SNU)  
Jaewoon Yoo(KAERI)

**제 3 분과 A 방사성폐기물관리(Radioactive Waste Management)**

5월 22일(FRI)

좌 장 • 김종구(J. G. Kim) / 안홍주(H. J. Ahn)

발표장소 • 크리스탈E

[Invited Paper]

**09:00 Wolsong Low- and Intermediate-Level Radioactive Waste Disposal Center: Progress and Challenges**

Jin Beak Park, Haeryong Jung, Eun Young Lee, and Chang Lak Kim(KRMC)  
Geon Young Kim, Kyung Su Kim, Yong Kwon Koh, and  
Kyung Woo Park(KAERI), Jae Hak Cheong and Chan Woo Jeong(KINS)  
Jong Soo Choi and Kyung Deok Kim(KHNP)

**09:20 Infrared Spectroscopy of Uranium Oxides by ATR Technology**

Jong-Goo Kim, Yang-Soon Park, Hyun-Kyum Kim, Yeong-Keong Ha, and  
Kyuseok Song(KAERI)

**09:40 Application of a Capillary Electrophoresis to the Speciation of Eu(III) Complexes in an Aqueous Solution**

K. K. Park, H. -R. Cho, and E. C. Jung(KAERI)

**10:00 Hot Test Results of the ACP Safeguards Neutron Counter with Spent Fuel**

Tae-Hoon Lee, Seung-Hyun Kim, Junc-Sik Ju, Hee-Sung Shin, and  
Ho-Dong Kim(KAERI)

**10:20 The Speciation of U(VI) Complexes in Solutions by TRLIF Spectroscopy**

H.-R. Cho, E. C. Jung, and K. K. Park(KAERI)

**10:40 Coffee Break****11:00 Study of the Reactivity between the Ceramic Material and the Uranium**

C. H. Cho, Y. S. Lee, E. S. Kim, and H. S. Lee(KAERI)

**11:20 Preparation and Characterization of Nickel and Iron Mixed Oxides for the Development of a Fuel CRUD Analysis Technique**

Sang-Hyuk Jung, Jei-Won Yeon, Jaesik Hwang, Euo-Chang Jung, and  
Kyuseok Song(KAERI)

**11:40 Verification of Representative Sampling in RI Waste**

Hong Joo Ahn, Byung Cheul Song, Se Cheul Sohn, Kyuseok Song, and  
Kwang Yong Jee(KAERI), Kwang Seop Choi(KRMC)

**12:00 Comparison of Electrodeposition and Microcoprecipitation for Measuring Alpha Nuclides**

Myung Ho Lee, Jong Ho Park, In Hee Choi, Yong Joon Park, and  
Kyu Seok Song(KAERI)

**12:20 Decontamination of Primary Heat Exchanger Heat Transfer Plate in HANARO**

Young-Chul Park, Sang-Jin Kim, and Hoan-Sung Jung(KAERI),  
Yong-Joo Kim(HANA Nuclear Co., Ltd.), Back-Young Lim(HST Co., Ltd.)

**12:40 A New Carbonate Process for Recovery of Uranium Alone from Spent Nuclear Fuel**

Kwang-Wook Kim, Dong-Youg Chung, Han-Bum Yang, Jae-Kwan Lim,  
Eil Hee Lee, Kyu-Seok Song, and Kee-Chan Song(KAERI)

**제 3 분과 B 방사성폐기물관리(Radioactive Waste Management)–Poster**

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드

**P03B01 Microstructure Changes in a High Burnup Spent Fuel (57,900 MWd/tU)**

Yang-Soon Park, Hyoung-Mun Kwon, Hang-Seok Seo, Yeong-Keong Ha,  
and Kyuseok Song(KAERI)

**P03B02 A Long-term Corrosion Measurement of Copper Materials**

Minsoo Lee, Heui-Joo Choi, Jong Won Choi, and Ji Hyeon Lee(KAERI)

**P03B03 Estimation for Storage Capacity in the Spent Fuel Pool Using CFD Analysis**

Man Heung Park and Kwang Chu Kim(KOPEC), Hee Hwan Lee(KHNP)

**P03B04 Design Concepts of Re-verification System on the MACSTOR/KN-400**

Gil Hoon Ahn, Il-Jin Park, Dong Hoon Shin, and Moonsung KOH(KINAC)

**P03B05 Decontamination of Soils by Using an Acid Leaching Process**

Jung-Joon LEE, Gye-Nam KIM, Jei-kwon MOON, and  
Kune-Woo LEE(KAERI)

**P03B06 Ternary Complex Formation of Uranium(VI) and its Extraction with Tri-n-butyl Phosphate and 8-hydroxyquinoline**

K. K. Park, G. H. Lee, H. -R. Cho, and E. C. Jung(KAERI)

**P03B07 Feasibility Study Impact Analysis through MCNPX Simulation for Various Spent Fuel Loss Scenarios**

Dong Hoon Shin, Gil Hoon Ahn, Il Jin Park, and Moon Sung Koh(KINAC)

**P03B08 Exposure Dose Assessment on the Fire Originated in the Temporary Storage Facility for LILW Management**

Min Ho Ahn and Kun Jai Lee(KAIST), Kyung woo Choi(KINS)

**P03B09 Development of CYPRUS+ with Fracture Information, Groundwater Chemistry Contents and PID Modules**

Jonghyun Kim and Yongsoo Hwang(KAERI), Jaejun Han(KU)

**P03B10 Validation of SCALE SAS2H Isotopic Predictions for High Burnup PWR Spent Fuels**

Jeong-nam Jang, Hyung-moon Kwon, Jung-suk Kim, and  
Yong-bum Chun(KAERI)

## II.분과별 논제 및 발표자

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| <p><b>P03B11 A Necessity for Research in the Recycling of Concrete Waste from the Decommissioning</b><br/>Seo Hana and Whang Jooho(KHU)</p> <p><b>P03B12 Thermal Analysis on the Aboveground Long-term Dry Storage Facility</b><br/>Joon-Suk Ji, Jung-Hoon Cha, and Kim Sang-Nyung(KHU)<br/>Kyung-woo Choi(KINS)</p> <p><b>P03B13 Conceptual Thermal Analysis of a Hot Cell Transportation Cask</b><br/>Ju-Chan Lee, Woo-Seok Choi, Kyung-Sik Bang, and Ki-Seog Seo(KAERI)</p> <p><b>P03B14 Development of a Vertical Electrokinetic-flushing Equipment to Decontaminate a Radioactive Soil</b><br/>Byeong-IL Yang, Gye-Nam Kim, Jung-Joon LEE, Jei-Kwon Moon, Kune-Woo Lee, and Un-Soo Chung(KAERI)</p> <p><b>P03B15 Disposal Container Concepts and Disposal Effectiveness Analyses According to the Spent Fuel Cooling Time for a Deep Geological Repository</b><br/>Jong Youl Lee, Dong Geun Cho, Min Soo Lee, Dong Hak Kook, and Heui Joo Choi(KAERI)</p> <p><b>P03B16 Development of Cryogenic Cooling System for Sustaining Liquid State of LN2</b><br/>Sung-Kyun Kim, Dong-Kyu Lee, and Kune-Woo Lee(KAERI)</p> <p><b>P03B17 Laser Ablation of Metal Surfaces Contaminated with Cs<sup>+</sup> Ions</b><br/>H. J. Won, B. Baigalmaa, J. K. Moon, C. H. Jung, and K. W. Lee(KAERI)<br/>J. H. Hyun(CNU)</p> | <p><b>P03B18 Long-term Durability of High-level Waste Borosilicate Glass</b><br/>W. Sohn(KEPRI)</p> <p><b>P03B19 Development of Radioactive Substance Contamination Diffusion Preventive Equipment for a Hot Cell</b><br/>Yong-Sun CHOO, Do-Sik KIM, Seung-Je BAIK, Byung-Ok Yoo, Ki-Ha KIM, Eun-Pyo LEE, Sang-Bok Ahn, and Woo-Seok Ryu(KAERI)</p> <p><b>P03B20 LiCl-KCl-UCI<sub>3</sub> Salt Production and Transfer for the Uranium Electrowinning</b><br/>Moon-Sik Woo, Hee-Suk Kang, and Han-Soo Lee(KAERI)</p> <p><b>P03B21 Drop Weight Device Fabrication and Tests for a Dynamic Material Property of Shock-Absorbing Material and Structure in Transportation Package</b><br/>Jea-Eon Jeon, Sang-Hyeok Han, Woo-Seok Choi, Sang-Hoon Lee, and Ki-Seok Seo(KAERI)</p> <p><b>P03B22 A Numerical Analysis of the Annealing Process in the Irradiated Graphite</b><br/>Gyeong-Hwan Jeong, Ki-Won Lee, Un-Soo Chung, and Keun Woo Lee(KAERI), Duk Hyung Lee(UT), Sei-Hun Yun(NFRI)</p> <p><b>P03B23 Thermal Test of the KN-18 Shipping Cask</b><br/>K. S. Bang, J. C. Lee, and K. S. Seo(KAERI)</p> <p><b>P03B24 Evaluation on the UCP Decommissioning Activities in 2008 Using DECOMMIS</b><br/>S. K Park, J. H. Park, D. S. Hwang, K. W. Lee, and U. S. Chung(KAERI)</p> <p><b>P03B25 Non-destructive Temperature Measurement in Aqueous Solution by Raman Scattering</b><br/>J. -Y. Lee, D. H. Lee, H. S. Shin, and J. -I. Yun(KAIST)</p> |
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### 제 3 분과 C 방사성폐기물관리(Radioactive Waste Management)

5월 22일(FRI)

좌 장 • 백민훈(Min Hoon Baik) / 최우석(Woo-Seok Choi)

발표장소 • 크리스탈D

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| <p><b>13:30 Nuclide Release Behavior from a Repository for a Pyro-process HLW and SF due to Variation of the MWCF Properties</b><br/>Youn-Myoung Lee and Yongsoo Hwang(KAERI)</p> <p><b>13:50 The Pseudo Colloid Migration by the Four-member Decay Chain in the Fractured Porous Medium</b><br/>Mi-Seon Jeong and Yongsoo Hwang(KAERI)</p> <p><b>14:10 Post Closure Safety Assessment for Electrolytic Reduction Process Waste</b><br/>Chul-Hyung Kang and Yong Soo Hwang(KAERI)</p> <p><b>14:30 Introduction to the Colloid Formation and Migration (CFM) Project at the Grimsel Test Site(GTS) Phase VI</b><br/>Min Hoon Baik and Jae Kwang Lee(KAERI), Ingo Blechschmidt(NAGRA)</p> <p><b>14:50 Development of a Computer Program for the Cost Analysis of Spent Fuel Management</b><br/>Heui-Joo Choi, Jong Youl Lee, and Jongwon Choi(KAERI)<br/>Jeong-hun Cha and Jooho Whang(KHU)</p> | <p><b>15:10 Coffee Break</b></p> <p><b>15:30 Design of the PRIDE Facility</b><br/>Gil-Sung You, Won-Myung Choung, Eun-Pyo Lee, il-Je Cho, Kie-Chan Kwon, Dong-Hee Hong, Won-Kyung Lee, and Jeong-Heo Ku(KAERI)</p> <p><b>15:50 Drop Test of High Integrity Container</b><br/>Hyun-jin Park, Woo-seok Choi, Ki-seok seo, and Sang-hoon Lee(KAERI)<br/>Byung-yoon Min, and Jea-won Kim(KP Co., Ltd.)</p> <p><b>16:10 Estimation of CANDU Spent Fuel Disposal Canister Lifetime</b><br/>Dong-Hak Kook, Min-Soo Lee, Yong-Soo Hwang, and Heui-Joo Choi(KAERI)</p> <p><b>16:30 Preliminary Thermal Analysis of a Dry Storage Canister for the PWR Spent Fuel</b><br/>Jeong-Hun Cha, Joon-Suk Ji, Bum-soo Youn, and Sang-Nyung Kim(KHU)<br/>Kyung-woo Choi(KINS)</p> |
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## 제 3 분과 D 방사성폐기물관리(Radioactive Waste Management)–Poster 5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드

**P03D01 Thermal Performance of HCSM for the SNF Assemblies**  
Dong-Gyu Lee, Jea-Ho Park, and Kyu-Sup Choi(KONES)

**P03D02 Validation of CFD Methods Using Measured Data for Horizontal Concrete Storage Module**  
Dong-Gyu Lee, Jea-Ho Park, and Kyu-Sup Choi(KONES)

**P03D03 An Experience on RCS CRUD Sampling in European PWR Plants**  
Min-Jae Kim and Jong-Bin Kim(SW E&T Co., Ltd.), Duk-Won Kang(KEPRI)

**P03D04 Fabrication and Installation of Platform Type Balance for Nuclear Material Accountability in Hot Cell**  
Jeong-Hwan Jeong, Jong-Sook Hong, Ho-Dong Kim, and Hee-Sung Shin(KAERI)

**P03D05 Development of the Spray-type Polymeric Material for Radioactive Contamination Measurement of the Wall**  
Ho-Sang Hwang, Bum-Kyoung Seo, Dong-Gyu Lee, and Kune-Woo Lee(KAERI)

**P03D06 Synergic Effect for Uranium Extraction from Soil by TBOD and Co-solvent Using Sc-CO<sub>2</sub>**  
Jinhyun Sung, Jeongsu Kim, and Kwangheon Park(KHU)  
Jeikwon Moon and Keunwoo Lee(KAERI)

**P03D07 An Assessment on the Effects of a Silo Altitude of a LLW Repository**  
Sung Ho Lee, Yong Soo Hwang, and Chul Hyung Kang(KAERI)

**P03D08 Structural Evaluation of Spent Resin Transport Cask by Drop Test**  
Gi-Young Kim, Sang-Hyeok Han, Woo-Seok Choi, Sang-Hoon Lee, and Ki-Seok Seo(KAERI)

**P03D09 Tritium Assay and Dispensing of KEPRI Tritium Lab**  
S. H. Sohn, K. M. Song, S. K. Lee, K. W. Lee, and B. W. Ko(KEPRI)

**P03D10 Development of the Small Size ZnS(Ag) Scintillator Sensor for Detection of Alpha Particles**  
Chan-Hee Park, Bum-Kyoung Seo, Dong-Gyu Lee, and Kune-Woo Lee(KAERI)

**P03D11 An Assessment of the Gaseous Radioactive Waste Emissions from HANARO in 2008**  
Mun Lee, C. Y. Park, H. C. Shin, S. O. Hur, C. S. Lee, G. H. Ahn, and I.C. Lim(KAERI)

**P03D12 Evaluation of Radiation Dose Rate for SNF in a Simple Accident**  
Jae-Hoon Ko, Jae-Ho Park, Seong-Ae Moon, and Kyu-Sup Choi(KONES)

**P03D13 Volume Reduction of Radioactive Concrete Waste Generated from KRR-2 and UCP**  
B. Y. Min, W. K. Choi, J. W. Park, and K. W. Lee(KAERI)

**P03D14 Filtration Characteristics of Re-TPPCI and Cs-NaTPB Precipitates Solids Generated in a Uranium Recovery Process from a Simulated Spent Nuclear Fuel by Using an Alkaline Solution**

H. B. Yang, E. H. Lee, J. K. Lim, D. Y. Chung, and K. W. Kim(KAERI)

**P03D15 Effect of Synthesis Conditions on the Morphology of Mesoporous Silica Microspheres**  
Sun Kyung Ji, Yong Suk Choi, Yong Joon Park, and Jong-Yun Kim(KAERI)

**P03D16 Implementation of a Dynamic Material Flow for a Pyroprocess**  
Hyo Jik Lee, Byung Suk Park, Kiho Kim, and Ho Dong Kim(KAERI)

**P03D17 Thermal Analysis for a Salt Evaporation System with a Computational Fluid Dynamics Method**  
Sung Bin Park, Moon Sik Woo, Dong Wook Cho, Choon Ho Cho, Sung Chan Hwang, Young Ho Kang, and Han Soo Lee(KAERI)

**P03D18 Scaling Factor Calculation with Robust Regression**  
J. W. Park, K. J. Lee, S. C. Lee, Y. H. Lee, J. K. Lee, S. Y. Kim, and M. H. Ahn(KAIST), T. W. Kim(KHNP)

**P03D19 TRLFS Study on Eu(III) Carbonate Complexation under Aerobic Conditions**  
H. S. Shin, J. -Y. Lee, and J. -I. Yun(KAIST)

**P03D20 Electrochemical Processes of La(III) and Uranium Ions in Molten LiCl-KCl**  
Gao Fanxing and Won Il Ko(KAERI)  
Wang Changshui and Ouyang Yinggen(CIAE)

**P03D21 New Approach to Quantitative Analysis by Laser-induced Breakdown Spectroscopy**  
D. H. Lee, T. H. Kim, and J. -I. Yun(KAIST), E. C. Jung(KAERI)

**P03D22 Solubility of Neptunium in the KAERI Underground Research Tunnel (KURT) Using PHREEQC**  
B. Y. Kim, J. Y. Oh, and J. -I. Yun(KAIST), M. H. Baik(KAERI)

**P03D23 Electrochemical Reduction of U<sub>3</sub>O<sub>8</sub> Powder and an Oxide Mixture in ACPF**  
Sang Mun Jeong, Byung Heung Park, Jin-Mok Hur, Sun-Seok Hong, Ho-Sup Shin, and Hansoo Lee(KAERI)

**P03D24 Development of PWR Fresh Fuel Shipping Container**  
D. Y. Kim, J. S. Choi, J. S. Hong, W. C. Hwang, C. H. Hwang, and H. S. Chang(KNF), I. Y. Kim and J. K. Hwang(KOPEC)

**P03D25 Diffusivity and Absorptivity of EuCl<sub>3</sub> in a LiCl-KCl Molten Salt**  
S. K. Min, S. E. Bae, Y. H. Cho, Y. J. Park, and K. Song(KAERI)

**P03D26 Determination of the Burnup and Pu/U Ratio of PWR Spent Fuel Samples by a Gamma-ray Spectrometry**  
Kwang-June Park, June-Sik Ju, Hee-Sung Shin, Yong-Bum Chun, and Ho-Dong Kim(KAERI)



## II.분과별 논제 및 발표자

### 제 4 분과 A

#### 핵연료 및 원자력재료(Nuclear Fuel and Materials)

##### – 핵연료 성능평가(Nuclear Fuel Performance Evaluation)

5월 22일(FRI)

