KNS(P)-001-2024 춘계학술발표회 프로그램

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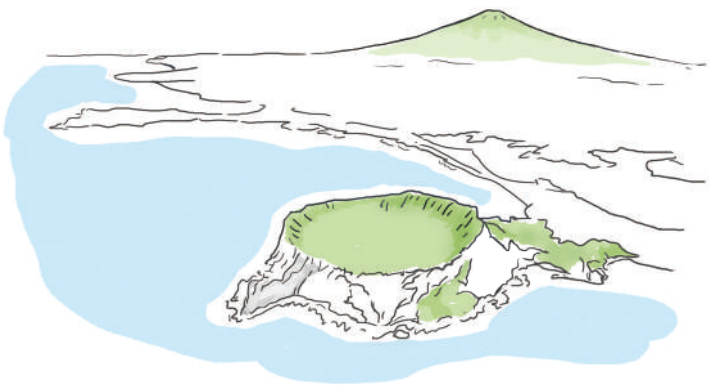
2024 KNS Spring Conference
2024 춘계학술발표회

KOREAN NUCLEAR SOCIETY

2024. 5. 8(Wed) ~ 10(Fri)
제주 국제컨벤션센터
(International Convention Center JEJU)



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사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

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학회장 인사말

정범진 학회장

2024년 한국원자력학회 춘계학술발표회 참가자 여러분!
2024 KNS 춘계학술발표회에 참가하신 여러분을 환영합니다.

이번 학술발표회에서는 수요일에 16건의 워크숍이 개최됩니다. 여기에서 원자력계의 현안, 최신기술에 대한 소개, 원자력 활용의 확대를 위한 노력, 미래의 비전에 대한 차세대와의 공유 등 다양한 주제를 다루게 됩니다. 또한 672편의 연구논문이 발표되면서 풍성한 지식의 교류가 이루어질 예정입니다.

특히 이번 학술발표회에는 세 가지 중요한 행사가 진행됩니다. 월요일부터 금요일 오전까지 'SMR의 성공적 개발과 지속가능한 전개'라는 주제로 IAEA의 제22차 INPRO Dialogue Forum이 개최되면서 주요국의 인사와 교류할 기회가 마련됩니다.

또 '원자력의 미래를 마음껏 상상하라!'라는 주제의 청년분과 행사에서 꿈나무들의 상상력을 보게 될 것입니다.

이번 학술발표회의 초청강연을 대신하여 대한전기학회와 공동 워크샵을 개최합니다. 여기서 기후온난화에 대처하기 위하여 무탄소 전원을 확대하는 과정에서 발생하는 문제점을 논의하고 이를 극복하기 위한 과학부문의 과제를 다루게 될 것입니다. 이를 통하여 우리의 시각을 가까운 주변으로 넓히는 기회가 될 것으로 기대합니다.

올해 들어 학회에 신규 가입하는 회원 수가 늘어나고 있습니다. 신규로 원자력에 참여하는 기업회원이 늘어나고 있으며 특별회비를 납부하고 기부금을 조성하고 있습니다. 이에 부응하여 저를 비롯한 학회 임원들과 사무국은 회원에게 직접적 도움이 되는 프로그램을 개발하여 제공하는 노력을 하고자 합니다. 여기에 회원님들의 아이디어와 협조가 필요합니다.

최근 정부는 원자력 부분에 다양한 신규사업을 기획하고 있으나 원자력의 비전 설정과 정책적 고심은 우리의 몫입니다. 원자력은 국제정치에 밀접한 과학이라고 배웠으나 우리는 실제로 그렇게 활약하고 있지 않습니다. 국내정치에도 활동이 보이지 않습니다. 엄혹한 정치적 상황에서 원자력의 기술기반과 국민 지지기반을 강화하는데 이번 학술발표회가 큰 역할을 해줄 것을 기대합니다.

아울러 학술발표회 참가자들께서는 아름다운 제주도에서 소속 기관과 전문분야를 넘어 서로 소통하면서 보람되고 행복한 시간을 보내시길 바랍니다. 감사합니다.

한국원자력학회장 정 범 진 拜上

Greetings from the KNS President

Bum-Jin CHUNG
President of Korean Nuclear Society

Dear Participants of the 2024 KNS Spring Conference,

On behalf of the Korean Nuclear Society (KNS), it is my pleasure to extend a warm welcome to the 2024 KNS Spring Conference.

Our conference will host 16 workshops on Wednesday. A variety of topics will be discussed such as current nuclear issues, introduction of state–of–the–art technology, our efforts to extend the uses of nuclear power, future nuclear vision and sharing with our future generation, etc. 672 research papers will nourish knowledge.

The conference will be host three important events. On the topic of successful development of SMRs and their sustainable deployment, the 22nd IAEA INPRO Dialogue Forum will be held form Monday to Friday alongside our conference. This will provide an opportunity to network with international figures.

On the topic, 'Imagine bold and freely the nuclear future!', KNS Youth Division activities will unfold.

In this conference, instead of invited lectures, we will host a Two–Society workshop with Korean Institute of Electrical Engineers on the topic 'The problems raised during the expansion of carbon free power sources and our efforts to overcome them'. This, I believe, will expand our views to nearby areas.

We are delighted to note new members joining our Society this year. New institutional members are joining and they are raising fund for the KNS. Given this situation, we, the officers and the secretariat of the Society, will continue to devise new programs which benefit our members practically. To this end, I would invite ideas and helps of KNS members.

Recently, the Korean government has started new programs for the nuclear area but the vision settings and policy studies are our responsibility. We have learned that the nuclear science is closely related to international politics. However, we haven't been behaving accordingly. We have not been actively participating in the domestic politics.

It is my earnest hope that this Conference will contribute to strengthening the technological base and public support for nuclear energy. I also hope that you will enjoy your time on this beautiful Jeju Island while networking with fellow nuclear energy professionals across nations, institutions and specialties.

Thank you.

Bum–Jin CHUNG
President of the Korean Nuclear Society

학술발표회 전체 일정 (Conference Program Overview)

Registration 5.8(Wed) 12:30~17:00 / 5.9(Thu) 08:00~17:00 / 5.10(Fri) 08:00~12:00

22nd INPRO Dialogue Forum on Successful Development and Sustainable Deployment of SMRs

Date	Room
5.6(Mon) 13:00 ~ 05.09(Thu) 11:00	Samda Hall (3F)

* Note that the participant's nomination for the IAEA INPRO DF has been finished.

5. 8(Wed) Workshop

	Program	Fee	Room
A	Korea's SMART Road to SMR in Canada	–	HallaHall A (3F)
B	용융염원자로 개발 현황과 미래 시장 Molten Salt Reactor Technology Landscape: Current Status and Future Market Outlook	–	303B (3F)
C	혁신형 SMR 원자로 노심설계 현황 및 관련현안 Current Status and Related Issues of the iSMR Core Design	60,000	402B (4F)
D	사용후핵연료 안전관리를 위한 저장 · 처리 · 처분 현안 및 장기 기술개발 방향 Current issues and long-term Direction of technology development for SF Safety management	50,000	203 (2F)
E	혁신 원자력 시스템용 핵연료 및 원자력 재료 기술 현황과 전망 Status of Nuclear Fuel and Materials R&D for Innovative Nuclear System	–	302 (3F)
F	혁신형 SMR 설계 현황 및 열수력 분야 연구개발 계획 Design Status of i-SMR and Research Plan of Thermal Hydraulics	–	HallaHall B (3F)
G	중대사고 분야 인공지능의 적용성 및 활용가능성 연구 현황 Status of R&D on applicability and usability of Artificial Intelligence in severe accident	–	201A (2F)
H	장기 가동원전의 계속운전 추진현황 및 안전성 제고 Continued Operation Status and Safety Enhancement of Long-Term Operating NPPs in Korea	–	201B (2F)
I	글로벌시장 진출을 위한 방사선 신약기술의 도약 *제41차 방사선의학포럼 공동개최 A leap forward in new radiation technology to enter the global Market	–	301 (3F)
J	반도체 산업분야에서의 방사선 활용 기술 현황 Current Status of Radiation Effect Evaluation on the Semiconductor/Space industry	–	400 (4F)
K	제1차 핵융합/원자력 재료 이온빔 조사 시험 및 평가 워크숍 1st Workshop of the Ion Beam Irradiation Test and Evaluation on Nuclear Fusion/Fission Materials	–	401A (4F)
L	JAEA-KAERI Joint Workshop for External Hazards Safety Assessment of NPPs	50,000	300 (3F)
M	우주-원자력 협력을 위한 정책 현안 및 향후 과제 Policy issues and future tasks for space-nuclear cooperation	–	402A (4F)
N	원자력발전소 상용 디지털 기기 규제 방법론 Regulatory Methodologies for the Qualification of Commercial-Grade Digital Equipment in Nuclear Power Plants	–	202A (2F)
O	원전 I&C의 Life-cycle 접근 Life-cycle approach for Nuclear I&C	–	202B (2F)
P	미래를 그리다: 선배와의 진로 탐색 워크숍 Envisioning the Future: A Career Mentoring Workshop	–	303A (3F)

참가자 중식 (Participants' Lunch)

Date	Room
5.9(Thu) 11:30 ~ 13:30	Tamna Hall (5F)

개회식 및 2개 학회 공동 Workshop (Opening Ceremony and KNS-KIEE Joint Workshop)

Date	Room
5.9(Thu) 16:00 ~ 18:00	Halla Hall (3F)

만찬 및 학생 경진대회 (Banquet and Student Competition)

Date	Room
5.9(Thu) 18:00 ~ 19:30	Tamna Hall (5F)