좌 장 • 이병호(Byung Ho Lee) / 천진식(Jin Sik Cheon)

발표장소 • 그랜드볼룸C

[Invited Paper]

#### 09:00 Progress in Nuclear Fuel Technology in Korea

Kun Woo Song, Joo Hwan Park, and Yang-Hyun Koo(KAERI)  
Kyeong Lak Jeon and Young Ki Jang(KNF)

#### 09:20 Calculation of IAEA CRP-6 Benchmark Cases for Accident Conditions Using COPA-FPREL

Kim Young Min, Y. K. Kim, S. C. Oh, K. C. Jeong, W. K. Kim, Y. W. Lee, and M. S. Cho(KAERI)

#### 09:40 A Study on the Development of Simplified Fuel Assembly SSE/LOCA Analysis Model Using Optimization Technique

Kyou Seok Lee, Sang Youn Jeon, and Hyeong Koo Kim(KNF)

#### 10:00 Transition of Natural Frequencies of a Fuel Rod during its Lifetime

Hyeong Koo Kim, Kyou Seok Lee, Jeong Ha Kim, and Sang Yoon Jeon(KNF)

#### 10:20 Effects of Hydride and Microstructure on the PCI Behaviors of the Nuclear Fuel Claddings

Sang Yoon Park, Byoung Kwon Choi, Dong Jun Park, Jeong-Yong Park, and Yong Hwan Jeong(KAERI)

#### 10:40 Coffee Break

#### 11:00 Analysis of Measured Thermal Conductivity for an Attrition-milled MOX Fuel

Byung-Ho LEE, Yang-Hyun KOO, Je-Yong OH, Han-Soo KIM, and Dong-Seong SOHN(KAERI)

#### 11:20 Irradiation Test of U-Zr SFR Fuels in Hanaro

Jin-Sik Cheon, Byoung-Oon Lee, Yong-Sik Yang, Cheol-Gyo Seo, and Chan-Bock Lee(KAERI)

#### 11:40 Irradiation Growth Performances of Advanced Fuels in Nuclear Reactors

Young Ki Jang, Kyeong Lak Jeon, Yong Hwan Kim, Jae Ik Kim, Jung Cheol Shin, and Jong Ryul Park(KNF)

#### 12:00 Radial Distribution of Isotope Ratios in Spent Nuclear Fuels with Different Burnups

Yeong-Keong Ha, Jung Suck Kim, Young Shin Jeon, Hang Seok Seo, and Kyuseok Song(KAERI)

### 제 4 분과 B

#### 핵연료 및 원자력 재료(Nuclear Fuel and Materials)-Poster

##### – 핵연료-I(Nuclear Fuel-I)

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

#### P04B01 A Fuel Rod Performance Analysis and Design Code-ROPER

J. M. Choi, Y. H. Heo, and H. T. Han(KNF)

#### P04B02 Study on the Static Characteristics of Holddown Spring for OPR1000 Fuel Assembly

Jin-Sun Kim, Joon-Kyoo Park, Jin-Seok Lee, Jung-Min Suh, and Kyong-Lak Jeon(KNF)

#### P04B03 Uncertainty Evaluation of the Indirectly Produced Data for the Melting Point and Specific Heat of Uranium Dioxide

Jae Hwan Yang, Chang Je Park, and Kweon Ho Kang(KAERI)

#### P04B04 A Study of the Fission Gas Release during the Oxidation of the Irradiated Large Grain UO<sub>2</sub> Specimens

Dae-Ho Kim, Yong Sik Yang, Jae Geon Bang, Sun Ki Kim, Ik Sung Lim, and Kun Woo Song(KAERI)

#### P04B05 A Study on the Pressure Drop of a Subchannel Analysis Code for an Annular Fuel

C. H. Shin, K. W. Seo, W. K. In, and T. H. Chun(KAERI)

#### P04B06 A Thermal Analysis for a Fuel Element of a Pebble-bed Reactor

Y. M. Kim and M. S. Cho(KAERI)

#### P04B07 Advantages of a Dual Cooled Annular Fuel for a Super Critical Water Reactor

Yong Sik Yang, Je Geon Bang, Tae Hyun Chun, and Kun Woo Song(KAERI)

#### P04B08 Ceramography of MOX Fuel Rods after Irradiation Test

Han Soo Kim, Chang Yong Jong, Byung Ho Lee, Jae Yong Oh, and Yang Hyun Koo(KAERI)

#### P04B09 Current Status of CABRI RIA-simulating Test Program

Je-Geon Bang, Dae-Ho Kim, Ik-Sung Lim, Sun-Ki Kim, Yong-Sik Yang, and Kun-Woo Song(KAERI)

#### P04B10 Design and Fabrication of the Double Cladding Instrumented Fuel Rods and the Instrumented Fuel Capsule(07F-06K) for the Irradiation Test at HANARO

Jaemin Sohn, Jongmyung Oh, Sooyeol Oh, Sungjae Park, Mansoon Cho, Bonggoo Kim, Keenam Choo, and Youngki Kim(KAERI)

#### P04B11 Development and Application of an Evaluation Method for the Supporting Structure Characteristics of a Dual Cooled Fuel Rod

Young-Ho Lee, Kang-Hee Lee, Jae-Yong Kim, Kyung-Ho Yoon, and Hyung-Kyu Kim(KAERI)

- P04B12 Devices and Instrumentations for Nuclear Fuel Irradiation Tests in HANARO**  
B. G. Kim, J. M. Sohn, S. J. Park, Y. T. Shin, and K. N. Choo(KAERI)
- P04B13 Ductility Evaluation of High Burn-up Cladding by Using Ring Compression**  
Sun-Ki Kim, Je-Geon Bang, Dae-Ho Kim, Ik-Sung Lim, Yong-Sik Yang, Kun-Woo Song, and Do-Sik Kim(KAERI)
- P04B14 Thermal Properties Evaluation of U-Zr and U-Zr-Ce Alloys**  
Sun-Ki Kim, Jong-Tak Lee, Seok-Jin Oh, Young-Mo Ko, Youn-Myung Woo, Ho-Jin Ryu, Chan-Bock Lee, and Jae-Ho Yang(KAERI)
- P04B15 Evaluation on Measurement Condition of Laser Flash Method for Aluminum 1060 Thermal Diffusivity**  
D. G. Park, H. M. Kim, Y. S. Choo, K. P. Hong, S. B. Ahn, and W. S. Ryu(KAERI)
- P04B16 Experimental Investigation into the Elastic Buckling of a Nuclear Fuel Cladding Tube**  
Hyung-Kyu Kim, Byoung-Kwon Choi, Kun-Woo Song, Kyung-Ho Yoon, Young-Ho Lee, Jae-Yong Kim, and Kang-Hee Lee(KAERI)
- P04B17 Fitting UO<sub>2</sub> Interatomic Potential Using Micro-genetic Algorithm**  
Jae-Yong Oh, Yang-Hyun Koo, and Byung-Ho Lee(KAERI)
- P04B18 Hot Spot Analysis around the Contact Zone between Fuel Rod and Spacer Grid**  
Jin Seok Lee, Kwang Ho Yoon, Yong Hwan Kim, and Kyeong Lak Jeon(KNF), Won Dae Jeon(CD-adapco)
- P04B19 Improvement on the End Plug For an Instrumented Nuclear Fuel Rod for the Irradiation Test at HANARO**  
Sungjae Park, Jaemin Sohn, Bonggoo Kim, Keenam Choo, and Youngki Kim(KAERI)
- P04B20 Measurement of the Thermal Diffusivity of UO<sub>2</sub> with Sample Holders for PIE in a Hot-cell**  
Heemoon Kim, Dae Gyu Park, Sang Ho Na, Chang Je Park, Kweon Ho Kang, Seung Jai Baik, and Sang-Bok Ahn(KAERI)
- P04B21 Phenomenological Modeling of Fission Gas Release in LWR UO<sub>2</sub> Fuel under RIA Conditions**  
Yang-Hyun Koo, Jae-Yong Oh, and Byung-Ho Lee(KAERI)
- P04B22 Proficiency Testing Schemes of a Fuel Assembly Performance Method by Comparing of Measurement Results of Two Tester**  
K. H. Yoon, J. K. Kim, K. H. Lee, Y. H. Lee, and H. K. Kim(KAERI)
- P04B23 Standardless Quantitative Analysis of PWR Spent Fuel with WDS-SEM**  
Hyoung-Mun Kwon, Yong-Sik Yang, June-Sik Ju, Wan-Ho Oh, Jung-Nam Jang, and Yong-Bum Chun(KAERI)
- P04B24 Trial Run of the Performance Test Facility for Fuel Assembly Hydraulics and Vibrations Analyses**  
C. H. Shin, H. K. Kim, B. D. Kim, J. K. Park, S. Y. Chun, and D. S. Oh(KAERI)
- P04B25 Structural Integrity Evaluation of Fuel Assembly Bottom Nozzle for OPR 1000**  
Joon-Kyoo Park, Jin-Seok Lee, Jung-Min Suh, and Kyeong-Lak Jeon(KNF)
- P04B26 Design of the Flow Plates for a Dual Cooled Fuel Assembly**  
Jae Yong Kim, KyungHo Yoon, YoungHo Lee, KangHee Lee, and Hyungkyu Kim(KAERI)

## 제 4 분과 C

핵연료 및 원자력재료(Nuclear Fuel and Materials)  
– 재료신뢰성(Reliability Evaluation of Nuclear Materials)

5월 22일(FRI)

좌 장 • 장창희(C. H. Jang) / 김홍표(H. P. Kim)

발표장소 • 크리스탈C

- 09:00 Environmental Fatigue Behaviors of Type 316LN Stainless Steels in Simulated PWR Water with Different Dissolved Hydrogen Contents - Preliminary Results**  
Hun Jang, Pyung Yeon Jo, and Changheui Jang(KAIST)
- 09:20 PWSCC in Alloy 600 and IG Crack Growth Rates in PWR Environments**  
Y. C. Jung, H. S. Chung, K. S. Lee, and N. H. Heo(KEPRI)
- 09:40 PWSCC Mechanism of Alloy 600**  
Hong Pyo Kim, Y. S. Lim, S. W. Kim, S. S. Hwang, D. J. Kim, S. S. Kim, J. S. Kim, J. Y. Park, and M. K. Jeong(KAERI)
- 10:00 Causes of PWSCC in a Alloy 600 Nozzle of a PWR**  
Seong Sik Hwang, Yun Soo Lim, Jangyul Park, and Hong Pyo Kim(KAERI)
- 10:20 Transmission Electron Microscopy Characterization of PWSCC Cracks in Alloy 600**  
Yun Soo Lim, Hong Pyo Kim, Hai Dong Cho, and Han Hee Lee(KAERI)
- 10:40 Coffee Break**
- 11:00 A Probabilistic Life Prediction of PWSCC of Ni-base Alloy**  
Tae-Hyun Lee and Il Soon Hwang(SNU)
- 11:20 Measurement of the Deposit Loading on the Tube Outer Diameter of Nuclear Steam Generator Using ECT**  
Do Haeng Hur, Myung Sik Choi, Kyung Mo Kim, Jung Ho Han, and Deok Hyun Lee(KAERI)
- 11:40 Evaluation of Dose Dependence on Tensile Deformation and Failure in Austenitic Stainless Steels**  
Jin Weon Kim(CSU), Thak Sang Byun(ORNL)

## II.분과별 논제 및 발표자

### 12:00 Effects of Alloying Elements Contents on the Toughness and Transition Behavior in the SA508 Gr. 4N Ni-Cr-Mo Low Alloy Steels

Ki Hyoung Lee, Sang Gyu Park, and Dang Moon Wee(KAIST)  
Min Chul Kim and Bong Sang Lee(KAERI)

### 12:20 The Radiation Hardening and Microstructural Defect Evolution in Ion Irradiated Fe-Cr Alloys with Irradiation Temperature

Hyung-Ha Jin, Chansun Shin, and Junhyun Kwon(KAERI)

## 제 4 분과 D

## 핵연료 및 원자력재료(Nuclear Fuel and Materials)-Poster - 재료신뢰성(Reliability Evaluation of Nuclear Materials)

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

### P04D01 Corrosion Behavior of 316 Stainless Steel in Lead-bismuth Eutectic(LBE)

Y. H. Kang, S. J. Park, Y. T. Shin, M. S. Cho, and K. N. Choo(KAERI)

### P04D02 Investigation of a Lead Induced SCC and its Mitigation

Dong-Jin Kim, Mi Ae Kim, Hyuk Chul Kwon, Seong Sik Hwang, and Hong Pyo Kim(KAERI)

### P04D03 Irradiation of Polyimide and Neutron Poison Materials by Using a HANARO Capsule

K. N. Choo, M. S. Cho, Y. T. Shin, B. G. Kim, C. G. Seo, and Y. K. Kim(KAERI)

### P04D04 Behavior of a Crack with in a Dissimilar Metal Weld Part by Using an Overlay Weld

Kang Soo Kim, Ho Jin Lee, and Bong Sang Lee(KAERI)

### P04D05 Micro-hardness Measurement of Proton Irradiated Type 316 Stainless Steel

Yun Soo Lim, Seong Sik Hwang, Hong Pyo Kim, and Han Hee Lee(KAERI)

### P04D06 Evaluation of Electrochemical Noise Parameters as Indicators of Stress Corrosion Crack Initiation and Propagation of Alloy 600 SG Tube at High Temperature

Sung Woo Kim, Hong Pyo kim, and Pyung Sik Choi(KAERI)

### P04D07 Characterization of Factors Affecting IASCC of Stainless Steels for Core Internals in PWR

Sung Woo Kim, Seong-Sik Hwang, and Hong Pyo Kim(KAERI)

### P04D08 SSRT System Upgrade and Microhardness Measurement of Proton-irradiation Type 316 Stainless Steel

Han-Hee Lee, Seung-Mo Hong, and Seong-Sik Hwang(KAERI)

### P04D09 The Development of a Material Capsule(07M-09K) for an Irradiation at the HANARO Out-core Region

M. S. Cho, K. N. Choo, Y. T. Shin, J. M. Sohn, S. J. Park, Y. H. Kang, B. G. Kim, and Y. K. Kim(KAERI)

### P04D10 Stress Corrosion Cracking of Ni Base Alloys in Pb-contaminated Caustic Solutions

Mi-Ae Kim, Dong Jin Kim, Joung Soo Kim, and Hong Pyo Kim(KAERI)

### P04D11 Development of a Simulation Technique and an Examination of a Mechanism for the Swelling of a Steam Generator Tube

Ki Nam Kim and Seon Jin Kim(HYU), Deok Hyun Lee, Myung Sik Choi, Do Haeng Hur, Kyung Mo Kim, and Jung Ho Han(KAERI)

### P04D12 Feasibility of Nonlinear Resonant Ultrasound Spectroscopy(NRUS) for Diagnosis of Micro-cracks

Yong-Moo Cheong and Mohammad Khurshed Alam(KAERI)

### P04D13 Assessment of a Leakage by a Water Pressurization on a Degraded SG Tubes

Chan NamGung, SeongSik Hwang, Jangyul Park, ManKyo Jung, and HongPyo Kim(KAERI)

### P04D14 IASCC Test Method Using Proton Irradiated Stainless Steel Specimens in a High Temperature Water Chemistry Environment

Seung Mo Hong, Han-Hee Lee, and Seong-Sik Hwang(KAERI)

### P04D15 The Characters of Materials in Sulfuric Acid Environments

Hyuk-Chul Kwon, Dong-Jin Kim, and Hong-Pyo Kim(KAERI)

### P04D16 Kinetic Monte Carlo Simulation of a Trapping Effect on the Accumulation Behavior of Defect Clusters in Neutron-irradiated Fe

Gyeong-Geun Lee and Junhyun Kwon(KAERI)

### P04D17 Spectral Analysis of Electrochemical Noise Generated during a Stress Corrosion Cracking of Inconel Alloys for a Steam Generator Tubing in a PWR

Pyung-Sik Choi, Sung-Woo Kim, and Hong-Pyo Kim(KAERI)

### P04D18 Positron Annihilation Study of Ion-irradiated Si

Jung-ki Shin and Junhyun Kwon(KAERI), Jongyong Lee(HNU)

### P04D19 The Effect of Hold Time on Creep-fatigue in 9Cr-1Mo

Oh Tae Young, Kim dae whan, and Kim Yong Wan(KAERI)  
Baek Kyoung Ho(CNU)

### P04D20 A Study of the Alloying Elements in the Model Alloy Studied by Thermoelectric Power and Electrical Resistivity

D. G. Park and Y. M. Cheong(KAERI)  
D. Kingensmith, T. Yamamoto, and G. R. Odette(UCSB)

### P04D21 Evaluation of Factors Affecting Fatigue Properties of 9Cr-1Mo

Dae Whan Kim and Yong Wan Kim(KAERI)

### P04D22 Mechanical Properties and Residual Stresses in Temper Bead Welded Specimens

Kyeong Ho Kim, Hong Eun Kim, Jae Yong Ryu, Ho Jin Lee, and Bong Sang Lee(KAERI)

**P04D23 Effect of Fabrication Variables on Impact Energy in MA 316L and WET 316L ODS Stainless Steels**

SungSoo Kim, Sung-Ki Yang, Ho Jin Ryu, and Jinsung Jang(KAERI)

**P04D24 Change in Residual Stress by Ordering Treatment and Isochronal Annealing Treatment in CW Alloy 600**

SungSoo Kim, DukGeun Park, and Yong-Moo Cheong(KAERI)

**P04D25 Impact Fretting Wear Characteristics of Tube Materials against Carbon Steel Support Structure in Steam Generator**

Chi-Yong Park and Jeong-Keun Lee(KEPRI)

**P04D26 Simulations of Radiation Defect Images from Transmission Electron Microscopy**

Sang Chul Kwon, Chansubn Shin, and Jun Hyun Kwon(KAERI)

**제 4 분과 E**

**핵연료 및 원자력재료(Nuclear Fuel and Materials)**

– 핵연료 제조 및 핵연료주기(Nuclear Fuel Cycle and Fuel Fabrication) 5월 22일(FRI)

**좌 장** • 이영우(Young Woo Rhee) / 김창규(Chang Kyu Kim)

**발표장소** • 그랜드볼룸C

**13:30 Current Status of the MLIS Uranium Enrichment Process**

Jaewoo Kim, Chang-Kyu Rhee, Whung Whoe Kim, and Maeng-Ho Yang(KAERI), Jeff W. Eerkens(Istope Tec. Inc.)

**13:50 Overview of Transmutation Fuels for Sodium Fast Reactor**

Chan bock Lee and Do Hee Hahn(KAERI)

**14:10 Spherical UO<sub>2</sub> Kernel Particle Preparation for HTGR Fuel in Korea**

Jeong Kyung Chai, Kim Yeon Ku, Oh Seung Chul, Kim Woong Ki, Kim Young Min, Lee Young Woo, and Cho Moon Seoung(KAERI)

**14:30 Annular Fuel Pellet Fabrication without Surface Grinding**

Young Woo Rhee, Dong Joo Kim, Jong Hun Kim, Jae Ho Yang, Keon Sik Kim, Ki Won Kang, and Kun Woo Song(KAERI)

**14:50 The Effect of Pores after a Grinding on the Sintered Density of a UO<sub>2</sub> Pellet**

S. H. Na, K. H. Kang, Y. H. Kim, C. J. Park, and J. H. Yang(KAERI)  
M. J. Yoo(KNF)

**15:10 Coffee Break**

**15:30 An Investigation on Improving Dispersion Homogeneity of Large Particle U-Mo and Al Powders by a Sieving-through Method**

C. K. Kim, J. M. Oh, and J. M. Park(KAERI), G. H. Choi(CNU)

**15:50 Performance of Electroplated Cr as a FCCI Barrier Material for a Sodium-cooled Fast Reactor(SFR) Cladding**

Seong Woo Yang, Ho Jin Ryu, Jun Hwan Kim, Byoung Oon Lee, and Chan Bock Lee(KAERI)

**16:10 Systematic Quality Approach Program for Zr Alloy Tube Manufacturing Technology and Performance Evaluation Technology**

In Kyu Kim, Chan Hyun Park, Seung Hwan Lee, Sun Kyo Chung, and Jae Soo Noh(KNF), Gerald B.Sieradzki, Michael A. McClarren, and Badri J.Narayan(WEC)

**16:30 Zirconium Alloy Cladding Tube Characteristics Made by KNF**

YongKyo Mok, yoonho Kim, Ohhyun Kwon, Seungjae Lee, Jaeik Kim, Kyeonglak Jeon, and Sunkyo Chung(KNF)

**제 4 분과 F**

**핵연료 및 원자력재료(Nuclear Fuel and Materials)–Poster**

– 핵연료 –II (Nuclear Fuel–II)

5월 22일(FRI)

**발표시간** • 14:00~16:00

**발표장소** • 에메랄드홀

**P04F01 An Investigation on Monolithic U-Mo Plate Type Fuel by a Pressure-sintering Method**

G. H. Choi and B. S. Chun(CNU) C. K. Kim, J. M. Oh, and S. J. Jang(KAERI)

**P04F02 Control of Diametric Tolerance of Annular Pellet Using CIP with Metal Rod Insertion**

Dong-Joo Kim, Young Woo Rhee, Jong Hun Kim, Jae Ho Yang, Ki Won Kang, Yong Woon Kim, and Keon Sik Kim(KAERI)

**P04F03 Control of Resintering Behavior of UO<sub>2</sub> Fuel Pellets by Modifying the Microstructure**

Yong Woon Kim, Jae Ho Yang, Dong-Joo Kim, Young Woo Rhee, Jong Hun Kim, Ki Won Kang, and Keon Sik Kim(KAERI)

**P04F04 Density Measurement of Silicon Carbide Layers of Simulated Coated Particles by Using a Density Gradient Column**

Woong Ki Kim, Young Woo Lee, Weon Ju Kim, Young Min Kim, Yeon Ku Kim, Seung Chul Oh, Kyung Chai Jeong, and Moon Sung Cho(KAERI)

## II.분과별 논제 및 발표자

### P04F05 Development of Doped-UO<sub>2</sub> Pellets for a PCI Remedy

Jae Ho Yang, Ki Won Kang, Jong Hun Kim, Young Woo Rhee,  
Kim Dong-Joo, Keon Sik Kim, and Kun Woo Song(KAERI)

### P04F06 Development of Remote Welding Equipment for a DUPIC Bundle Fabrication

Soo-Sung Kim, Geum-Il Park, and Jung-Won Lee(KAERI)

### P04F07 Zirconium Alloy Guide Thimble Tube Characteristics Made by KNF

Yoonho Kim, Yongkyoon Mok, Ohhyun Kwon, Seungjae Lee, Jaeik Kim,  
Kyeonglak Jeon, and Sunkyo Chung(KNF)

### P04F08 Acquisition/Diversion Pathway Analysis for the Assessment of Proliferation Resistance

Hong-Lae Chang and Won Il Ko(KAERI)

### P04F09 Remote Manipulators and Simulator for the PRIDE Facility Application

Kiho Kim, Byung Suk Park, Jong Kwang Lee, Sung Hyun Kim,  
Hee Sung Park, Hyo Jik Lee, and Ho Dong Kim(KAERI)

### P04F10 Assessment of Fission Product Release Following Stagnation Feeder Break in CANDU 6

Jong Yeob Jung and Joo Hwan Park(KAERI)

### P04F11 Development of Neutron Measurement System for Direct Fissile Assay

YongDeok Lee, Chang-Je Park, Jae Hoon Song, Park Geun-il, and  
Kee Chan Song(KAERI)

### P04F12 Effect of the Temperature and Pressure on a Cadmium Distillation

S. W. Kwon, J. B. Shim, S. W. Paek, K. R. Kim, S. H. Kim, D. H. Ahn, and  
H. S. Lee(KAERI)

### P04F13 Electrodeposition of Uranium on Cadmium Cathode Depending on the Deposition Temperature

S. H. Kim, S. W. Paek, J. B. Shim, S. W. Kwon, K. R. Kim, H. S. Chung,  
and D. H. Ahn(KAERI), D. S. Yoon(UST)

### P04F14 Evaluation of a High Burnup Spent Fuel regarding the Regulations for a Spent Fuel Dry Storage

Ik-Sung Lim, Young-Sik Yang, Je-Geon Bang, Dae-ho Kim, Sun-Ki Kim,  
and Keun-Woo Song(KAERI)

### P04F15 The Quantity Determination for <sup>235</sup>U and <sup>239</sup>Pu in Nuclear Fuel Using a Monte Carlo Simulation

Jae Hoon Song, Chang Je Park, YongDeok Lee, and Geun il Park(KAERI)

## 제 4 분과 G

## 핵연료 및 원자력재료(Nuclear Fuel and Materials)

— 재료기성 건전성 및 신소재개발(Component Reliability & New Materials Development)

5월 22일(FRI)

좌 장 • 이봉상(B. S. Lee) / 김진원(J. W. Kim)

발표장소 • 그랜드볼룸B

### 13:30 Evaluation of a Breakaway Oxidation of Zr-based Claddings after a LOCA-simulated Oxidation and Water Quenching Test

Hyun-Gil Kim, Il-Hyun Kim, Byung-Kwan Choi, Jeong-Yong Park, and  
Yong-Hwan Jeong(KAERI)

### 13:50 Crack Growth Rate of Zirconium Alloys under Sustained and Cyclic Loads

Young Suk Kim(KAERI), Vidas Markarevicius(LEI)

### 14:10 Mixed Mode I-II Fracture Behavior of Selected Nuclear Graphites

Eung-Seon Kim, Kwang-Seok Park, and Yong-Wan Kim(KAERI)

### 14:30 Development of a Fabrication Process for a High Strength FM Steel

Tae Kyu Kim, Chang Hee Han, Sung Ho Kim, and Chan Bock Lee(KAERI)

### 14:50 New Methodology to Predict the Long-term Creep Strength of Alloy 617 for a Very High Temperature Reactor

Woo Gon Kim, Song Nan Yin, Gyeong-Geon Lee, and Yong Wan Kim(KAERI)

### 15:10 Coffee Break

### 15:30 Development of the PARA-ID Program to Simulate a Unified Viscoplasticity Behaviour

Gyeong-Hoi Koo(KAERI)

### 15:50 Comparison of ASME Code NB-3200 and NB-3600 Results for Fatigue Analysis of Primary Piping Spray Nozzle

H. S. Lee, S. B. Han, and K. H. Lee(GNEC), J. G. Lee(KHNP)

### 16:10 LBB Assessment of Pressurizer Surgeline Using NUREG-CR/6765 Level 3 Approach

Y.H.Jang, B.H.Bae, and T.S.Kim(KHNP)

### 16:30 Mesh Size Effects on Fracture Toughness Estimation by Damage Model

Shin-Beom Choi, Yoon-Suk Chang, and Young-Jin Kim(SKKU)  
Min-Chul Kim and Bong-Sang Lee(KAERI)

### 16:50 Collapse Moment Prediction for the Wall-thinned Pipe Bends Using Fuzzy Neural Networks and Uncertainty Analysis

Sung Han Lee, Dong Hyuk Lim, and Man Gyun Na(CSU)

## 제 4 분과 H

## 핵연료 및 원자력재료(Nuclear Fuel and Materials)–Poster

– 재료기기 건전성 및 신소재개발(Component Reliability & New Materials Development)

5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

### P04H01 Aging Effect on Corrosion and Microstructure of Zr-1.5Nb-0.4Sn-0.2Fe-0.1Cr Alloy

Hyun-Gil Kim, Byung-Kwan Choi, Sang-Yoon Park, Myung-Ho Lee, Jeong-Yong Park, and Yong-Hwan Jeong(KAERI)

### P04H02 Effect of Silicon on the Microstructures and Tensile Properties of Austenitic ODS Stainless Steels for Fast Reactor Cladding

Min Ho Kim, Ho Jin Ryu, Chang Hee Han, Sung Soo Kim, and Jinsung Jang(KAERI)

### P04H03 Effect of Vanadium on the Creep Properties of SFR Fuel Cladding Tube Materials

Sung-Ho Kim, Chan bock Lee, and Dohee Hahn(KAERI)

### P04H04 Effect of a Hot Rolling Process on the Mechanical Behavior of 9Cr-1Mo Steel

Jun Hwan Kim, Chang Hee Han, Sung Ho Kim, and Chan Bock Lee(KAERI)

### P04H05 Effects of Boron Addition on Creep and Microstructure in 9Cr-0.5Mo-2W-V-Nb-B Steels for a SFR Fuel Cladding

Jong-Hyuk Baek, C. -H. Han, W. -G. Kim, T. -K. Kim, J. -H. Kim, S. -H. Kim, and C. -B. Lee(KAERI)

### P04H06 Thermo-mechanical Behavior of a H4 Outer Strip in the Transverse Direction

Myung Ho Lee, Yang Il Jung, Sang Yoon Park, Byoung Kwon Choi, Jeong Yong Park, Hyun Gil Kim, and Yong Hwan Jeong (KAERI)

### P04H07 Study on the Segregation Behavior in SA508 Gr. 4N Low Alloy Steel with Mn Contents Variation

Sang Gyu Park and Dang Moon Wee (KAIST)  
Min-Chul Kim and Bong Sang Lee (KAERI)

### P04H08 A Study on the Thermal Stability of Electrodeposited Ni-P-Fe and Ni-P-B at 325 °C

Myong Jin Kim, Sang-Hyun Ryu, Dong Jin Kim, Joung Soo Kim, and Hong Pyo Kim(KAERI)

### P04H09 TEM Holder for Observing Radioactive or Magnetic Specimens

Yongbok Lee and Junhyun Kwon(KAERI)

### P04H10 Development of a Manufacturing Process for Nb Containing Zr-based Alloys

Yang-Il Jung, Myung-Ho Lee, Byoung-Kwon Choi, Jeong-Yong Park, and Yong-Hwan Jeong(KAERI)

### P04H11 Effects of Filler Size on Radiation Shields

Jaewoo Kim, Byung Chul Lee, Young Rang Uhm, Jinwoo Jung, and Chang-Kyu Rhee(KAERI)

### P04H12 Diametral Compressive Strength and Elastic Modulus of Flattened Disc Using Diametral Compressive Test

Donghoon Kim, Byung Jun Kim, and Changheui Jang(KAIST)  
Se-Hwan Chi(KAERI)

### P04H13 Fatigue Analysis of Tubesheet/Shell Juncture Applying the Mitigation Factor for Over-conservatism

Deog Ji Kang, Kyu Hyoung Kim, and Jae Gon Lee(KHNP)

### P04H14 The Effect of Inspection Model on the Probability of Vessel Failure due to Pressurized Thermal Shock

Myung Jo Chung and Young Hwan Choi(KINS), Changheui Jang(KAIST)

### P04H15 Development of an Integrated Multi-channel Ultrasonic System for Online Structural Health Monitoring of Large Structures

Heung-Seop Eom and Jin-Ho Park(KAERI)  
Hak-Joon Kim and Sung-Jin Song(SKKU)

### P04H16 Flow-induced Vibration Measurement of an Inner Cladding Tube in a Simulated Dual-cooled Fuel Rod

Kang-Hee Lee, Hung-Kyu Kim, Kyung-Ho Yoon, Young-Ho Lee, and Jae-Yong Kim(KAERI)



## II.분과별 논제 및 발표자

### 제 5 분과 A

#### 원자력열수력 및 안전(Thermal Hydraulics and Safety)

##### - 열수력실험(Thermal-Hydraulic Analysis)

5월 22일(FRI)

좌 장 • 전태현(Chun Tae Hyun) / 권태순(Tae-Soon Kwon)

발표장소 • 그랜드볼룸A

[Invited Paper]

#### 09:00 Safety Assessment of Korean Nuclear Facilities: Current Status & Future

W. P. Baek, J. E. Yang, and J. J. Ha(KAERI)

#### 11:00 Simultaneous Measurements of Size and Velocity of Bubbles in an Opaque Tube Using X-ray PTV Technique

Seok Kim and Chul Hwa Song(KAERI), Sang Joon Lee(POSTECH)

#### 09:20 Experimental Study on the Friction Loss Coefficient in a Micro Gap

Ho-Yun Nam, Byoung-Hae Choi, Jong-Man Kim, and Byung-Ho Kim(KAERI)

#### 11:20 Steam Binding and Inhomogeneous Top Quenching Observed during ATLAS LBLOCA Reflood Tests

Hyun-Sik Park, Seok Cho, Kyoung-Ho Kang, Ki-Yong Choi, Yeon-Sik Kim, and Won-Pil Baek(KAERI), Dae-Hun Kim(Doosan Heavy Co., Ltd.)

#### 09:40 CHF Enhancement of a Forced Convective Flow Boiling in Nanofluid

HoSeon Ahn, HangJin Jo, SoonHo Kang, and MooHwan Kim(POSTECH)

#### 11:40 The Nucleate Boiling Heat Transfer by the Hydrophobic Milli-dot on the Silicon Surface

HangJin Jo, Ho Seon Ahn, Seontae Kim, Soon Ho Kang, Moo Hwan Kim, Hyungmo Kim, and Joonwon Kim(POSTECH)

#### 10:00 An Application of Zeta Potential Method for the Selection of Nano-fluids to Enhance IVR Capability

Pham Quynh Trang, Tae Il Kim, and Soon Heung Chang(KAIST)

#### 12:00 Measurements of Bubbly Flow in a Subchannel by Using Optical Sensor Probe

Seok-Kyu Chang, Yeon-Jun Choo, Bok-Deuk Kim, In-Cheol Chu, Dong-Jin Euh, Won-Man Park, Byong-Jo Yun, and Chul-Hwa Song(KAERI)

#### 10:20 Preliminary Analysis of Mixing Tests in an Annular Vessel

C. K. Park, Y. J. Youn, H. G. Jun, and C. H. Song(KAERI)  
K. K. Lee and H. J. Ko(KOPEC)

#### 12:20 CHF Enhancement in Flow Boiling at Low Mass Flux Using Al<sub>2</sub>O<sub>3</sub> Nano-fluid

Tae Il Kim, Yong Hoon Jeong, and Soon Heung Chang(KAIST)

#### 10:40 Coffee Break

### 제 5 분과 B

#### 원자력열수력 및 안전(Thermal Hydraulics and Safety)

##### - 열수력 해석기술 I(Thermal-Hydraulic Analysis Technology I)

5월 22일(FRI)

좌 장 • 정재준(Jae Jun Jeong) / 이상종(Lee Sang Jong)

발표장소 • 그랜드볼룸B

[Invited Paper]

#### 09:00 Nuclear Regulatory Research in Korea: Achievements and Future Direction

Yong-Ho RYU(KINS)

#### 11:00 A Semi-implicit Numerical Method with a Symmetric Pressure Matrix for Multi-dimensional Two-phase Flows

H. Y. Yoon, Y. I. Kim, Y. D. Hwang, and J. J. Jeong(KAERI)

#### 09:20 CFD Analysis of Flow Characteristics in a Fluidic Device for Design Optimization and RELAP5/MOD3.3 Code Validations with LBLOCA Using the New Pressure Loss Models

Sang-Gyu Lim, Seok-Ho Lee, and Han-Gon Kim(KHNP)

#### 11:20 Development of a Boron Transport Model in SPACE Code

Jong Cheol Park, Chan Eok Park, and Gyu Cheon Lee(KOPEC)

#### 09:40 Analysis of the Coastdown Speed for a Canned Motor Pump

Jin Seok Park, Suhm Choi, and Keung Koo Kim(KAERI)

#### 11:40 Development of a Convective Heat Transfer Correlation of a Supercritical CO<sub>2</sub> with Vertical Downward Flow in Circular Tubes

Tae Ho YOO(HNU), Hwan Yeol KIM and Yoon Yeong BAE(KAERI)

#### 10:00 Study on the Feasibility of CHF Data Integration

Ho-Young Park, KangHoon Kim, and Eung-Jun Park(KNF)

#### 12:00 Developmental Status of the Staggered Mesh Hydraulic Solver in SPACE

Chan Eok Park, Sang Yong Lee, and Eun Ki Kim(KOPEC)

#### 10:20 Implementation of a Second Order Interpolation Scheme for the Convective Terms of a Two-phase Flow Analysis Solver, CUPID