5. 9(Thu) ~ 10(Fri) 구두발표 (Oral Presentation)

	Session	Room	Date
1A	원자로시스템기술 1 (Reactor System Technology 1)	301 (3F)	5.9(Thu) AM
1B	원자로시스템기술 2 (Reactor System Technology 2)	301 (3F)	5.9(Thu) PM
1C	원자로시스템기술 3 (Reactor System Technology 3)	301 (3F)	5.10(Fri) AM
2A	원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)	402B (4F)	5.9(Thu) AM
2B	원자로물리 및 계산과학 2 (Reactor Physics and Computational Science 2)	402B (4F)	5.9(Thu) PM
2C	원자로물리 및 계산과학 3 (Reactor Physics and Computational Science 3)	402B (4F)	5.10(Fri) AM
3A	원자력시설해체 및 방폐물관리 I (Nuclear Facility Decommisioning and Radioactive Waste Management I)	401A (4F)	5.9(Thu) PM
3B	원자력시설해체 및 방폐물관리 II (Nuclear Facility Decommisioning and Radioactive Waste Management II)	401A (4F)	5.10(Fri) AM
4A	핵연료 제조, 성능 및 평가 I (Fuel fabrication, performance & test I)	302 (3F)	5.9(Thu) AM
4B	원자력 신소재 기술/원전 기기 건전성 (Nuclear Materials Development/Structural Integrity of Nuclear Components)	303A (3F)	5.9(Thu) AM
4C	핵연료 제조, 성능 및 평가 II (Fuel fabrication, performance & test II)	302 (3F)	5.9(Thu) PM
4D	부식 및 조사손상 I (Corrosion and radiation damage I)	303A (3F)	5.9(Thu) PM
4E	핵연료 제조, 성능 및 평가 III (Fuel fabrication, performance & test III)	302 (3F)	5.10(Fri) AM
4F	부식 및 조사손상 II (Corrosion and radiation damage II)	303A (3F)	5.10(Fri) AM
5A	원자력 열수력 및 열전달 (hermal Hydraulics and Heat Transfer)	202B (2F)	5.9(Thu) AM
5B	(초)소형모듈형원자로 열수력 (SMR & MMR Thermal–hydraulics)	203 (2F)	5.9(Thu) AM
5C	원자로계통 사고 해석 및 실험 (Reactor Safety Accident Anaylsis and Experiment)	202B (2F)	5.10(Fri) AM
5D	열수력 실험/해석 기술 응용 (Application of Thermal Hydraulics Technologies)	203 (2F)	5.10(Fri) AM
5E	안전해석 현안 (Safety Analysis Issues)	202B (2F)	5.9(Thu) PM
5F	열수력 신기술 (Advanced Thermal Hydraulics)	203 (2F)	5.9(Thu) PM
6A	확률론적 안전성평가 1 (PSA 1)	201A (2F)	5.9(Thu) AM
6B	확률론적 안전성평가 2 (PSA 2)	201A (2F)	5.9(Thu) PM
6C	중대사고 1 (Severe Accident 1)	201B (2F)	5.9(Thu) AM
6D	중대사고 2 (Severe Accident 2)	201B (2F)	5.9(Thu) PM
6E	안전현안 / 화재방호 (Safety Issues / Fire safety in nuclear facility)	201A (2F)	5.10(Fri) AM
7A	방사선 방호 (Radiation Protection)	303B (3F)	5.9(Thu) AM
8A	방사선 이용 및 기기 1 (Radiation Utilization and Instrumentation 1)	400 (4F)	5.9(Thu) AM
8B	방사선 이용 및 기기 2 (Radiation Utilization and Instrumentation 2)	400 (4F)	5.9(Thu) PM
9A	양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)	401A (4F)	5.9(Thu) AM
10A	구조해석 (Structural Analysis)	401B (4F)	5.9(Thu) AM
10B	내진해석 (Seismic Analysis)	401B (4F)	5.9(Thu) PM
10C	수화학 (Water Chemistry)	400 (4F)	5.10(Fri) AM
10D	원전 운영 및 설계 (NPP Operation & Design)	402A (4F)	5.10(Fri) AM
11A	원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)	402A (4F)	5.9(Thu) AM
11B	원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)	402A (4F)	5.9(Thu) PM
12A	원자력계측제어, 인간공학 및 자동원격 1 (Nuclear I&C, Human Factors, and Automatic Remote Systems 1)	202A (2F)	5.9(Thu) AM
12B	원자력계측제어, 인간공학 및 자동원격 2 (Nuclear I&C, Human Factors, and Automatic Remote Systems 2)	202A (2F)	5.9(Thu) PM
12C	원자력계측제어, 인간공학 및 자동원격 3 (Nuclear I&C, Human Factors, and Automatic Remote Systems 3)	201B (2F)	5.10(Fri) AM
12D	원자력계측제어, 인간공학 및 자동원격 4 (Nuclear I&C, Human Factors, and Automatic Remote Systems 4)	202A (2F)	5.10(Fri) AM

5. 9(Thu) ~ 10(Fri) 포스터 게시 및 발표 (Poster Presentation)

Date	Room
5.9(Thu) 13:00 ~ 18:00 **[저자 발표시간 13:00 ~ 14:00]** 5.10(Fri) 09:00 ~ 12:00	Lobby (3F)

제97차 평의원회

Date	Room
5.9(Thu) 12:00 ~ 13:30	오션뷰 (5F)

역대회장 초청 간담회

Date	Room
5.10(Fri) 08:00 ~ 09:30	300 (3F)

지부 활동 결과 및 계획발표회

Date	Room
5.10(Fri) 10:00 ~ 11:00	401B (4F)

제36대 임원진 (Officers of KNS)

회장

정범진

수석부회장

이기복

부회장

김종두

설광원

전대욱

최성민

한은옥

감사

남요식

박석빈

총무이사

강경호

김형대

학술이사

조형규

허균영

사업이사

김찬수

박홍준

편집이사

설영실

이현철

재무이사

최일경

최재돈

홍보이사

박지영

이유호

국제협력이사

이덕중

정익

대학 · 청년이사

이지민

이지민

기획이사

심재구

이정익

특임이사

정용훈

최기용

고급정책연구소

이종호 소장

원자력이슈위원회 위원 (Nuclear Issues Committee)

위원장


이기복

당연직 위원


권혁중


김종현


김희령


류정수


문명국


박현선


심재구


양재호


윤병조


이정익


이태호


임상호


임채영


홍서기

임명직 위원


김긍구


김용희


김한곤


김현길


류재수


박문규


박진백


방인철


백민


송기찬


송인호


송종순


신호철


심형진


윤봉요


윤종일


이유한


이유호


이종호


이주석


이현철


임채준


장훈


정승영


정용훈

정재준

최득기

최성열

원자력소통위원회 위원 (Nuclear Communications Committee)

위원장

최성민

당연직 위원

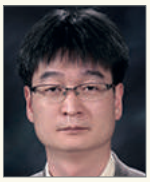
박지영

이유호

임명직 위원

노동석

문주현



심형진

이현철

정용훈

정재준

연구부회장 및 차기연구부회장 / 지부장 (Professional Divisions / Local Sections)

연구부회장/차기연구부회장

원자로시스템기술


이태호


정병렬

방사선 방호


김희령


신창호

원자로물리 및 계산과학


홍서기


이덕중

방사선 이용 및 기기


문명국


선광민

원자력시설해체 및 방사성폐기물관리


임상호


지성훈

양자공학 및 핵융합기술


권혁중


정경재

핵연료 및 원자력재료


양재호


김동진

원전건설 및 운영기술


류정수


김민규

원자력열수력


윤병조


최기용

원자력정책, 인력 및 협력


임채영


박홍준

원자력 안전


박현선


임호곤

원자력계측제어, 인간공학 및 자동원격


김종현


최종균

국내외 지부장


송종순
광주/전남/전북 지부


이상훈
대구/경북 지부


김주열
부산/울산/경남 지부


강현국
미국 지부

청년지부


손성준 지부장

여성지부


전은주 지부장

학생지부


윤재진 지부장


조용흠 지도교수

편집위원회 위원 (NET Editorial Board)

위원장


나만균

국내 부위원장


선광민


양재호


이덕중


이동원


조형규

국외 부위원장


Shinya Nagasaki


Xu Cheng


Taishi Kobayashi

국내 위원


권준현


김만철


김용균


김용민


김용희


김윤재


김인중


설영실


윤종일


이현철


임채영


정만희

국외 위원


Akio Gofuku


Belle R. Upadhyaya


Elia Merzari


Guanghui Su


Jean Noirot


John C. Jin

포상 및 장학위원회/사무국 (Awards & Scholarship Committee/Secretariat)

위원장

전대욱

사무총장

정연섭

위원

김종성

노동석

성지현

송민섭

심재구

이준엽

이지민

이지민

이지훈

임채준

정희준

조형규

최기용

최일경

허균영

실장

민현정

팀장

송지현

팀장

이연화

대리

유진원

개회식 및 2개 학회 공동 워크숍
(Opening Ceremony and KNS–KIEE Joint Workshop)

| 2024.5.09.(Thu.) 16:00 ~ 18:00
| 한라홀 (Halla Hall, 3F)