H. K. Cho, I. K. Park, and J. J. Jeong(KAERI), H. D. Lee(KAIST)

#### 12:20 Status and Perspective of the Pre/Post Processing for Thermal-hydraulic Code

Sang Yong Lee, Chan Eok Park, and Eun Ki Kim(KOPEC)

#### 10:40 Coffee Break



## 제 5 분과 C

원자력열수력 및 안전(Thermal Hydraulics and Safety)–Poster  
– PSA 및 규제(PSA and Regulation)

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

- |   |   |
|---|---|
| <p><b>P05C01</b> <b>Alternative Method of Uncertainty Treatment in Safety Valve Test Tolerance</b><br/>Jong-Gwan Yoo and Jong-Woon Park(KHNP)</p> <p><b>P05C02</b> <b>Study on Developing Degradation Model for Nuclear Power Plants with Ageing Elements Affected on Operation Parameter</b><br/>Yong Won Choi, Sung Won Lim, and Un Chul Lee(SNU)<br/>Manwoong Kim, Kab Kim, and Yongho Ryu(KINS)</p> <p><b>P05C03</b> <b>Development of a Review Guide for a Level-3 PSA of Nuclear Power Plants</b><br/>Jongtae Jeong(KAERI)<br/>Kyu-Myeng Oh, Sang-Kyu Ahn, and Chang-Ju Lee(KINS)</p> <p><b>P05C04</b> <b>Application of HERA for a Qualitative Error Analysis of an Emergency Scenario</b><br/>Wondea Jung and Jinkyun Park(KAERI)</p> <p><b>P05C05</b> <b>Abnormal Signal Analysis for a 4~20mA Equivalent Circuit Regarded as High Temperature Accident Conditions</b><br/>Kil-Mo Koo, Yong-Mann Song, Kwang-II Ahan, and Joon-Eon Yang(KAERI)</p> <p><b>P05C06</b> <b>Incorporation of Truncation Errors in Auxiliary Feed Water System PSA by CUTREE</b><br/>Dongil Lee and Nam Zin Cho(KAIST)</p> <p><b>P05C07</b> <b>Development of Reactor Trip Database Management System</b><br/>Tae-Young Shin, Hyuk-Soon Lim, and Byung-Sik Lee(KHNP)</p> <p><b>P05C08</b> <b>Estimation of Internal Flooding Frequency for Screening Analysis of Flooding PSA by Using the Latest Generic Data and the Korean Plant Operation Data</b><br/>Sun Yeong Choi and Joon-Eon Yang(KAERI)</p> | <p><b>P05C09</b> <b>Preliminary Study on the Technical Acceptability of PRA for Future Plants</b><br/>Kju-Myeng Oh, Sang-Kyu Ahn, and Chang-Ju Lee(KINS)<br/>Jong-Tae Jeong(KAERI)</p> <p><b>P05C10</b> <b>Evaluation of the Latest Generic Data for PSA Applications of Domestic Nuclear Plants</b><br/>Seok-Won Hwang, Ji-Yong Oh, and Byung-Sik Lee(KHNP)</p> <p><b>P05C11</b> <b>Current R&amp;D Status and Considerations of Fire Protection SDP</b><br/>Namchul Cho, Jong-Seuk Park, and Chang-Ju Lee(KINS)</p> <p><b>P05C12</b> <b>The Combined Application of Fault Trees and Turbine Cycle Simulation in Generation Risk Assessment</b><br/>Gyunyoung Heo(KHU), Jin Kyun Park(KAERI)</p> <p><b>P05C13</b> <b>Development of a Regulatory PSA Model of Kori Units 2 for a Risk Informed Regulation</b><br/>Jin Hee Park, Ho-Gon Lim, Sang Hoon Han, and Dae Il Kang(KAERI)</p> <p><b>P05C14</b> <b>An Approach to the Construction of a Single Top PSA Model for Fire Events</b><br/>Dae Il Kang, Sang Hoon Han, and Joon-Eon Yang(KAERI)</p> <p><b>P05C15</b> <b>Fault Tree Development of Kori Nuclear Unit 2 for Regulatory PSA Model</b><br/>Jae Won Lim, Hui Chang Yang, and Hyung Suk Kim(ENESYS)<br/>Jin Hee Park(KAERI)</p> <p><b>P05C16</b> <b>A SMART-IST Assessment for Radionuclide Release in the Wolsong 1 NPP</b><br/>Tech Mo Kim and Chul Jin Choi(KOPEC), Sung Min Kim(NHNP)</p> |
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## 제 5 분과 D

원자력열수력 및 안전(Thermal Hydraulics and Safety)  
– 열수력 해석기술 II(Thermal-Hydraulic Analysis Technology II)

5월 22일(FRI)

좌 장 • 이광원(LEE, KWANG WON) / 방영석(Bang Young Seok)

발표장소 • 그랜드볼룸A

- |   |   |
|---|---|
| <p><b>13:30</b> <b>Flow Characteristic Evaluation during LOCA Recirculation Transport based on CFD Analysis for OPR1000 Plant</b><br/>Jong Pil Park, Kyung Sik Choi, and Ji Hwan Joeng(PNU), Man Woong Kim(KINS)</p> <p><b>13:50</b> <b>Evaluation of Steam and Gas-flow for APR1400 IRWST Using GOTHIC 6.1b</b><br/>Mun Soo Kim, Suk Ho Lee, and Han Gon Kim(KHNP)</p> | <p><b>14:10</b> <b>MTC Effect with the COLR for Reload Cores</b><br/>Il Tak Woo, Sang Rin Shon, Hag Joon Kim, and Sung Ju Cho(KNF)</p> <p><b>14:30</b> <b>An Assessment of a LOFT L2-5 LBLOCA Uncertainty Based on ACE-RSM: Complementary Work for the OECD BEMUSE Phase-III Program</b><br/>Kwang-II Ahn and Bub-Dong Chung(KAERI)<br/>John C. Lee(Univ., of Michigan)</p> |
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## II.분과별 논제 및 발표자

### 14:50 A Particle Tracking Model to Predict the Debris Transport on Containment Floor

Yong Seok Bang, Gil-Soo Lee, Byung-Gil Huh, Deog-Yeon Oh, and Sweng Woong Woo(KINS)

### 15:10 Coffee Break

### 15:30 Preliminary Study on Application of MARS Code to KINS Realistic Evaluation Methodology

Byung Gil Huh, Dong Gu Kang, Deog-Yeon Oh, Young Seok Bang, and Sweng Woong Woo(KINS)

### 15:50 Study on Verification of Natural Circulation for Small Scale Reactor with Passive System

Sung Won Lim, In Young Kim, Yong Won Choi, and Un Chul Lee(SNU)

### 16:10 CFD Simulation of Thermal Mixing in Annulus Water Pool

Y. T. Moon and H. J. Ko(KOPEC), G. C. Park(SNU)

### 16:30 Applications of Innovative Safety Analysis Methodology(ISAM) to Reload Safety Evaluation

Chansu, Jang and Kilsup, Um(KNF)

## 제 5 분과 E

## 원자력열수력 및 안전(Thermal Hydraulics and Safety) – 중대사고(Severe Accidents)

5월 22일(FRI)

좌 장 • 홍성완(Seong-Wan HONG) / 서남덕(Suh Nam Duk)

발표장소 • 루비

### 13:30 Triggered Steam Explosions with Zirconia and Eutectic Corium in the TROI Facility

Jong-Hwan Kim, B. T. Min, I. K. Park, K. S. Ha, and S. W. Hong(KAERI)

### 14:10 A Study on Containment Flooding Strategy during Severe Accident in PHWR

Youngho Jin(KAERI)

### 13:50 Design of Hemispherical Downward-facing Vessel for Critical Heat Flux Experiment

Jin S. Hwang and Kune Y. Suh(SNU)

### 14:30 Design of the Database and Simulator Supported Severe Accident Management System

Soo Yong Park, Ko Ryo Kim, and Kwang Il Ahn(KAERI)

### 14:50 Coffee Break

## 제 5 분과 F

## 원자력열수력 및 안전(Thermal Hydraulics and Safety) – 안전규제(Safety Regulation)

5월 22일(FRI)

좌 장 • 김만웅(Kim Manwoong) / 김한곤(Kim, Han Gon)

발표장소 • 루비

### 15:10 CFD Analysis on Debris Transport to the IRWST for APR1400

K. M. Seo and B. S. Kim(KOPEC), W. T. Kim and B. S. Han(ENESYS)

### 15:50 Cladding Heatup Prediction between Spacer Grids for the Downstream Effect Evaluation

J. Y. Park and M. W. Kim(KINS)

### 15:30 Evaluation Methodology for Kori Unit 1 ECCS Strainer Design

Cheol Shin Lee and Eun Kee Kim(KOPEC)  
Chang Hyun Kim and Sang Yeol Kim(KHNP)

### 16:10 Development of Regulatory Requirements and Inspection Guides for CANDU Reactors

Manwoong Kim, Kap KIM, and Yong-ho Ryu(KINS), H. Y. Ro and T. E. Jin(KOPEC)

## 제 5 분과 G

## 원자력열수력 및 안전(Thermal Hydraulics and Safety)–Poster – 열수력 및 중대사고(Thermal-Hydraulics and Severe Accident)

5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

### P05G01 Improvement of Gap Stanton Number Model Based on the Convective Secondary Flow

Hyuk Kwon, K. W. Seo, and D. H. Hwang(KAERI)

### P05G03 Numerical Tests for the Lift, Wall Lubrication, and Turbulence Dispersion Forces in the CUPID

Ik Kyu Park, H. K. Cho, J. Kim, H. Y. Yoon, and J. J. Jeong(KAERI)

### P05G02 Collocated Scheme on an Unstructured Mesh for Two-phase Flow Analyses

Jongtae Kim, Ik-Kyu Park, Hyoung Kyu Cho, Han-Young Yoon, and Jae Jun Jeong(KAERI)

### P05G04 Evaluation of Fire Resistance on Fire Wall in Kori NPP 1

Wan-Yeong Koh, O-Hyun Keum, and Soo-Hyun Ryu(KINS)

- P05G05 Evaluation of Boric Acid Precipitation Reflecting System Effects in Post LOCA Long-term Cooling**  
Chang Hyun Kim and Sang Yeol Kim(KHNP)  
Jong Cheol Park(KOPEC)
- P05G06 Experimental Study on Natural Circulation in REX-10 Test Facility**  
Byeong-ill Jang, Hyeong-Min Joo, Sun-Do Choi, and Gyoo-Dong Jeun(HYU), Moo-Hwan Kim(POSTECH)
- P05G07 Preliminary Assessment of Post-accident Chemical Effects in Containment Sump**  
Yu Jung CHOI, Snag Woo LEE, and Hyeong Teak KIM(KHNP)
- P05G08 Review on ROP Update Methodology for CANDU-6 Plant**  
Hoon Choi and Yong-Bae Kim(KEPRI)
- P05G09 Thermalhydraulic Characteristics for Wolsung-1 after Retubing**  
Jun Ho Bae and Joo Hwan Park(KAERI)
- P05G10 Application of GEMINI2 Code to Develop the Sacrificial Concrete for the Core-catcher Experiment by KAERI**  
Jong-Hwa Park, Jong-Hwan Kim, Byung-Tae Min, Hwan Yeol Kim, and Seong Wan Hong(KAERI)
- P05G11 Estimation of the Gaseous Iodine Concentration in the Containment of Phebus FPT-1 Using MELCOR1.8.5 with a Revised Organic Iodide Model**  
Jong-Hwa Park, Hee-Dong kim, and Seong Wan Hong(KAERI)
- P05G12 Heat Loss Evaluation of the ATLAS Facility**  
Seok Cho, Hyun-Sik Park, Ki-Yong Choi, Kyoung-Ho Kang, Yeon-Sik Kim, and Won-Pil Baek(KAERI)
- P05G13 Hydrogen Safety Analysis of the OPR1000 Nuclear Power Plant during a Severe Accident by a Small-break Loss of Coolant**  
Jongtae Kim, Soo-Yong Park, Kwang-Soon Ha, Seong-Wan Hong, and Sang-Baik Kim(KAERI)
- P05G14 Flow Analysis in the Helical Wire Inserted Tube Using CFD Code**  
Yusun Park and Soon Heung Chang(KAIST)
- P05G15 Effects of the Inclination Angle on Pool Boiling Heat Transfer in an Annulus**  
Myeong-Gie Kang(ANU)
- P05G16 An Experimental Study of the Post-CHF Phenomena on Flow-boiling of R-134a in an Annulus Geometry**  
Kwi Lim Lee(KAERI), Soon Heung Chang(KAIST)
- P05G17 The LBLOCA Analysis for APR1400 Power Plants Applying KREM with RELAP5/MOD3.3 Code**  
Jae-Hoon Lee, Jae-Hoon Jeong, Woochong Chon, and Dong-Uk Choi(KNF)
- P05G18 Evaluation about Validity of the Passive Containment Cooling System Using Multi-pod Heat Pipe**  
Hyun-Woo Lee and Sang-Nyung Kim(KHU)
- P05G19 Thermal Margin Budget of a Simplified Core Thermal-hydraulic Code for OPR1000**  
Wang-Kee In and Tae-Hyun Chun(KAERI)  
Jong-Sik Bae(Doosan Haevy Co., Ltd.)
- P05G20 Feasibility Study on Passive Auxiliary Feedwater System in Loss of Condenser Vacuum Accident**  
Soon Joon Hong and Byung Chul Lee(FNC Tech.)  
Jong Cheon and Han Gon Kim(NHNP)
- P05G21 MARS Assessment on Gravity Reflood Behavior in FLECHT-SEASET 33338 Test**  
Dong Gu Kang, Seung Hoon Ahn, and Yong Jin Cho(KINS)
- P05G22 Thermal Hydraulic Models of THALES Code**  
Jong Seon Lim, Kee Yil Nahm, and Shane Park(KNF)  
Dae Hyun Hwang(KAERI)
- P05G23 Evaluation of Power Pulse in Large LOCA Using the IST Code for CANDU6 NPP**  
Park Dong Hwan and Kim Yun Ho(KEPRI)
- P05G24 Development of the General Safety Requirements for New Innovative Reactors**  
Sang-Kyu Ahn, Kju- Myeng Oh, and Chang-Ju Lee(KINS)
- P05G25 Trip and Control System Models in SPACE Code**  
Eun Ju Lee, Chan Eok Park, and Gyu Cheon Lee(KOPEC)
- P05G26 Lattice Boltzmann Simulations of the Rising Bubble Flows**  
Seungyeob Ryu, Cheon Tae Park, Juhyeon Yoon, and Keung Koo Kim(KAERI)
- P05G27 Image Processing for Bubble Departure Frequency in a Subcooled Boiling Flow**  
D. J. Euh(KAERI), B. Ozar, T. Hibiki, and M. Ishii(Purdue Univ.,)
- P05G28 CFD Simulation of the NUPEC BWR Full-size Fine-mesh Bundle Test for a Void Distribution Benchmark**  
Wang-Kee In, Dae-Hyun Hwang, and Tae-Hyun Chun(KAERI)
- P05G29 MODTURC\_CLAS Analysis for Minimum Subcooling of Moderator in CANDU6**  
Hyoung Tae Kim and Joo Hwan Park(KAERI)
- P05G30 Thermal-hydraulic Analysis of KSTAR Inboard Limiter and NB Armor**  
Su-Won Lee and Jae-Seon Cho(FNC Tech.,)  
Kyung-Min Kim, Hak-Kun Kim, and Hyung-Lyeol Yang(NFRI)
- P05G31 CHF Enhancement in the Flow Boiling R-134a by Adding Wire Nets to Inner Surfaces of a Round Tube**  
Sub Lee Song, Byungsoo Shin, and Soon Heung Chang(KAIST)
- P05G32 A Parametric Study to Improve Steam Explosion Models by Using a TROI Test**  
I. K. Park, J. H. Kim, B. T. Min, and S. W. Hong(KAERI)
- P05G33 Object-oriented Programming in the Development of Containment Analysis Code**  
Tae Young Han, Soon Joon Hong, Su Hyun Hwang, and Byung Chul Lee(FNC Tech.), Choong Sup Byun(KEPRI)

## II. 분과별 논제 및 발표자

**P05G34 Droplet Size and Velocity Measurement in a 2×2 Sub-channel for the Reflood Heat Transfer Experiment**

H. K. Cho, S. Cho, K. Y. Choi, and C. H. Song(KAERI)

**P05G35 Sensitivity Study on Thermal Hydraulic Parameters of Research Reactor with Plate Type Fuel**

Chae Heetaek, Park Jonghark, and Park Cheol(KAERI)

**P05G36 Computation of the Temperature Distribution in a Fuel Particle Bed in Single and Two Phase Conditions**

Eui Kwang Kim, Chung Ho Cho, and Yong Bum Lee(KAERI)

**P05G37 IRWST Water Temperature Distribution Analysis during POSRV Actuation**

I. S. Yeo, Y. T. Moon, and K. K. Woo(KOPEC)

**P05G38 Design of a MAAP Specific Scenario Input Generation Module for a Systematic Analysis of Severe Accident Progression**

Ko-Ryu Kim, Yong-Man Song, Soo-Yong Park, and Kwang-Il Ahn(KAERI)

**P05G39 The Performance Evaluation of a Hot Water Layer Using a Numerical Simulation**

Jonghark Park, Heetaek Chae, Heonil Kim, Byungjin Jun, and Cheol Park(KAERI)

**P05G40 The Study on Primary Heat Transport and ECC System Behavior in Large LOCA for CANDU NPP**

Kim Yun Ho, Park Dong Hwan, and Choi Hoon(KEPRI)

**P05G41 CHF Enhancement in Flow Boiling System with TSP and Boric Acid Solutions under Atmospheric Pressure**

Juno Lee, Yong Hoon Jeong, Byungsoo Shin, and Soon Heung Chang(KAIST)

**P05G42 Status of SPACE Safety Analysis Code Development**

Dong Hyuk Lee, Chang Keun Yang, Seyun Kim, and Sang Jun Ha(KEPRI)

**P05G43 Preparation of Input Deck to Analyze the Nuclear Power Plant for the Use of Regulatory Verification**

Doohyuk Kang, Hyungseok Kim, and Jaeseung Suh(ENESYS)  
Seunghoon Ahn and Yongjin Cho(KINS)

**P05G44 Comparisons of MARS Code Analysis Results on DVI Line Break LOCAs at Different Break Sizes between SNUF and the APR1400 for Sensitivity Studies**