Program	
	[사회 : 조형규 학술이사] (The Moderator : Hyung Kyu Cho, Academics Secretary)
[개회식] 16:00 ~ 16:20	장내안내 및 국민의례
	개회사 : 정범진(한국원자력학회장) Opening Remark : Bum–Jin Chung (President, KNS)
	Congratulatory Address : Carolynn Scherer (Section Head of INPRO, IAEA)
	2023년도 한국원자력학회 추계학술발표회 우수논문상 시상 Best Paper Awards at 2023 KNS Fall Conference 2024년도 한국원자력학회 장학증서 수여 KNS Scholarship for 2024 KNS
[2개 학회 공동 Workshop] 16:20 ~ 18:00	축 사 : 이호현 산업통상자원부 에너지정책실장
	발제1 : 현재 전력계통 운영 현안 및 무탄소 전원 확대를 위한 제언 (최홍석, 전력거래소 계통운영처장) The Status of Power System & Recommendations for CFE (Choi Hong Seok, Director, System Operation & Control Dept, KPX)
	발제2 : 국내 전력계통 특성을 고려한 무탄소 전원 확대 방안 (곽은섭, 한국전력공사 대구본부전력관리 처장) Grid–adapted Carbon–free Energy(NPP, RE) Expansion Strategy (Eun–Sup Kwak, Vice President, Transmission & Substation Department Headquarters Daegu, KEPCO)
	발제3 : 2050 탄소중립 실현을 위한 원전/재생에너지 시나리오 분석 및 시사점 (이종호, 서울대 원자력정책센터 연구위원) Analysis and Implication of Nuclear–renewable Energy Scenario for Korean Carbon Neutrality in 2050 (Lee, Jong–Ho, Principal Researcher, SNEPC)
	발제4 : 중장기 원전 탄력운전 추진계획 (백진수, 한국수력원자력㈜ 노심관리부장) Flexible Operation Milestones of KHNP upto 2035 (Baik Jinsu, Reactor Engineering, Section Nuclear Fuel Office, General Manager, KHNP)
	질의응답(Q&A)

만찬 및 학생 경진대회 (Banquet and Student Competition)

| 2024.5.09.(Thu.) 18:00 ~ 19:30
| 탐라홀 (Tamna Hall, 5F)

Program	
	[사회 : 이지민 대학청년이사] (The Moderator : Jimin Lee, Students and Young Members Secretary)
18:00 ~ 19:30	학생 경진대회 Student Competition
	연구부회별 우수포스터 논문 공개 Announcement of Best Poster Paper by Professional Divisions
	경품 추첨 Giveaway Raffle

2023 추계학술발표회 우수논문상 및 2024 KNS 장학생
(Best Paper Awards and KNS Scholarship)

2023 추계학술발표회 우수논문상

성 명	소 속
강형구	한양대학교
김세연	계명대학교
문장식	BEES, Inc.
박경준	서울대학교
배준용	울산과학기술원
이기현	한국원자력연구원
이다경	서울대학교
이동규	서울대학교
이정익	한국과학기술원
이영훈	서울대학교
임채혁	한양대학교
최윤희	조선대학교
최진복	한국원자력연구원
홍현식	한전원자력연료㈜

2024년도 한국원자력학회 장학생

학 교 명	성 명
경북대학교	설지환
경희대학교	김민주, 이구빈, 이재혁
동국대학교	김경민, 권민서
부산대학교	이영록, 임준규
서울대학교	이지현, 정진용, 조하경
세종대학교	이다은, 백승훈
울산과학기술원	변형진, 이유림
제주대학교	배선호, 강유은
조선대학교	김찬휘, 송창주
중앙대학교	최동희, 송설송화
포항공과대학교	황돈관
한국과학기술원	정재현, 김원구, 김지응
한양대학교	이규빈, 이지혜, 신수인
한전 국제원자력 대학원대학교	Panciak Ivan, Nurhadiansyah

KOREAN NUCLEAR SOCIETY

2024 KNS Spring Conference
2024 춘계학술발표회

Workshops

IAEA–KONICOF–KNS Joint Forum

22nd INPRO Dialogue Forum on Successful Development and Sustainable Deployment of SMRs

| **Date** 6(Mon) ~ 9(Thu) May 2024
| **Venue** International Convention Center Jeju, Samda Hall, 3F
| **Host** International Atomic Energy Agency (IAEA), Korea Nuclear International Cooperation Foundation (KONICOF), Korean Nuclear Society (KNS)