X. G. Yu, K.H. Lee, and G. C. Park(SNU)

**P05G45 A Study on Heat-up Phenomena of the RHR Pump Room in KORI Units 2 for the Loss of HVAC Accidents**

Churl Yoon, Jinhee Park, Ho Gon Lim, and Sang Hoon Han(KAERI)

**P05G46 Development of Off-take Model, Subcooled Boiling Model, and Radiation Heat Transfer Input Model into the MARS Code for Regulatory Auditing of CANDU Reactors**

C. Yoon, B. W. Rhee, and B. D. Chung(KAERI)  
S. H. Ahn and M. W. Kim(KINS)

**P05G47 NUCIRC Single Channel Analysis for Calculating the Power Coefficients of the Wolsong Unit 1**

Churl Yoon, Ji Su Jun, and Joo Hwan Park(KAERI)

**P05G48 Thermal-hydraulic Potential of Dual Cooled Annular Fuel for OPR-1000**

Tae-Hyun Chun, Chang-Hwan Shin, Wang-Kee In, and Dong-Suck Oh(KAERI)

**P05G49 CANDU Reactor Severe Accident Management Strategies for Containment Integrity**

Young Choi, D. H. Kim, S. D. Kim, S. Y. Park, Y. H. Jin, and J. H. Park(KAERI), K. H. Lee(F&C)

## 제 6 분과 A

방사선이용 및 방호(Radiation Utilization and Protection)  
– 방사선 방호 및 응용(Radiation Protection and Application)

5월 22일(FRI)

좌 장 • 전권수(Kwon Soo Chun) / 문종화(Jong Hwa Moon)

발표장소 • 사파이어홀

[Invited Paper]

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| <p><b>09:00</b>    <b>Current Research on Accelerator-based Boron Neutron Capture Therapy in Korea</b><br/>Jong Kyung KIM and Kyung-O KIM(HYU)</p> <p><b>09:20</b>    <b>Opportunities and Challenges of Neutron Science and Technology in Korea</b><br/>Kye Hong Lee, J. M. Sungil Park, Hark-Rho Kim, Byung Jin Jun, Young-Jin Kim, and Jae-Joo Ha(KAERI)<br/>Mahn Won Kim and Sung-Min Choi*(KAIST)</p> <p><b>09:40</b>    <b>Operational Experience of a Two-dosimeter Algorithm for Better Estimation of Deep Dose at Korean Nuclear Power Plants</b><br/>Hee Geun Kim and Tae Young Kong(KEPRI)</p> <p><b>10:00</b>    <b>Glow Curve Analysis of Post-irradiation Annealed TL Materials</b><br/>I. Chang, J.I. Lee, and J. L. Kim(KAERI), K. S. Chung(GNU)</p> <p><b>10:20</b>    <b>Characterizing Parameters Using Expert Judgment and Bayesian Update in the Risk Analysis for Field Radiography</b><br/>Han-Ki Jang, Hung-Joon Ryu, and Jai-Ki Lee(HYU), Kun-Woo Cho(KINS)</p> <p><b>10:40</b>    <b>Coffee Break</b></p> | <p><b>11:00</b>    <b>Source Apportionment for Indoor PM2.5 and Elemental Concentration Using by a Positive Matrix Factorization and an Instrumental Neutron Activation Analysis</b><br/>Jong-Myoung Lim, Jong-Hwa Moon, and Yong-Sam Chung(KAERI)<br/>Byoung-Won Jung and Jin-Hong Lee(CNU)</p> <p><b>11:20</b>    <b>In-situ Time-resolved Neutron Diffraction Measurements of Thermal Stresses during Severe Thermo-mechanical Deformation</b><br/>Wan Chuck Woo(KAERI), Z. Feng, H. Choo, S. A. David, X-L. Wang(ORNL)<br/>D.W. Brown and B. Clausen(LANL)</p> <p><b>11:40</b>    <b>A Study on an Industrial Emission Tomography Using the EM Algorithm</b><br/>Taek Yong Kwon, Sung Hee Jung, Jong Bum Kim, and Jin Ho Moon(KAERI), Jang Guen Park and Chan Hyeong Kim(HYU)</p> <p><b>12:00</b>    <b>Mass Production of <sup>64</sup>Cu with <sup>64</sup>Ni(p,n)<sup>64</sup>Cu Nuclear Reaction and Target Material Recycling</b><br/>Kwon Soo Chun and Hyun Park(KIRAMS)</p> <p><b>12:20</b>    <b>Analysis of Doppler-broadened Peak in Thermal Neutron Induced <sup>10</sup>B(n,αγ)<sup>7</sup>Li Reaction by Using HyperGam</b><br/>H. D. Choi, N. S. Jung, and B. G. Park(SNU)</p> <p><b>12:40</b>    <b>Characterization of Nano-sized Precipitates of Low Carbon Steels by Neutron Scattering Techniques</b><br/>Baek-Seok Seong, Eunjo Shin, and Kye Hong Lee(KAERI)</p> |
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## 제 6 분과 B

## 방사선이용 및 방호(Radiation Utilization and Protection)–Poster

5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

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| <p><b>P06B01</b>    <b>Overexpression of Bcl-xl Prevents Radiation-induced the Cell Cycle Arrest and Apoptosis through Down Regulation of ERK in Hela Cell</b><br/>Byeong Mo Kim, Kyung A Maeng, and Sung Hee Hong(KIRAMS)</p> <p><b>P06B02</b>    <b>Occurrence of Clonal Cell Population Mute of Radio-sensitization Mediated by Telomerase-inhibition</b><br/>Hee Young Kim, Yeun-Jin Ju, Jeong-Eun Park, Kyoung-Mi Juhn, Miyong Yun, Young-Hoon Han, Kee-Ho Lee, and Chang-Mo Kang(KIRAMS), Su-Jae Lee(HYU), Sang-Hoon Kim(KHU), Myung-Haing Cho(SNU), Gil Hong Park(KU)</p> <p><b>P06B03</b>    <b>Residual Stress Analysis of Severe Plastic Deformed Materials Using the Finite Element Method and the Neutron Diffraction Method</b><br/>Mi Hyun Kang(CNU), Back Suck Seong(KAERI)<br/>Hyoung Seop Kim(POSTECH)</p> | <p><b>P06B04</b>    <b>Analysis of the Chemical Forms on Radioactive Carbon in Reactor Coolant during Normal Operation from Domestic PWRs</b><br/>Yang-Hee Yang, Duk-Won Kang, and Gab-Bock Lee(KEPRI)</p> <p><b>P06B05</b>    <b>Small Molecule Modulator of p53 Signaling Pathway: Application for Radiosensitizing or Radioprotection Agents</b><br/>Munju Cho, Jungsug Gwak, Min-Jung Ryu, and Sangtaek Oh(IJU)<br/>Jie-Young Song and Yeon-Sook Yun(KIRAMS)</p> <p><b>P06B06</b>    <b>Measurement of Dose Distributions for Useful Utilization of BioBeam 8000 Gamma Irradiation Device</b><br/>Seungwoo Park, Haijo Jung, Kum Bae Kim, Chang Yeol Lee, Kihong Son, Sang Hun Shin, Donghan Lee, Munsik Choi, and Young Hoon Ji(KIRAMS)</p> <p><b>P06B07</b>    <b>Small Animal PET Imaging of TAG-72 Expressing Tumor Using <sup>68</sup>Ga-NOTA-3E8 Fab Radioimmunoconjugate</b><br/>JH Jung, TS Lee, SK Woo, KS Woo, WS Chung, JH Kang, GJ Cheon, CW Choi, and SM Lim(KIRAMS), HJ Hong(KRIBB)</p> |
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## II.분과별 논제 및 발표자

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| <p><b>P06B08 Morphological Changes of Yeast Cells due to Oxidative Stress by Mercury and Radiation</b><br/>Su Hyoun Kim, Tae-Ho Ryu, and Jin Kyu Kim(KAERI)</p> <p><b>P06B09 Changes in the Stamen Hairs of Tradescantia 4430 Treated with Mercury and <math>\gamma</math>-rays</b><br/>Hee Jeon Park and Jin Kyu Kim(KAERI)</p> <p><b>P06B10 Biodistribution and Gamma Camera Image of Anti-VEGFR-2 Humanized Antibody, TTAC0001 in Xenografted Tumor Models</b><br/>Jin-Ju Son, Tae-Sup Lee, Jae-Ho Jung, Kwang-Sun Woo, Wee-Sup Jung, Joo-Hyun Kang, and Gi Jeong Cheon(KIRAMS), Jin-San Yoo(KRIBB), Young-Seo Park(KWU)</p> <p><b>P06B11 Preliminary Study on the Mouse Tumor Growth Suppression by Proton Beam Irradiation</b><br/>M. H. Jung, H. W. Kim, and K. R. Kim(KAERI), T. K. Yang(KIRAMS)<br/>Y. M. Lee(KNU)</p> <p><b>P06B12 Carbon Nanotube Field Emitter Based Super Miniature X-ray Tube Design and Demonstration for Brachytherapy Radiation Source</b><br/>Sung Hwan Heo, Aamir Ihsan, and Sung Oh Cho(KAIST)</p> <p><b>P06B13 Identification of Novel Senescence-associated Genes in Ionizing Radiation-induced Senescent Carcinoma Cells</b><br/>Bong Cho Kim, Na-Kyung Han, Mi-Na Hong, Su Min Park, and Hee Jung Yoo(KIRAMS), In-Sun Chu(KRIBB), Sun-Hee Leem(DAU)</p> <p><b>P06B14 Beam Design Evaluation for Dose Homogeneity Improvement in Extremity Radiation Therapy</b><br/>Jeong Min Seo and Chan Hyeong Kim(HYU), Young Hwan Park(SMC)</p> <p><b>P06B15 Radiation Doses to Specific Organ/Tissues from Computed Tomography Examinations</b><br/>Kwang Pyo Kim(KHU)</p> <p><b>P06B16 Role of CMT2, Mitotic Checkpoint Regulator, in Tumor Cell</b><br/>Mi-Yong Yun and Kee-Ho Lee(KIRAMS), Gil Hong Park(KU)</p> <p><b>P06B17 Increased Chemosensitivity of Paclitaxel by Telomeric Fusion-induced Genomic Instability</b><br/>Seon-Rang Woo, Kyoung-Mi Juhn, Jeong-Eun Park, Yeun-Jin Ju, Mi-yong Yun and Kee-Ho Lee(KIRAMS), Gil-Hong Park and Joon Kim(KU)</p> | <p><b>P06B18 Thermal Stability Analysis of Miniaturized Targets for Brachytherapy X-ray Tubes</b><br/>Aamir Ihsan, Sung Hwan Heo, and Sung Oh Cho(KAIST)</p> <p><b>P06B19 HDAC Regulates eIF2-<math>\alpha</math> Phosphorylation in Stress Condition</b><br/>Hyun-Yoo Joo, Mi-Yong Yun, and Kee-Ho Lee(KIRAMS), Joon Kim(KU)</p> <p><b>P06B20 Effects of the Sequential Action of Heat and Radiation on Yeast Cells</b><br/>Jin Kyu Kim and Su Hyoun Kim(KAERI), Mohammad Nili(DRRI)<br/>Galina P.Zhurakovskaya and Vladislav G. Petin(MRRC)</p> <p><b>P06B21 Determine on the Dead Time of a GM Counter</b><br/>J. H. Lee(KAERI), I. J. Kim(KRISS), H. D. Choi(SNU)</p> <p><b>P06B22 Temperature Dependency and Alpha Response of Semi-insulating GaAs Schottky Radiation Detector at Low Bias Voltage</b><br/>Sang Mook Kang, Jang Ho Ha, Se-Hwan Park, and Han Soo Kim(KAERI)<br/>Yong Kyun Kim(HYU)</p> <p><b>P06B23 Ionizing Radiation Induces Cellular Senescence of Articular Chondrocytes Via Negative Regulation of SIRT1 by p38 Kinase</b><br/>Eun-Hee Hong and Sang-Gu Hwang(KIRAMS)</p> <p><b>P06B24 CMOS Flat-panel CBCT for Dental Imaging</b><br/>Hanbean Youn, Min Kook Cho, Jee Young Kim, Hyun Ji Lee, Ho Kyung Kim, and BongHye Cho(PNU), Sung Kyn Heo(E-WOO Tech.)</p> <p><b>P06B25 Impacts of Optical-coupling Properties in Indirect-conversion Detectors</b><br/>Chang Hwuy Lim, Tae Gyun Youm, and Ho Kyung Kim(PNU)<br/>Cheol-Soon Shon(Vatech Co., Ltd.)</p> <p><b>P06B26 Identification of a Novel and Potent Nrf2 Inhibitor as a Radiosensitizer with High Throughput Screening</b><br/>Ji-Yeon Ahn, Sarah Park, Yeon-Sook Yun, and Jie-Young Song(KIRAMS)</p> <p><b>P06B27 Role of Bcl-x<sub>l</sub> in Ionizing Radiation-induced Invasion of Cancer Cells</b><br/>Jin-Nyoung Ho, Ga-Young Kang, and Hong-Duck Um(KIRAMS)</p> <p><b>P06B28 Study on Compton Suppression System Using HPGe and NaI(Tl) Detectors</b><br/>J. H. Kim, N. S. Jung, and H. D. Choi(SNU)</p> |
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### 제 6 분과 C

### 방사선이용 및 방호(Radiation Utilization and Protection) – 방사선생명의학(Radiation BioMedicine)

5월 22일(FRI)

좌 장 • 현진원(Jin Won Hyun) / 황상구(Sang-Gu Hwang)

발표장소 • 사파이어홀

**13:30 Identification of Radioresistance-related Molecules in Laryngeal Cancer Cells Using Proteomic and EST Data Mining Approach**  
Jae-Sung Kim, Eun-Hee Hong, Hong Sik Yoon, Kyung Mi Yang, and Sang-Gu Hwang(KIRAMS)

**13:50 Biological Effects of Interaction between Radiation and Chemicals**  
Kyung Man Hyun, Min Han, and Jin Kyu Kim(KAERI)  
Mohammad Nili(DRRI)



<b>14:10</b>	<b>CREB Mediates ICAM-3 — Inducing Radio-Resistance, Cell Growth and Migration/Invasion of the Human Non-small Cell Lung Cancer Cell</b> Jong Kuk Park, Kwang -sup So, In Hwa Bae, and Hong-Duck Um(KIRAMS)	<b>15:50</b>	<b>JNK Inhibition Sensitizes Tumor Cells to Radiation-induced Premature Senescence Via Bcl-2/ROS/DDR Signaling Pathway</b> Je-Jung Lee and Jae-Seon Lee(KIRAMS)
<b>14:30</b>	<b>SIRT Participates at DNA Damage Response</b> Mi-Yong Yun, Jaemin Joeng, and Kee-Ho Lee(KIRAMS) Gil Hong Park(KU)	<b>16:10</b>	<b>On-board CBCT/CBDT for Image-guided Proton Therapy: Initial Performance Evaluation</b> Min Kook Cho, Hanbean Youn, and Ho Kyung Kim(PNU) Jin Sung Kim(SMC), Sung Yong Park(NCC) Seungryong Cho(Univ., of Chicago)
<b>14:50</b>	<b>Modulation of Radio-response by the Modification and Stabilization of C-Myc by IKK<math>\gamma</math></b> Bu-Yeon Kim and Young -Hoon Han(KIRAMS)	<b>16:30</b>	<b>Nimesulide Acts Synergistically with Ionizing Radiation Against A549 Human Lung Cancer Cells through the Activation of Caspase-8 and Caspase-3</b> Byeong Mo Kim, Kyung Ah Maeng, and Sung Hee Hong(KIRAMS)
<b>15:10</b>	<b>Coffee Break</b>	<b>16:50</b>	<b>ROS Mediates Radiation-induced Differentiation in Human Lung Fibroblast</b> Sarah Park, Ji-Yeon Ahn, Mi-hyeung Kim, Min-Jin Lim, Yeon-Sook Yun, and Jie-Young Song(KIRAMS)
<b>15:30</b>	<b>Role of the p53-p21 Pathway in the Cancer Cell Invasion Induced by Ionizing Radiation</b> Jongdoo Kim and Hong-Duck Um(KIRAMS)		

## 제 6 분과 D 방사선이용 및 방호(Radiation Utilization and Protection) — 방사선계측기 및 측정기술(Radiation Detector and Measurement Technology) 5월 22일(FRI)

좌 장 • 김찬형(Chan Hyeong KIM) / 김호경(Ho Kyung KIM)

발표장소 • 다이아몬드B

<b>13:30</b>	<b>Calibration for Wide-area Beta Sources with Windowless Multi-wire Proportional Counter(MWPC)</b> YoungJu. Lee, B. D. Lee, and Y. B. Choi(KHNP)	<b>15:10</b>	<b>Coffee Break</b>
<b>13:50</b>	<b>Preliminary Experimental Results of an Active Neutron Counter for Fissile Contents in the Uranium Oxide Powder</b> Seong Kyu Ahn, Tae-Hoon Lee, Hee-Sung Shin, and Ho-Dong Kim(KAERI)	<b>15:30</b>	<b>Characteristic Analysis of a CdZnTe Detector through the Simultaneous Measurement of Low Energy Gamma-ray and Alpha Particle</b> Kyung-O KIM, Woo Sang AHN, and Jong Kyung KIM(HYU) Soon Young KIM(ITRS), Jang-Ho Ha(KAERI)
<b>14:10</b>	<b>Development of Silicon PIN Detector for Radon Monitoring</b> Se-Hwan Park, Han Soo Kim, Jang Ho Ha, and Yoon Ho Cho(KAERI) Seung Yeon Cho(YSU)	<b>15:50</b>	<b>New Pixel-based Algorithm to Correct Non-uniform Response of Radiochromic Film Scanners</b> Hae Sun Jeong and Chan Hyeong Kim(HYU), Youngyih Han(SKKU) O Yeon Kum(KNU)
<b>14:30</b>	<b>Calculation of HPGe Detector Response for NRF Photons Scattered from Threat Materials</b> B.G Park and H. D. Choi(SNU)	<b>16:10</b>	<b>Development of Phosphor-filled Micro-well Arrays for Digital X-ray Imaging</b> Seungman Yun, Jong Soo Ko, and Ho Kyung Kim(PNU) Tae Woo Kim(E-WOO Tech.,)
<b>14:50</b>	<b>Mobile Radiation Detection System Against Nuclear Terrorism</b> Sung-Woo Kwak, Ho-Sik Yoo, Sung Soon Jang, Jung-Soo Kim, and Wan-Ki Yoon(KINAC)	<b>16:30</b>	<b>Analysis of the Direct X-ray Absorption Noise in Phosphor-coupled CMOS Detectors</b> Jong Chul Han, Seunman Yun, and Ho Kyung Kim(PNU) Ian Cunningham(RRI), Thorsten Achterkirchen(Rad-ikon Imaging Corp.,)