	Date	Program	
May 6 (Mon)	12:00 ~ 12:50	• Registration	
	INTRO SESSION		
	13:00 ~ 14:00	• Call meeting to order (Chair: Mr Jong Tae SEO, HDEC, R Korea) • Welcome Address (Mr Jun Ho SHIN, KONICOF, R Korea) • Objective and Agenda (Mr Sung Soo KIM, INPRO, IAEA)	• INPRO Activities (Ms Carolynn SCHERER, INPRO Head, IAEA) • Keynote Speech (Mr Dohee HAHN, SMR Platform Coordinator, IAEA)
	MEMBER STATES SESSION | Asia		
	14:00 ~ 15:30	• Chair: Mr Topan SETIADIPURA (BRIN, Indonesia) • Mr Mohammad KHALAQUZZAMAN (BAEC, Bangladesh) • Ms Julia ABDULKARIM (NM, Malaysia)	• Mr Kampanart SILVA (NSTDA, Thailand) • Mr Nhu Viet Ha PHAM (VINATOM, Viet Nam) • **Q&A and Wrap–up**
	15:30 ~ 16:00	• Coffee Break	
	MEMBER STATES SESSION | Europe & America		
	16:00 ~ 17:40	• Chair: Mr Ignacio DE ARENAZA (CNEA, Argentina) • Mr Ramin PASHAYEV (SARNRA@MES, Azerbaijan) • Mr Boris CINTULA (SUTB, Slovakia)	• Mr Federico PUENTE ESPEL (PCEL, Spain) • Mr Shokhmirzo UMAROV (MoE, Uzbekistan) • Mr Serhii KOPYL (ENERGOATOM, Ukraine) • **Q&A and Wrap–up**
	18:00 ~ 20:00	• Reception	
May 7 (Tue)	08:30 ~ 09:00	• Registration	
	OPENING SESSION		
	09:00 ~ 09:40	• Chair: Mr Jong Tae SEO (HDEC, R Korea) • Welcome Address (IAEA Representative) • Congratulatory Address (MSIT Representative, R Korea)	• Congratulatory Address (Mr Bum jin CHUNG, KNS) • **Professional Family Photo**
	09:40 ~ 10:15	• Coffee Break	
	PLENARY SESSION 1 | National, regional, and global opportunities and challenges on development and deployment of SMRs		
	10:15 ~ 11:45	• Chair: Ms Anushya RAMASWAMY (DOE, USA) • Ms Sonia IQBAL (COG, Canada) • Mr Tariq Mahmoud Mousa MHEIDAT (JAEC, Jordan)	• Mr Han–Gon Kim (i–SMR Corps, R Korea) • Mr Topan SETIADIPURA (BRIN, Indonesia) • Mr Dohee HAHN (IAEA)
	11:45 ~ 13:00	• Lunch	
	PLENARY SESSION 2 | Demonstration of safety and operating performance for early deployment		
	13:00 ~ 14:30	• Chair: Mr Won–Pil BAEK (KAERI, R Korea) • Mr Sang SHIM (FANR, UAE) • Mr Adrian Piotr STRUSKI (PAA, Poland)	• Ms Young–A SUH (KINS, R Korea) • Ms Traci Renee NEWTON (IAEA)
	PLENARY SESSION 3 | Demonstration of economic competitiveness of SMRs with robust supply chain		
	14:45 ~ 16:15	• Chair: Ms Nadezhda SALNIKOVA (Afrikantov OKBM, Russian F) • Mr Takeshi TAKEDA (JAEA, Japan) • Mr Hongkyu KANG (Doosan Enerbility, R Korea)	• Ms Sonia IQBAL (COG, Canada) • Mr LIXIN SHEN (CNNC, China) • Mr Ilya ZHURAVLEV (Rosatom, Russian F)
	16:15 ~ 16:45	• Coffee Break	
	PLENARY SESSION 4 | Challenges facing deployment of floating nuclear power plants		
	16:45 ~ 18:25	• Chair: Mr Heeyong LEE (JEIL Patners, R Korea) • Ms Nadezhda SALNIKOVA (Afrikantov OKBM, Russian F) • Mr Byung Jin LEE (KEPCO E&C, R Korea)	• Mr Matthew PALMER (LR, UK) • Mr Sang Min PARK (HD KSOE)

22nd INPRO Dialogue Forum on Successful Development and Sustainable Deployment of SMRs

| **Date** 6(Mon) ~ 9(Thu) May 2024
| **Venue** International Convention Center Jeju, Samda Hall, 3F
| **Host** International Atomic Energy Agency (IAEA), Korea Nuclear International Cooperation Foundation (KONICOF), Korean Nuclear Society (KNS)

	Date	Program			
May 8 (Wed)	08:30 ~ 09:00	• Registration			
		PLENARY SESSION 5 | Key infrastructure for deployment of SMRs			
	09:00 ~ 10:30	• Chair: Mr Khammar MRABIT (MEMWE, Morocco) • Mr Archibold BUAH–KWOFIE (GAEC, Ghana) • Mr Khalid SAGHEER (PAEC, Pakistan)		• Ms Iuliia KUZINA (IPPE, Russian F) • Mr Tayyib Talha DINC (MENR, Turkiye)	
	10:30 ~ 11:00	• Coffee Break			
		MEMBER STATES SESSION | Africa 1			
	11:00 ~ 12:00	• Chair: Mr Joo Hyung MOON (KAERI, R Korea) • Mr Mohammed MAHDY (EAEA, Egypt) • Mr Awel Abdela HUSEN (MIT, Ethiopia)		• Mr Joe MBURU (NuPEA, Kenya) • **Q&A and Wrap–up**	
	12:00 ~ 13:00	• Lunch			
		MEMBER STATES SESSION | Africa 2 & Int'l organization			
	13:00 ~ 14:15	• Chair: Mr Enobot AGBOROW (AFCONE) • Mr Awwal BISALLAH (NAEC, Nigeria) • Mr Musbah Abuled Abdelhafed ALHENGARI (LAEE, Libya)		• Mr Adel TRABELSI (CNSTN, Tunisia) • **Q&A and Wrap–up**	
	14:15 ~ 14:45	• Coffee Break			
		BREAKOUT SESSION			
	14:45 ~ 16:45	Discussion 1	Opportunities & Challenges in SMRs – Ms Anushya RAMASWAMY	Discussion 4	FNPP and Other Applications – Mr Heeyong LEE
		Discussion 2	Safety & Operating Performance – Mr Won–Pil BAEK	Discussion 5	Key Infrastructures – Mr Khammar MRABIT
		Discussion 3	Economic Competitiveness – Ms Nadezhda SALNIKOVA		
		Feedback to All			
	17:00 ~ 18:00	• Chair: Mr Jong Tae SEO (HDEC) • Group 1, 2, 3		• Group 4, 5 • Floor Responses	
May 9 (Thu)		**CLOSING SESSION** | SUMMARY			
	10:00 ~ 11:00	• Chair: Mr Jong Tae SEO (HDEC, R Korea) • Chair's summary (Mr Jong Tae SEO)		• Closing Remarks (Mr Jun Ho SHIN, KONICOF) • Closing of the meeting (Ms Carolynn SCHERER, IAEA)	

※ Note that the participant's nomination for the IAEA INPRO DF has been finished.

| **Contact** Mr Dongyun Lee / 010–4464–7112 / dylee@konicof.or.kr

A

Korea's SMART Road to SMR in Canada

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 한라홀 A(Room HallaHall A, 3F)
| 주최 한국원자력학회 원자로시스템기술 연구부회

일 정	내 용
14:00 ~ 14:10	등록 및 장내정리 Registration & Setup
14:10 ~ 14:15	인사말, 임인철 (한국원자력연구원 부원장) Opening Remarks, In-Cheol Lim (KAERI)
14:15 ~ 14:35	원전 건설을 위한 프로젝트 파이낸싱 : 바라카 교훈, 이희용 (제일파트너스㈜) Project Financing for NPP Construction : Lessons Learned from Barakah NPP, Hee Yong Lee (JEIL)
14:35 ~ 14:50	SMART 기술개발 및 인허가 준비현황, 강한옥 (한국원자력연구원) Status of SMART Technology Development and Licensing, Kang Han-Ok (KAERI)
14:50 ~ 15:10	SMART 비즈니스 모델 및 사업개발 현황, 이상일 (현대엔지니어링) Prospects and Progress of SMART Business, Sang Il Lee (HEC)
15:10 ~ 15:25	휴식 Break
15:25 ~ 15:45	캐나다의 SMR 개발 현황 및 원자로 배치 전망, Ms. Sonia Iqbal (CANDU Owners Group) SMR Development and Deployment in Canada, Ms. Sonia Iqbal (COG)
15:45 ~ 16:05	SMR을 위한 안전조치의 이해, 안승호 (한국원자력통제기술원) Understanding of Safeguards for SMR, Seung Ho Ahn (KINAC)
16:05 ~ 16:25	설계단계 안전조치의 SMART 적용, Ms. Traci Newton (IAEA) Implementation of Safeguards by Design to SMART, Ms. Traci Newton (IAEA)
16:25 ~ 16:45	SMART 수출통제 및 주요 현안, 이찬서 (한국원자력통제기술원) SMART Export Control and Key Issues, Chan-Suh Lee (KINAC)
16:45 ~ 17:00	휴식 및 패널 토의 준비 Break & Preparation of Panel Discussion
17:00 ~ 18:00	패널 토의 및 질의응답 Panel Discussion and Q&A

* 패널 토의 연사(안): 강한옥(KAERI), 김긍구(KINGS), 허균영(KHU), 오지용(KHNP CRI), 이상일(HEC)

| 기타사항
- 기타사항 : 국어/영어 혼용, 통역 미제공
- 등록비 : 무료 / 석식제공 없음
- 문의처 : 권 혁 / KAERI / 010-4940-9948 / kwonhk@kaeri.re.kr
  정서연 / KAERI / 010-4384-2201 / jseoyeon@kaeri.re.kr

B

용융염원자로 개발 현황과 미래 시장

Molten Salt Reactor Technology Landscape: Current Status and Future Market Outlook

| **일시 · 장소** 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 303B(Room 303B, 3F)
| **주최** 한국원자력학회 원자로시스템기술 연구부회
| **좌장** 김상지 (한국원자력연구원) / Sang Ji Kim (KAERI)
김성중 (한양대학교) / Sung Joong Kim (Hanyang University)