## 제 6 분과 E 방사선이용 및 방호(Radiation Utilization and Protection)—Poster 5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

<b>P06E01</b>	<b>Alignment of Neutron Guides for the In-pile Plug Assembly and the Primary Shutter</b> Jin-Won Shin, Yeong-Garp Cho, Sang-Jin Cho, and Jung - Hee Lee(KAERI)	<b>P06E02</b>	<b>Skin Dose Assessment by Hot Particles in Domestic Nuclear Power Plant</b> Bo-yeol Choi and Woon-kap Cho(KINS), Jai-ki Lee(HYU)
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## II. 분과별 논제 및 발표자

**P06E03 The  $^{14}\text{C}$  Radioactivity of a NPP Charcoal Sample under a Combustion Condition**

Hee Reyoung Kim, Wanno Lee, Kun Ho Chung, Mun Ja Kang,  
Chang Woo Lee, Geun Sik Choi, and Mun Hee Han(KAERI)

**P06E04 Determination of Cu-Zn Fraction of an Ancient Brass Pipe by Prompt Gamma-ray Activation Analysis**

G. M. Sun, Yuna Lee, Jong-Hwa Moon, and Kye Hong Lee(KAERI)

**P06E05 Environmental Radioactivity Monitoring Around the Jeongeup ARTI in 2008**

Yun Jong Lee and Young-Chang Nho(KAERI)  
Sang Jun Han and Seung Jin Lee(YGNSC)

**P06E06 Neutron Transmutation Doping in the HANARO Reactor in 2008**

Ki-Doo KANG, Ji-Uk KIM, Hwa-Kyung YUN, Chul-Hong LIM,  
Sang-Jun PARK, and Myong-Seop KIM(KAERI)

**P06E07 Shielding Parameter for 100 MeV Proton Accelerator**

Y. S. Min, K. J. Mun, J. S. Cho, and J. Y. Kim(KAERI)

**P06E08 Preliminary Experiment for the Implementation of a Neutron Activation Analysis System with a Compton Suppression Gamma-ray Spectrometer**

Jong Hwa Moon, Gwang Min Sun, Sun Ha Kim, and  
Yong Sam Chung(KAERI)

**P06E09 Radiation Zone Classification and Protection Aspect for the Proton Accelerator Research Center of PEPF**

JUN Yeon Kim, Kyeong-Jun Mun, Yi-Sub Min, G. P. Jeon, J. S. Cho,  
Na Young Kim, and Jeong-Hee Jo(KAERI)

**P06E10 A Comparison Study of Neutron Sources in Active Rod Scanner by MCNPX Code**

Jin Young Chung and JooHo Whang(KHU), JungHoon Kim(CUP)

**P06E11 Internal Dose Conversion Coefficients of Domestic Reference Animal and Pans for Dose Assessment of Non-human Species**

Dong-Kwon Keum, In Jun, Kwang-Muk Lim, and Yong-Ho Choi(KAERI)

**P06E12 High Precision TIMS Measurement of UO30 with a Minimized Background Effect**

Inhee Choi, Jong-Ho Park, and Kyuseok Song(KAERI)

**P06E13 Angular Response Functions for Airborne Gamma-ray Spectrometer**

Suk-Hoon Kim and Ju-Youl Kim(FNC Tech.), Hyeong-Ki Shin(KINS)

**P06E14 Secondary Radiation Shielding of Multi-target Changer**

Taekeun Yang, Yeunsoo Park, Seongseok Hong, and  
Jaehong Kim(KIRAMS)

**P06E15 Foliar Uptake of Elemental Iodine by Radish Plants - a Chamber Experiment**

Yong-Ho Choi, Kwang-Muk Lim, In Jun, and Dong-Kwon Keum(KAERI)

**P06E16 Development of the Dual Counting Method and Internal Dose Assessment Method for Tritium and Carbon-14 at Nuclear Power Plants**

Tae Young Kong and Hee Geun Kim(KEPRI)  
Sang Jun Han and Kyung jin Lee(CSU)

**P06E17 Calculation of Fast Neutron Calibration Fields by Using an Accelerator at the Neutron Therapy Room of KIRAMS**

S. I. Kim, B. H. Kim, J. S. Kim, J. L. Kim, and J. I. Lee(KAERI)

**P06E18 Design of D-D Neutron Moderator for Thermal Neutron Irradiation**

N. S. Jung, J. H. Kim, and H. D. Choi(SNU)

**P06E19 Effect of Scattered Photons on Image Quality in an Industrial SPECT**

Jang Guen Park, Hee Seo, Chul Hee Min, and Chan Hyeong Kim(HYU)  
Jong Bum Kim, Taek Yong Kwon, and Sung Hee Jung(KAERI)

**P06E20 The Utilization Status of the Irradiation Holes in the Core at HANARO**

Ho-young Choi, W. H. In, C. S. Lee, and K. H. Lim(KAERI)

## 제 7 분과 A 양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion) 5월 22일(FRI)

좌 장 • 오병훈(Byung Hoon Oh) / 조용섭(Yong-Sub Cho)

발표장소 • 다이아몬드B

[Invited Paper]

**09:00 Current Status of Nuclear Fusion Energy Research in Korea**

M. Kwon, Y. S. Bae, S. Y. Cho, J. Y. Kim, K. Kim, Y. S. Kim, H. G. Lee, S. I. Lee, Y. K. Oh, H. L. Yang, and I. K. Yu(NFRI), W. Choe(KAIST), B. H. Oh, B. G. Hong, J. G. Kwak, and J. Y. Park(KAERI), Y. S. Hwang and Y. S. Na(SNU)

**10:40 Coffee Break****11:00 Development of a Joining Technology for KO TBM**

Yang-Il Jung, Jeong-Yong Park, Jung-Suk Lee, Byoung-Kwon Choi, Yong-Hwan Jeong, and Bong-Guen Hong(KAERI)

**09:20 Design Issues of the TF AC/DC Converter for the ITER Coil Power Supply System**

Byung-Hoon Oh, Kwang-Won Lee, Jeong-Tae Jin, Churl-Kew Hwang, and Dae-Sik Chang(KAERI), Jong-Seok Oh and Jungwan Choi(NFRI), Jae Hak Suh(PAL), Jun Tao and Inho Song(ITER)

**11:20 Development of Joining Technology for ITER First Wall by Mock-up Fabrication**

Jeong-Yong Park, Yang-Il Jung, Byung-Kwon Choi, Jung-Suk Lee, Yong Hwan Jeong, Dong Won Lee, and Bong Guen Hong(KAERI)

**09:40 Transfer between 66 kV and 22 kV ac Input Power Lines with External Thyristor Bypass Switches in the ITER TF Converter**

Jeong-Tae Jin, Byung-Hoon Oh, Kwang-Won Lee, Churl-Kew Hwang, and Dae-Sik Chang(KAERI), Jong-Seok Oh and Jungwan Choi(NFRI), Jae Hak Suh(PAL), Tao Jun and Inho Song(ITER)

**11:40 Critical Heat Flux Test with the Ferritic Martensitic Steel Mock-ups for the DEMO Blanket First Wall**

Dong Won Lee, Suk-Kwon Kim, Young-Dug Bae, Doo Hee Chang, Woo-Sob Song, and Bong Geun Hong(KAERI)

**10:00 The ITER Pulsed Power Electrical Network(PPEN)**

Ashok MANKANI, Ivone BENFATTO, and Joël HOURTOULE(ITER)

**12:00 The Design of the Beam Spreader for Spreading 100-MeV Proton Beam at the PEPF Beam Lines**

Snag-pil Yoon, In-seok Hong, Ji-ho Jang, and Yong-sub Cho(KAERI)

**10:20 The Overview on the Assembly Process and the Conceptual Design of the Major Assembly Tools for the ITER Tokamak Assembly**

Nam Kyoung, Park Hyunki, Kim Dongjin, and Ahn Heejae(ITER Korea), Im Kihak and Robert Shaw(ITER France)

**12:20 Acceleration Simulation of PEPF RCS for a 1-GeV Extraction**

J. H. Jang, Y. S. Cho, and H. J. Kwon(KAERI), Y. Y. Lee(BNL)

## 제 7 분과 B 양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion)-Poster 5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

**P07B01 Effect of the Heat Treatment on the Mechanical Properties on the CuCrZr Alloy and Ferritic-martensitic Steel**

Jung-Suk Lee, Jeong-Yong Park, Byung-Kwon Choi, Yong-Hwan Jeong, Dong-Won Lee and Bong-Guen Hong(KAERI)

**P07B05 Design of the Compact Permanent-magnet ECR Ion Source**

J. Y. Park and J. K. Ahn(PNU), H. S. Lee, M. S. Won, B. S. Lee, J. S. Bae, and J. K. Bang(KBSI)

**P07B02 Reactive Power Compensation in ITER Power Supply System**

Churl-Kew Hwang, Byung-Hoon Oh, Kwang-Won Lee, Jeong-Tae Jin, and Dae-Sik Chang(KAERI), Jong-Seok Oh and Jungwan Choi(NFRI), Jae Hak Suh(PAL)

**P07B06 Semi-quantitative Analysis of a Samarium Alloys Sample Using a Laser Induced Breakdown Spectroscopy**

Seung-Hyun Kim, June-Sik Ju, Jeong-Hwan Jeong, Hee-Sung Shin, and Ho-Dong Kim(KAERI)

**P07B03 Fault Analysis of ITER Coil Power Supply System**

Inho Song, Jun Tao, and Ivone Benfatto(ITER)

**P07B07 Initial Simulation Test Results of In-bed Calorimetry on a ZrCo Bed**

Haksu Jin, Hongsuk Chung, and Dae-Seo Koo(KAERI), Hiroshi Yoshida(FSC), Seungyon Cho(NFRI)

**P07B04 The Laser Pulse-shaping System for the KAERI Laser Facility**

Sung-Ki Hong, Min-Suk Kim, Young-Won Kim, Kwanghoon Ko, and Changhwan Lim(KAERI), Yong-Seok Seo(WTL)

**P07B08 Initial Tests for Design Data of a ZrCo Bed**

Dae-Seo Koo, Hongsuk Chung, Haksu Jin, and Myunghwa Shim(KAERI), Hiroshi Yoshida(FSC), Seungyou Cho(NFRI)

## II.분과별 논제 및 발표자

- |   |   |
|---|---|
| <p><b>P07B09 Fusion Fuel Cycle Design Concept</b><br/>Hongsuk Chung, Daeseo Koo, Haksu Jin, and Myunghwa Shim(KAERI)<br/>Kyu-Min Song(KEPRI), Duk Jin Kim(KOCEN)<br/>Min Ho Chang, Hyun-Goo Kang, Sei-Hun Yun, and Seungyon Cho(NFRI)</p>         | <p><b>P07B21 WBS Setup&amp;Critical Path Analysis on Proton Accelerator Research Institute Construction</b><br/>Jin Sam Cho, Jun Yeon Kim, Kyeong Jun Mun, Seok Ki Lee, Yi Sub Min, Gye Po Jeon, and Jung Min Nam(KAERI)</p>  |
| <p><b>P07B10 The General Arrangement Modification of Ion Beam Application Building and Utility Building in Proton Accelerator Research Center</b><br/>G. P. Jeon, J. Y. kim, K. J. Mun, Y. S. Min, J. M. Nam, S. K. Lee, and J. S. Cho(KAERI)</p> | <p><b>P07B22 Development of Scenario Generation Program for Operating SDS Bed Simulator</b><br/>Kyu-Min Song, Kwangsun Kim, Soon Hwan Sohn, and Yang Geun Chung(KEPRI), Hongsuk Chung(KAERI)<br/>Sehun Yun, Hyungoo Kang, Min-ho Chang, and Seungyeon Cho(NFRC)</p> |
| <p><b>P07B11 Sequential Control System and Data Acquisition for Beam Emittance Measurement</b><br/>Dae-Il Kim, Hyeok-Jung Kwon, Han-Sung Kim, Young-Gi Song, In-Seok Hong, and Yong-Sub Cho(KAERI)</p>  | <p><b>P07B23 Development of Small-scaled Converter for ITER Power Supply</b><br/>Kiwon Park, Hyeeseong Heo, and Jaean Park(POSCON)<br/>Jungwan Choi and Jong-Seok Oh(NFRI)</p>  |
| <p><b>P07B12 Thermal-hydraulic Analyses of Drift Tube in Proton Beam Accelerator</b><br/>Kyung-Jin Lee and Jae-Seon Cho(FNC)<br/>Han-Sung Kim and Hyeok-Jung Kwon(KAERI)</p>  | <p><b>P07B24 Synthesis of Nano-size Platinum Particles by Proton Irradiation</b><br/>H. O. Kim, M. H. Jung, and K. R. Kim(KAERI)<br/>G. S. Chai and M. K. Min(KBSI), Y. B. Lee and M. Y. Lee(KIRAMS)</p>  |
| <p><b>P07B13 The Conceptual Design of the 40° Sector Sub-assembly Process and Tools</b><br/>Nam Kyounggo, Park Hyunki, Kim Dongjin, and Ahn Heejae(ITER, Korea)<br/>Im Kihak and Robert Shaw(ITER, France)</p>                                    | <p><b>P07B25 Conceptual Design of an Octupole Magnet for PEFP Beamlines</b><br/>Bum-Sik Park, Han-Sung Kim, Hyeok-Jung Kwon, Ji-Ho Jang, and Yong-Sub Cho(KAERI)</p>  |
| <p><b>P07B14 Graphite Heater Design for the High Heat Flux Test Facility KoHLT-1</b><br/>Young-Dug BAE, Dong-Won LEE, Suk-Kwon KIM, Bong-Guen HONG, and Hee-Yun SHIN(KAERI)</p>   | <p><b>P07B26 Effect of Annealing on Electrical Properties of Plasmatron Deposited ZnO Films</b><br/>Oleksiy V.Penkov, Vadim Yu, Plaksin, Sang-Beom Joa, Rakib Mansur, Ji-Hun Kim, and Heon-Ju Lee(JNU)</p>  |
| <p><b>P07B15 Signal Processing Technique for Measuring a Micro Deformed Surface Shape by Using a Laser Interferometer</b><br/>Seung-Kyu Park, Sung-Hoon Baik, Yong-Moo Cheong, Hyun-Kyu Jung, and Hyung-Ki Cha(KAERI)</p>                         | <p><b>P07B27 Design of a DBD System for On-Board Treatment of the Exhaust Gas</b><br/>Vadim Yu. Plaksin, Oleksiy V.Penkov, Sang Beom Joa, F. H. Ruddy, A. R. Dullo, and Heon Ju Lee(JNU)</p>  |
| <p><b>P07B16 Electric Power System Design for the Support Facilities of Proton Accelerator Research Center of PEFP</b><br/>Kyeong-Jun Mun, Jun Yeon Kim, G. P. Jeon, J. S. Cho, Yi-Sub Min, Jung Min Nam, and Seok-Ki Lee(KAERI)</p>              | <p><b>P07B28 Neutral Particle Control during the KSTAR 1<sup>st</sup> Experimental Campaign</b><br/>J. G. Kwak, S. J. Wang, and W. C. Kim(KAERI)</p>  |
| <p><b>P07B17 Deep Drawing Experiences of Niobium Disk for PEFP SRF Cavity Prototype</b><br/>Han-Sung Kim, Sun An, Zhang Liping, Tang Yazhe, Ying-min Li, Hyeok-Jung Kwon, and Yong-Sub Cho(KAERI)</p>   | <p><b>P07B29 Fabrication of Organic Luminescent Materials by Electron Irradiation</b><br/>Jae Joon Kim and Sung Oh Cho(KAIST)</p>   |
| <p><b>P07B18 Baking Arithmetic and Error Analyses for PEFP Fundamental Power Couplers</b><br/>Zhang Liping, Sun An, Tang Yazhe, and Y. S. Cho(KAERI)</p>  | <p><b>P07B30 Overview of Cooling Water System for the KSTAR 1<sup>st</sup> Plasma Experiment</b><br/>Young Jin Kim, S. T. Kim, D. S. Im, N. Y. Joung, and Y. S. Kim(NFRI)</p>   |
| <p><b>P07B19 Tuner Design for PEFP Superconducting RF Cavities</b><br/>Tang Yazhe, Sun An, Zhang Liping, and Yong-Sub Cho(KAERI)</p>  | <p><b>P07B31 Architecture &amp; Civil Design Status of the Proton Accelerator Research Center in PEFP</b><br/>Jung Min Nam, H. G. Joo, K. Mun, G. P. Jeon, Seok-Ki Lee, Yi-Sub Min, Jin Sam Cho, and Jun Yeon Kim(KAERI)</p>  |
| <p><b>P07B20 A Test Method of the Fast Closing Valve for PEFP Beam lines</b><br/>H. R. Lee, B. S. Park, I. S. Hong, and Y. S. Cho(KAERI)</p>  | <p><b>P07B32 Effect of Liquid Crystal Alignment with Ion Beam Irradiation on Inorganic Layer</b><br/>Chan Young Lee, Jae Sang Lee, and Jae Won Park(KAERI)</p>  |

- P07B33 Growth and Characterization of Heteroepitaxy ZnO Thin Film on Sapphire Substrate with Ion Implantation Followed by Thermal Oxidation-some Preliminary Results**  
Tu Anh TRINH, In Seok HONG, Hwa Ryun LEE, and Yong Sub CHO(KAERI)
- P07B34 Modeling and Conversion of the Blanket Neutronics for the Fusion Reactor Concept**  
Suk-Kwon Kim, Dong Won Lee, Young-Dug Bae, and Bong Guen Hong(KAERI)
- P07B35 The Changes for Mechanical Properties of Nitrogen Ion Implanted Micro Drill**  
Bom Sok Kim, Jae Sang Lee, Jae Won Park, and Byung Ho Choi(KAERI)
- P07B36 Time Evolution of the PEFP LEBT Beam in Phase Space**  
Hyeok-Jung Kwon, Han-Sung Kim, Dae-Il Kim, In-Seok Hong, Ji-Ho Jang, and Yong-Sub Cho(KAERI)
- P07B37 Baking Results of KSTAR Vacuum Vessel**  
S. T. Kim, Y. J. Kim, K. M. Kim, D. S. Im, N. Y. Joung, H. L. Yang, Y. S. Kim, and M. Kwon(NFRI)
- P07B38 The Balanced RF Feeding of Resonant Loops for the KSTAR ICRF**  
S. J. Wang and J. G. Kwak(KAERI)
- P07B39 Communication Systems and SI&FMS Design for Support of Proton Accelerator Research Center of PEFP**  
Seok-Ki Lee, Jun Yeon Kim, Kyeong-Jun Mun, G. P. Jeon, J. S. Cho, Yi Sub Min, and Jung Min Nam(KAERI)
- P07B40 RF Power Measurements and Monitoring for the PEFP 20MeV Accelerator Operation**  
Kyung-Tae Seol, Hyeok-Jung Kwon, Han-Sung Kim, Dae-Il Kim, Young-Gi Song, and Yong-Sub Cho(KAERI)
- P07B41 Conceptual Design of Multi-purposed Horizontal and Vertical Target Rooms for 100MeV Proton Beams of the PEFP**  
I. S. Hong, S. P. Yun, H. R. Lee, P. S. Bark, J. H. Jang, H. J. Kwon, and Y. S. Cho(KAERI)
- P07B42 Status of the Distributed Control System(DCS) for the PEFP 20MeV Proton Linac**  
Yong-Gi Song, Eun-Mi An, Hyeok-Jung Kwon, Han-Sung Kim, Kyung-Tae Seol, Dae-Il Kim, and Yong-Sub Cho(KAERI)
- P07B43 Design and Implementation of a Web-based Monitoring System by Using EPICS Channel Access Protocol**  
Eun-Mi An and Yong-Gi Song(KAERI)
- P07B44 Comparison of Carbon Beam Profiles for Quadrupole and Octupole Lens**  
T. K. Yang, Y. S. Kim, Y. S. Park, and J. H. Kim(KIRAMS)
- P07B45 Electron Beam Irradiation of Silica and Titania Based Hybrid Polymer for PEC Application**  
Seung Hwa Yoo, Jong Min Kum, Sung Hwan Heo, and Sung Oh Cho(KAIST)
- P07B46 Synthesis of Gold Nanopattern Using Electron Irradiation and Post-pyrolysis**  
Yong Nam Kim and Sung Oh Cho(KAIST)
- P07B47 Large-area Fabrication of Micro/Nano Hierarchical Structure by Electron Irradiation and its Application to Superhydrophobic Surface**  
Eun Je Lee and Sung Oh Cho(KAIST)
- P07B48 Visible Light Driven Water Splitting Using Electron Irradiated Silica and Titania Based Polymeric Material**  
Jong Min Kum, Sung Hwan Heo, and Sung Oh Cho(KAIST)
- P07B49 Conceptual Design Study of a Ferrite Loaded RF Cavity for a PEFP RCS 1GeV Operation**  
Yong-Sub Cho, Ji-Ho Jang, and Bum-Sik Park(KAERI)
- P07B50 Nondestructive Evaluation of a Be/Cu Diffusion Bond Using a Shear Horizontal Wave**  
Hyun-Kyu Jung, Yong-Moo Cheong, Dong-Won Lee, and Bong-Keun Hong(KAERI)
- P07B51 Optical Properties of Proton-irradiated Polymers**  
Hyeok Moo Lee and Sung Oh Cho(KAIST)

## II. 분과별 논제 및 발표자

### 제 8 분과 A 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation) 5월 22일(FRI)

좌 장 • 정대율(Chung Dae-Yul) / 김상윤(Kim Sang-Yun)

발표장소 • 크리스탈B

[Invited Paper]

**09:00 Current Status and Prospect for Periodic Safety Review of Aging Nuclear Power Plants in Korea**

Tae Eun Jin and Heui Young Roh(KOPEC), Tae Ryong Kim(KEPRI)  
Young Sheop Park(KHNP)

**09:20 Plant Performance Evaluation Using the Maintenance Effectiveness Monitoring Program**

Dong Wook Jerng and Hee Seung Chang(KHNP)

**09:40 Scoping and Safety Significance Analyses for CANDU System Maintenance Effectiveness Monitoring**

Hee Seung Chang, Tae Young Ju, and Dong Wook Jerng(KHNP)

**10:00 Effect of Strain Rate 0.04 to 0.004%/sec on Environmental Fatigue of CF8M Stainless Steel**

Ill-Seok Jeong, Gak-Hyun Ha, and Tae-Ryong Kim(KEPRI)  
Hyun-Ik Jeon and Young-Sin Kim(KLES)

**10:20 Stress Concentration Factor in Fatigue Analysis of the DVI Nozzle Using Finite Element Analysis**

K. H. Lee, S. B. Han, and H. S. Lee(GNEC), J. G. Lee (KHNP)

**10:40 Coffee Break**

**11:00 Regulatory Perspectives on Safety-related Heat Exchanger**

S. K. Lee and C. K. Moon(KINS)

**11:20 Mechanical and Thermal Properties of Concrete of Reactor Containment Building as Using Different Cement**

Yoon, Eui-Sik and Kim, Sang-Yun(KINS)  
Choi, Gyu-Eun and Bae, Sung-Hwan(KHNP)

**11:40 Regulatory Status of Dissimilar Metal Weld(DMW)**

K. C. KIM, J. K. Hong, H. S. SHIN, S. S. KANG, M. H. SONG, and  
H. D. CHUNG(KINS)

**12:00 Improvement of Mechanical Rebar Splices for N.P.P. Construction**

Jun-Young Yang and Young-Tae Ju(KHNP), Jang-Kyu Choi(Daewoo E&C)  
Sang-Gu Kim(BMS Co., Ltd.)

**12:20 Evaluation of the Compressive Strength of Concrete of Reactor Containment Building in Shinwolsong Unit 1&2 NPP**

Yoon, Eui-Sik and Baik, Yong-Kwan(KINS), Park, Sang-Ho(KHNP)

### 제 8 분과 B 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation)-Poster 5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

**P08B01 Revised Performance Demonstration Program for Steam Generator Tubing Analysts**

Chan Hee Cho, Hee Jong Lee, and Yong Sik Kim(KEPRI)

**P08B02 Mode Selection for Axial Flaw Detection in Steam Generator Tube Using Ultrasonic Guided Wave**

Byung-Sik Yoon, Seung-Han Yang, Ki-Il Guon, and Yong-Sik Kim(KEPRI)

**P08B03 Acceleration Amplification Effect Due to the Dynamic Characteristics of Electric Panel**

J. B. Jang, K. M. Hwang, and K. W. Ham(KEPRI)  
J. R. Lee(Powerentech. Co.,)

**P08B04 Analysis of the Residual Stresses Measured in Alloy 182 Butt Welded Plates**

Ho-Jin Lee, Kang-Soo Kim, Ki-Baik Kim, and Bong-Sang Lee(KAERI)  
Kyung-Bong Lee(DUC), Jin-Gwi Byeon, Kwang-Soo Park, and  
In-Chul Jung(Doosan Heavy Co., Ltd.)

**P08B05 Visualization and Analysis of Eddy Current Data from D-Probe**

Kyung Mo Kim, Myung Sik Choi, Do Haeng Hur, Jung Ho Han, and  
Deok Hyun Lee(KAERI)

**P08B06 Water Chemistry Control of a Fuel Test Loop**

Sung Ho Ahn, Chung Young Lee, Sung Paal Yim, Jong Min Lee, Su Ki Park,  
Dae Young Chi, Bong Sik Sim, Young Ki Kim, and Kye Hong Lee(KAERI)

**P08B07 Comparison of TiO<sub>2</sub> Penetrations into Open and Packed Tubesheet Crevices**

Jung Won Na, Byoung-Seon Choi, Uh Chul Kim, and  
Wan Young Maeng(KAERI)

**P08B08 Performance Evaluation of RCS Leak Monitoring System for Ulchin Units 1 and 2**

S. J. Yune, S. K. Suh, and S. J. Baik(KOPEC), G. N. Lee(KHNP)

**P08B09 Methods and Effects of Safety Enhancement in Korean PSR**

Yonggab Kim and Jongwoon Park(KHNP)

**P08B10 Hardware and Software Platform for Real-time Processing and Visualization of Automatic Ultrasonic Signal Evaluation in NPP**

Hyun-Ju Yoo, Hyung-nam Kim, and Sung-nam Choi(KEPRI)

**P08B11 Structural Safety Diagnoses and Repair Designs for HANARO's Peripheral Buildings**

Jeong-Soo Ryu and Young-Cheol Ko(KAERI)

**P08B12 A Comparison of the Monitoring Programs for Structures in NPPs**

Tae-Young Song, Sang-Dae Lee, and DongWook Jerng(KHNP)

**제 8 분과 C** 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation) 5월 22일(FRI)

좌 장 • 김중학(Kim Chong-Hak) / 정일석(Jeong Il-Seok)

발표장소 • 크리스탈B

<b>13:30</b>	<b>A Study on Seismicity Parameters and a Logic Tree in the PSHA for a NPP Safety</b> Jeong-Moon Seo, In-Kil Choi, and Hyun-Me Rhee(KAERI)	<b>15:10</b>	<b>Coffee Break</b>
<b>13:50</b>	<b>Quantification of the Seismogenic Potential of a Fault</b> Chun-Joong Chang, Kwan-Hee Yun, and Dong-Hee Park(KEPRI) Taek-Mo Shim(KINS)	<b>15:30</b>	<b>Nondestructive Aging Evaluation of Hypalon Cable Using Ultrasonic Propagation Time</b> Sun-Chul Jeong and Jong-Seong Kim(KEPRI)
<b>14:10</b>	<b>A Study on Variability of Soil-structure Interaction in Seismic Fragility Analysis of Nuclear Power Plant Structures</b> Sung Gook Cho and Yong Il Lee(JACE KOREA Co.,) Kang-Ryong Choi(KINS), Gi Sung Pang(ETEP)	<b>15:50</b>	<b>CodPop: Computer Code for Defining Population Centers Around NPP Sites</b> H. Lee, C. B. Im, S. G. Hyun, and S. Y. Kim(KINS) Y. -S. Seo and J. H. Na(CBNU)
<b>14:30</b>	<b>An Experimental Study of Seismic Reinforcing System for Electric Panel on the Access Floor</b> J. B. Jang, K. M. Hwang, and K. W. Ham(KEPRI) J. R. Lee(Powerentech. Co.,)	<b>16:10</b>	<b>Ultimate Pressure Capacity Evaluation of Pressurized Heavy Water Reactor(PHWR) Containment Building</b> Il Hwan Moon, Tae Young Kim, and Seong-Moon Ahn(KOPEC)
<b>14:50</b>	<b>Internal Pressure Capacity Estimation of Prestressed Concrete Containment Buildings with Considering Structural Performance Degradations</b> Daegi Hahm and In-Kil Choi(KAERI), Hong-Pyo Lee(KEPRI)	<b>16:30</b>	<b>A Proposal of the NPP Engineering Workstation(NEWS)</b> ILL-SEOK JEONG and GAK-HYEON HA(KEPRI) SEOK-JIN JUN(KHNP)

**제 8 분과 D** 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation)-Poster 5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

<b>P08D01</b>	<b>Lessons Learned from Wolsong NPP for Improvement of Seismic Monitoring System</b> Se-Moon Park, Chong-Hak Kim, Seong-Keun Cho, and Jong-Sam Choi(KHNP)	<b>P08D06</b>	<b>Alanine/ESR Spectrum Chang in NPP</b> Choi Hoon, Kim Jeong In, Lee Byung Il, and Lim Young Khi(KHNP)
<b>P08D02</b>	<b>Visual Inspection of the Flow Distribution Plate of a Steam Generator</b> Woo-tae Jeong and Seok-tae Kim(KEPRI) Seok-chul Kang and Young-kug Kim(Sae-An Eng.,)	<b>P08D07</b>	<b>Thermal Analysis for the Fresh Fuel Transport Container</b> S. H. Kim, H. C. Jang, B. J. Lee, and Y. J. Choe(KOPEC)
<b>P08D03</b>	<b>Sludge Removal of a Nuclear Steam Generator by an Ultrasonic Means</b> Woo-tae Jeong, Seok-tae Kim(KEPRI) Ju-kwon Ok and Sang-Jung Yoon(Sae-An Eng.,)	<b>P08D08</b>	<b>Priliminary Design Review on a Transfer Trolley of Large Structures in a Hot Cell</b> Ungsup Song, Wanho Oh, Byungok Yo, Sangyul Baek, Sangbok Ahn, and Kwonpyo Hong(KAERI), Bongki Kim(GNEC), Kijung Jung(ITER)
<b>P08D04</b>	<b>Leak Monitoring of a Fuel Channel Closure Plug Using Tritium Activity Analysis System</b> Sang-Guk Lee(KEPRI), Sul-Hee Kang(KHNP)	<b>P08D09</b>	<b>Hydraulic and Structural Analysis Methodology of RVI CVAP in Shin-Kori 4</b> Kyu-Hyung Kim, Do-Young Ko, and Yong-Soo Kim(KHNP)
<b>P08D05</b>	<b>A Study on the Thermal Characteristics of Epoxy Coating Systems of the Containment Structures</b> Sang-Kook Lee(KINS), Jae-Rock Lee(KRICT), Chul-Woo Lee(KOPEC)	<b>P08D10</b>	<b>Seismic Analysis of an Air Intake Filter</b> Han. Hee. Lee(GNEC), Ho. Jun. Lee(FCC)

## II. 분과별 논제 및 발표자

### 제 8 분과 E 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation) 5월 22일(FRI)

좌 장 • 맹완영(Maeng Wan-Young) / 정동욱(Jerng Dong-Wook)

발표장소 • 크리스탈C

**13:30 The Status of AOA and the CRUD Deposition in Korean PWR**

Wan Young Maeng, Byung Seon Choi, Duck Kee Min,  
Hyung Moon Kwon, In Kyu Choi, and Je Won Yeon(KAERI)  
Jae Ik Kim, Hae Seuk Woo, Young Koo Kim, and Jong Youl Park(KNF)

**13:50 Corrosion Mechanism of Alloy 600 in Aqueous Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> Solutions at 340°C**

E. H. Lee, K. M. Kim, B. S. Choi, and W. Y. Maeng(KAERI)

**14:10 Characteristics of Nano-sized TiO<sub>2</sub> for an Inhibitor of SCC**

Kyung Mo Kim, Eun Hee Lee, Uh Chul Kim, Byung Seon Choi, and  
Wan Young Maeng(KAERI)

**14:30 The Effect of the pH and Dissolved O<sub>2</sub> on a  $\gamma$ -radiolysis of Water**

Byung-Seon Choi and Wan-Young Maeng(KAERI)  
J. Clara Wren(Univ., of Western Ontario)

**14:50 Development of Experimental Method to Simulate the Corrosion Products in the Primary System of Nuclear Power Plant**

Sanghyun Kim and Wan Young Maeng(KAERI)  
Mun Hwan Kim and Chang Whan Won(CNU)

**15:10 Coffee Break**

**15:30 Identification and Assessment of Recent Aging-related Degradation Occurrences in U.S. NPP**

Min Kyu Kim, In Kil Choi, and Young-Sun Choun(KAERI)  
Jinsuo Nie, Joseph I. Braverman, Charles H. Hofmayer(BNL)

**15:50 Aging Evaluation for NPP Cable with XLPE Insulation by Using Oxidation Induction Time Measurement Test**

Kyung-Nam Jang(KEPRI)

**16:10 Harmonization of IEEE323 and IEC60780 Standards for Environmental Qualification of Electric Equipments**

Jong-Seog Kim(KEPRI)

**16:30 Determination of the Minimum Acceptable Value of Insulation Resistance for Formwound Motor Winding EQ Test**

Kyung-Heum Park(KEPRI)

### 제 8 분과 F 원자력발전소 건설 및 운영(Nuclear Power Plant Construction and Operation)-Poster 5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

**P08F01 Tube Plugging Criterion for the TPCCW Heat Exchanger of Yonggwang NPP 1&2**

Hyung-nam Kim, Hyun-ju Yoo, Sung-nam Choi, and  
Seok-yoon Song(KEPRI)

**P08F02 Statistic Analysis of Operating Experience Using DIOS**

Il S. Lee, Min C. Kim, Ji T. Kim, and Durk H. Lee(KINS)

**P08F03 Preliminary Study about PTFE/ESR Dosimetry**

Park Byeong Ryong, An Jin Hee, and Choi Hoon(RHRI)

**P08F04 Simulation of Local Damage to Reinforced Concrete Structures Caused by Impact of Aircraft Engine Missiles**

Sang Hoon Noh, Jong Bo Lee, and Chong Hak Kim(KHNP)

**P08F05 Establishment of the In-service Test Management System for Nuclear Power Plants Using Database System**

Young Wook Chung, Soon Joon Hong, and Soon Il Chung(FNC)  
Tae-Gun Ha and Gang-II Choo(KHNP)

**P08F06 Analysis of a Near-field Earthquake Record at the Deep Underground Research Tunnel**

Kwan-Hee Yum and Dong-Hee Park(KEPRI), Taek-Mo Shim(KINS)

**P08F07 Necessity of Monitoring the Sea Level and Temperature Near the NPP Site**

Seung Gyu Hyun, Hoseon Choi, and Sobeom Jin(KINS)

**P08F08 Effect of Adjacent Structures on Foundation Response of Tower Building from SSI Analysis Incorporating Wave Incoherence**

Joo-Hyung Kang and Sang-Hoon Lee(KOPEC)

**P08F09 An Experimental Study on the Effect of  $\gamma$ -Irradiation on Concrete Strength**

Hong-Pyo Lee and Young-Chul Song(KEPRI)

**P08F10 Effects of Dissolved Gases on Measuring the High-temperature pH in Various Lithium Borate Buffer Solutions**

Jaesik Hwang, Jei-Won Yeon, Myung Hee Yun,  
and Kyuseok Song(KAERI)



**제 9 분과 A** 원자력정책, 인력 및 협력(Nuclear Policy, Human Resources and Cooperation) 5월 22일(FRI)

좌 장 • 김승수(Seung-Su Kim) / 조성연(Jo Seong Youn)

발표장소 • 루비

[Invited Paper]

**09:00 Contribution of Nuclear Power to the National Economic Development in Korea**Manki Lee and ByungJoo Min(KAERI), Kee-Yung Nam(IAEA)  
Kiho Jeong(KNU), Young-Eek Jung(KHNP)**10:40 Coffee Break****11:00 Comparison of Criminal Procedure and Inspection**

Sang Cheol Hyung(KINAC)

**09:20 Recent Activities of INRA and Recommendations**Dohyoung KIM, Hyun-Sop CHANG, Jae-Woong CHUNG, Chae-Woon OH,  
and Kun-Woo CHO(KINS)**11:20 Utilization Practice of the Concept Mapping Program for Nuclear Engineer Training**

Kim BaeJoo, Ko ByungMoo, and Heo Yuk(KHNP)

**09:40 Review of Atomic Energy Laws Related to Radiological Accidents and Methods of Improvement**Chang Gun-Hyun, Kim Sang-won, Yoo Jeong, Ahn Hyoung-jun, Park Young-sik  
Kim Hong-suk, Kwon Jeong-wan, Jang Ki-won, and Kim Sok-chul(KINS)**11:40 Regulatory Framework for Controlling the Research Reactor Decommissioning Project**

Ai Melani(BAPETEN), Soon Heung Chang(KAIST)

**10:00 An Analysis of the Public Survey for Nuclear Risk Communication**Chang-Ju Lee, Yeon-Hee Hah, and Kju-Myeng Oh(KINS)  
Won-Je Kim(U-Plus)**12:00 Adequate Radioactive Waste Management Fund Fee<sup>1</sup>**

Jae-Hyeog Kim(KHNP), Seok-Bong Kim(KNF)

**10:20 Necessity of National Safeguards Evaluation System to Improve National Safeguards System**

Min Su Kim, Jae San Kim, and Jae Beom Park(KINAC)

**12:20 Development of Strategic Technology Roadmap for Establishing Safety Infrastructure of Fusion Energy**

B. S. Han, S. H. Cho, S. C. Kam, and K. T. Kim(KINS)

**제 9 분과 B** 원자력정책, 인력 및 협력(Nuclear Policy, Human Resources and Cooperation)-Poster 5월 22일(FRI)

발표시간 • 10:00~12:00

발표장소 • 에메랄드홀

**P09B01 Development of DB on Radiological Terror in a Metropolitan Area**Hosik Yoo, Sung-Woo Kwak, Sung-Soon Chang, Jung-Soo Kim, and  
Wan-Ki Yoon(KINAC)**P09B07 Planning of Midium- and Long-Term Strategy for the Safeguards Technology Development**

Dong Hoon Shin, Gil Hoon Ahn, and Kwan Gyu Choi(KINAC)

**P09B02 A Suggestion for Safeguards System under the Supply Assurance Environment**

Seong Youn Jo(KINAC)

**P09B08 Introduction and Legal Analysis of the Korea Radioactive Waste Management Act**

D. S. Lee, W. S. Chung, M. H. Yang, S. W. Yun, and J. H. Lee(KAERI)

**P09B03 Public Understanding of the Replacement of Aged Pressure Tubes in Wolsong NPP Unit 1**Byung-Il Lee, Kwan-Jae Cho, Soo-Chul Shin, Chang-kyo Jeong, and  
Bang-Woong Kim(WSNESC)**P09B09 Survey Result for the Safety Culture Attitude of HANARO in 2008**

Jong Sup Wu and Seok Hwa An(KAERI)

**P09B04 The Review of Quality System on IAEA Safeguards to Improve the Quality of National Safeguards Inspection**

Jae San Kim(KINAC)

**P09B10 Establishing an Information Security System Related to Physical Protection**

Sung Soon Jang and Hosik Yoo(KINAC)

**P09B05 Enhancement of Public Understanding on Recycling Spent Nuclear Fuel**

Ju Youl Kim(FNC)

**P09B11 Unsolved Problems of Iran's Nuclear Program and Prospects in the Light of Role of Parties to an Entente**

Minsoo KIM and Jaesan KIM(KINAC)

**P09B06 A Test-bed Approach for the Evaluation of Sub-systems and Components in PPS**Jounghoon Lee, Kwang-Ho Jo, Jung-Soo Kim, Jae-Kwang Kim, and  
Donghan Yu(KINAC)**P09B12 Measuring the Social Value of Nuclear Energy using Contingent Valuation Methodology**

Eunju Jun, Soon Heung Chang, and Won Joon Kim(KAIST)

## Ⅱ.분과별 논제 및 발표자

**P09B13 Spent Fuel Transfer to Dry Storage Using Unattended Monitoring System**

Jaehwan Park and Soojin Park(KINAC)

**P09B14 Nuclear Power Infrastructure Development Program: Korean Education Program**

Sung Yeol Choi, Il Soon Hwang, Si Hwan Kim, Sang Doug Park, Nam Sung Ahn, Ki Ryong Na, Han Young Lee, Koo Woun Park, Tae Eun Yang, Youn Won Park, Jeung Soo Huh, and Chang Hyo Kim(SNU)

**P09B15 Introduction of the Recycling Program for Nuclear Materials**

Jae Beom Park, Byung Woo Shin, Jae whan Park, and Soo Jin Park(KINAC)

**P09B16 The Experience of National Safeguards Inspections under the Integrated Safeguards in Korea**

Jin Kyun Yeo(KINAC)

**P09B17 Education and Training of Safety Regulation for Nuclear Safety Infrastructure: Its Necessity and Unique Features**

Young-Sung Choi, Young-Joon Choi, and Jae-Cheon Lee(KINS)

**P09B18 The Review of the Protocol Reporter v2.0**

Hye-Won Shim(KINAC)

**P09B19 Evaluation of an Investment Opportunity from the Perspective of Reliability Enhancement**

Taesik Yun, JongHyuk Park, and Jongeun Park(KEPRI)

**P09B20 The Effect of Fossil Fuel Prices to Electric Generation Mix**

Seung-Su Kim and Kee Hwan Moon(KAERI)

**P09B21 Implications of the Integrated Safeguards on R&D Facility in Korea**

H. S. Ko, H. S. Kim, H. J. Kim, H. J. Park, D. S. So, and B. D Lee(KAERI)

**제 10 분과 A 원자력계측제어 및 자동원격(Nuclear I&C and Automatic Remote System) 5월 22일(FRI)****좌 장** • 박기용(Gee Yong Park) / 고정수(Jungsoo Koh)**발표장소** • 크리스탈D

[Invited Paper]

**09:00 Technical Review on the Localized Digital Instrumentation and Control Systems**

Kee-Choon Kwon(KAERI), MyeongSoo Lee(KEPRI)

**09:20 A Smart Soft Sensor Predicting Feedwater Flow Rate**

Heon Young Yang and Man Gyun Na(CSU)

**09:40 Safety Evaluation of Full Digital Plant Protection System of Shin-Kori 3&4 in Korea**

J. S. Koh, D. I. Kim, C. H. Jeong, H. S. Park, S. H. Ji, Y. D. Kang, and G. Y. Park(KINS)

**10:00 SACS<sup>2</sup>: Dynamic and Formal Safety Analysis Method for Complex Safety Critical System**

Kwang Yong Koh and Poong Hyun Seong(KAIST)

**10:20 Verifications of ES-DCPD Method for Piping Wall Thickness Monitoring in the SFASL**

Kyung Ha Ryu, Ji Hak Kim, and Il Soon Hwang(SNU)

**10:40 Coffee Break****11:00 Performance Testing Methodology for Safety-critical Programmable Logic Controller**

Chang Ho Kim, Do Young Oh, Ji Hyeon Kim, Sung Ho Kim, and Se Do Sohn(KOPEC)

**11:20 Design and Test of Navigation in APR1400 Computerized Procedure System Display on Human Factors Engineering Issues**

Yun Goo Kim(KHNP)

**11:40 Application of Software Safety Analysis Methods**Gee-Yong Park, Sup Hur, Se-Woo Cheon, Dong H. Kim, Dong Y. Lee, and Kee C. Kwon(KAERI)  
Sungjin Lee and Youngho Koo(Doosan Haevy Co., Ltd.)**12:00 Experience and Consideration in Safety Critical Software Tests**

Do Young Oh, Se Do Sohn, Sung Ho Kim, Chang Ho Kim, Woo Goon Kim, Kwon Ki Moon, and Young Woo Chang(KOPEC)

**12:20 Comparison of CFD and Test Techniques for Cavitation Inception**Do Hwan Lee, Sung-Keun Park, and Sun-Ki Lee(KAERI)  
Byung Kon Kim(M&D Corp.)**제 10 분과 B 원자력계측제어 및 자동원격(Nuclear I&C and Automatic Remote System)-Poster 5월 22일(FRI)****발표시간** • 10:00~12:00**발표장소** • 에메랄드홀**P10B01 A Simulator for the Operation and Maintenance of the PRIDE Facility**

Hee-Seoung Park, Chang-Hwan Choi, Sung-Hyun Kim, Byung-Suk Park, Ki-Ho Kim, and Ho-Dong Kim(KAERI)

**P10B02 Development of V&V System for the KNICS**

JinHyuk Hong, MyeongSoo Lee, SeungHo Lee, JungKwan Suh, and DoHyun Hwang(KEPRI)

**P10B03 A Study on the Test Coverage for Software Validation in Nuclear I&C System**

Hyung Tae Kim, Young Doo Kang, Choong Heui Jeong, and Dail Il Kim(KINS)

**P10B04 The RGGG Methodology for a Repairable System**

Gyoung Tae Goh, Seung Ki Shin, and Poong Hyun Seong(KAIST)

**P10B05 A High Dose-rate Gamma Irradiation Test of Passive Elements of Radiation-tolerant Camera System**

JaiWan Cho, YoungSoo Choi, and Jung Cheol Shin(KAERI)

**P10B06 The Qualification Experiences for Safety-critical Software of POSAFE-Q**

Jang Yeol Kim, Kwang Seop Son, Se Woo Cheon, Jang Soo Lee, and Kee Choon Kwon(KAERI)

**P10B07 Survey of Cyber Security Intrinsic for a Nuclear Power Plant**

Yoo-Rark Choi and Jae-Cheol Lee(KAERI)

**P10B08 V&V Based Reusable Bayesian Nets for a Reliability Assessment of Safety-critical Software**

Heung-Seop Eom, Gee-Yong Park, and Seung-Cheol Jang(KAERI)

**P10B09 Design and Verification Process for Developing the FPGA-based Firmware for Nuclear Power Plants**

Joong-Ku Lee, Jong-Ryong Keum, Yong-Suk Suh, and Je-Yun Park(KAERI)

**P10B10 Load Test of Motor Equipment Qualification and Associated Test Apparatus**

Byung-Ju Lim and Chang-Dae Park(KIMM)

**P10B11 Optimal RMS Sampling Location Selection Using CFD Analysis**

Kwang Chu Kim and Man Heung Park(KOPEC)

**P10B12 Estimation on the Aerosol Particle Penetration in RMS Sampling Line**

Kwang Chu Kim and Man Heung Park(KOPEC)

## II.분과별 논제 및 발표자

### P10B13 RCS Leakrate Calculation Using Bilateral Kernel Filters

Gyunyong Heo, Seok Bo Jang, and So Young Kim(KHU)  
Sang Ha Ahn(KAIST)

### P10B14 A Study on Cavitation Detection of Centrifugal Pumps

Do Hwan Lee and Sung-Keun Park(KEPRI)  
Rae-Hyuck Jeoung and Min Ho Cho(M&D Corp.)

### P10B15 Statistical Learning Framework with Adaptive Retraining for Condition-based Maintenance

Sang Ha An and Soon Heung Chang(KAIST)  
Gyunyong Heo(KHU), Ho Joon Seo and Su Young Kim(BNF)

### P10B16 Using Machine Learning for Risky Module Estimation of Safety-critical Software

Young-Mi Kim and Choong-Heui Jeong(KINS)

### P10B17 An Enhancement of Visual Test Performance for Nuclear Fuel Assembly

JaiWan Cho and YoungSoo Choi(KAERI)  
Jung Cheol Shin(KNF)

### P10B18 On-Line High Dose-rate Gamma Irradiation Test of the Profibus/DP Module

Jai Wan Cho, Young Soo Choi, Chang Hoi Kim, In Soo Koo, and  
Seok-Boong Hong(KAERI)

## 제 10 분과 C 원자력계측제어 및 자동원격(Nuclear I&C and Automatic Remote Systems) 5월 22일(FRI)

좌 장 • 이정운(Jung-Woon Lee) / 이용희(Yong-Hee Lee)

발표장소 • 크리스탈D

### 13:30 Interface between Core/TH Model and Simulator for OPR1000

Do Hyun Hwang, Myeong Soo Lee, Jin Hyuk Hong, Seung Ho Lee, and  
Jung Kwan Suh(KEPRI)

### 13:50 Study on the Transient Evolution of Precursors near an IHX from a Failed Fuel Assembly in KALIMER-600

Seung-Hwan Seong, Ji-Woong Han, and Seong-O Kim(KAERI)

### 14:10 Optimization for the Parameters of Feedwater Control System for OPR1000 Nuclear Power Plants

Ung Soo Kim, In Ho Song, Jong Joo Sohn, and Eun Kee Kim(KOPEC)

### 14:30 Development of a User Interface of LogACTS(Logic Alarm Cause Tracking System)

Jung-Woon Lee, Jung-Taek Kim, Jae-Chang Park, In-Koo Hwang,  
Hyun-Chul Lee, Seong-Hwan Hwang, Jaekyu Park, and  
Yonghee Lee(KAERI)  
Yeon-Ki Lee, Seong-Taek Chon, and Byoung-Joo Kim(KHNP)  
Ki-Tae Kim and Sang-Ho Lee(BNF)

### 14:50 A Systematic Approach to the Countermeasures for Human Errors in Nuclear Power Plants

Yong-Hee Lee and Yonghee Lee(KAERI)

### 15:10 Coffee Break

### 15:30 Development of Input/Output System for the Reactor Transient Analysis System(RETAS)

Jae Seung Suh, Doo Hyuk Kang, and Yeon Sik Cho(ENESYS)  
Seung Hoon Ahn and Yong Jin Cho(KINS)

### 15:50 An Integrated User Interface Style Guide for the ESF-CCS, RPS and CPCS Display Design

Jaekyu Park, Hyun-Chul Lee, Seong-Hwan Hwang, Tong-II Jang,  
Suk-Ho Kang, Jung-Woon Lee, and Yong-Hee Lee(KAERI)

### 16:10 Maintenance Support System Development for Maintenance Personnel in Nuclear Power Plants

Ho-Bin Yim, In Kim, Seung-Min Lee, and Poong-Hyun Seong(KAIST)

### 16:30 A Practical Review of Studies on Operator's Supervisory Monitoring Behavior

Jun Su Ha and Poong Hyun Seong(KAIST)

## 제 10 분과 D 원자력계측제어 및 자동원격(Nuclear I&C and Automatic Remote Systems)-Poster 5월 22일(FRI)

발표시간 • 14:00~16:00

발표장소 • 에메랄드홀

### P10D01 Experience and Lessons from Software Configuration Management for PMAS

Joo Hyung Cho, Seung Min Baek, and Hang Bae Kim(KOPEC)

### P10D02 The Refurnishment for SDS No.1 Low Level Steam Generator Trip Instrumentation Redundancy for Wolsong Nuclear Power Plant Unit 1

Dongpa Kang, Jaehee Yun, and Hangbae Kim(KOPEC)

### P10D03 Conceptual Design Concept of Electrical Propulsion System for Nuclear Operated Vessel Adventure

B. Halimi and Kune Y. Suh(SNU)

### P10D04 Development of a Test Program for the Control Rods in HANARO

Young-San Choi, Sang-Hoon Bae, Sang-Jin Kim, and  
Hwan-Sung Jung(KAERI)

- P10D05 Experience on the FMS Communication Module Development for an Application to Safety-critical Communication Network**  
Kwang Seop Son, Jang Soo Lee, and Jung Heon Kim(KAERI)
- P10D06 A Concept Design of Reactor Protection System for PALLAS Research Reactor**  
Young Rok Sim, Sung Hun Kim, and Jung Seon Kim(SEC)  
Geun Ok Park and In Soo Koo(KAERI)  
Hee Seok Park and Gi Ho Cho(OPENCULTURE)
- P10D07 A Study on the Inter-channel Communication Independence for SMART I&C System**  
Kwang-Il Jeong, Jong-Yong Keum, and Je-Yun Park(KAERI)
- P10D08 Analysis of Critical Characteristics for Safety Graded Personnel Computers in the KNICS Architecture**  
Hyun-Chul Lee and Dong-Young Lee(KAERI)
- P10D09 Case-study: The Regression Test for Operating Systems of PLC**  
Young-Jun Lee and Sung-Jae Hwang(KAERI)
- P10D10 Developing Major Steps for a Feasibility Study for Upgrading I&C Systems in a Large Scale for an Operating Nuclear Power Plant**  
Yong Suk Suh, Jong Yong Keum, and Dong Hoon Kim(KAERI)  
Hyeon Tae Kang, Chan Ho Sung, and Jae Ki Lee(KHNP)  
Chang Hwan Cho(SEC)
- P10D11 Vibration Measurement Plan of RVI CVAP for Shin-kori Unit 4**  
Do-Young Ko, Jae-Gon Lee, and Kyu-Hyung Kim(KHNP)
- P10D12 A Review of Quantitative Situation Assessment Models for Nuclear Power Plant Operators**  
Hyun-Chul Lee(KAERI), Pong-Hyun Seong(KAIST)
- P10D13 Development of an Investigation Method(HuRAM<sup>+</sup>) for Human-related Events**  
Ji Tae Kim, Min Chull Kim, Durk Hun Lee, Bon Hyun Koo, and Il Suk Lee(KINS), Won Dae Jung(KAERI)
- P10D14 The Development of a Speech Act Coding Scheme to Characterize Communication Patterns under an Off-normal Situation in Nuclear Power Plants**  
Seunghwan Kim and Jinkyun Park(KAERI)