일 정	내 용
14:00 ~ 14:10	개회사, 이동형 (MSR원천기술개발사업단장, 한국원자력연구원) Opening Address, Dong-Hyoung Lee (KAERI)
14:10 ~ 14:40	K-MSR 계통기술 개발, 구경회 (한국원자력연구원) Development of K-MSR System Technologies, Gyeong-Hoi Koo (KAERI)
14:40 ~ 15:20	수소 및 공정열원 생산용 자연순환 고속 용융염원자로(PMFR) 시스템 개발 현황, 김성중 (한양대학교) Development Status of Passive Molten salt Fast Reactor (PMFR) System Applicable for Hydrogen and Process Heat Production, Prof. Sung Joong Kim (Hanyang University)
15:20 ~ 15:50	염소기반 용융염원자로를 위한 액체핵연료 및 재료 기술 개발 현황, 이창화 (한국원자력연구원) The Current Status of Liquid Fuel and Materials Technology Development for K-MSR, Chang Hwa Lee (KAERI)
15:50 ~ 16:00	휴식 (Break)
16:00 ~ 16:30	초단순 폐핵연료주기를 가능케 하는 첨단 용융염고속로에 기반한 지속가능한 원자력, 김용희 (KAIST) Sustainable Nuclear Energy with Advanced Molten Salt Fast Reactor(MSFR) Enabling Super-Simple Closed Fuel Cycle, Prof. Yonghee Kim (KAIST)
16:30 ~ 17:00	소형모듈원전 추진 선박 · 해양플랜트 개념설계 연구, 백부근 (선박해양플랜트연구소) Study on Concept Design of Small Modular Reactor(SMR) powered Ship and Offshore Platform, Bu-Geun Paik (KRISO)
17:00 ~ 17:30	K-MSR의 유연성과 미래 시장, 김지환 (현대건설) Market Perspectives of K-MSR with Flexibility in Design and Purpose, Ji Hwan Kim (HDEC)

| **기타사항** – 등록비 : 무료 / 석식제공 없음
– 문의처 : 김치형 / 한국원자력연구원 / 042-866-6427 / kch123@kaeri.re.kr

C

혁신형 SMR 원자로 노심설계 현황 및 관련현안

Current Status and Related Issues of the iSMR Core Design

| **일시 · 장소** 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 402B(Room 402B, 4F)
| **주최** 한국원자력학회 원자로물리 및 계산과학 연구부회

일 정	내 용
14:00 ~ 14:10	개회사, (홍서기, 한양대학교) Opening Address, Ser Gi Hong (Hanyang University)
14:10 ~ 14:40	iSMR 노심개발 현황 및 방향 (신호철, 한수원중앙연구원 원장) Direction and status of iSMR core development (Ho Cheol Shin, CRI)
14:40 ~ 15:10	혁신형 SMR을 위한 핵설계코드 개발현황 (정위수 선임연구원, 한전원자력연료) Development status of nuclear core design codes for iSMR (Wi Soo Jeong, KEPCO–NF)
15:10 ~ 15:40	혁신형 SMR 탄력운전 노심설계 기술개발 현황 (조범희 선임연구원, 한전원자력연료) Status of iSMR core design technologies for flexible operation (Bum Hee Jo, KEPCO–NF)
15:40 ~ 15:50	Break
15:50 ~ 16:20	일체형 가연성흡수 후보소재 및 Hetero. BA (Gd_2O_3–Al_2O_3) 사용 노심설계 타당성 평가 (김진선 선임연구원, 한전원자력연료) Integrated burnable absorber (BA) candidate materials and iSMR core design feasibility study using heterogeneous BA (Gd_2O_3–Al_2O_3) (Jin Sun Kim, KEPCO–NF)
16:20 ~ 16:50	무붕산 노심해석을 위한 제어봉연소모델 개발 (이덕중 교수, UNIST) Development of control rod depletion model for analysis of boron–free operation core (Deokjung Lee, UNIST)
16:50 ~ 17:20	Pyrex와 CIMBA를 이용한 SMR 노심설계 비교 (심형진 교수, 서울대학교) Comparison of SMR Core Designs using Pyrex Burnable Absorber and CIMBA (Hyung Jin Shim, Seoul National University)
17:20 ~ 17:50	GdN–CBA 가연성독봉을 활용한 경수로기반 SMR 노심설계 현황 (홍서기 교수, 한양대학교) Status of the SMR core designs using GdN–CBA burnable absorbers (Ser Gi Hong, Hanyang University)

| **기타사항** – 등록비 : 6만원 / 석식제공
– 문의처 : 설세환 / 한양대학교 / 010–2351–1446 / shseol@hanyang.ac.kr

D

사용후핵연료 안전관리를 위한 저장·처리·처분 현안 및 장기 기술개발 방향

Current issues and long-term Direction of technology development for SF Safety management

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 203(Room 203, 2F)
| 주최 한국원자력학회 원자력시설해체 및 방사성폐기물관리 연구부회

일 정	내 용
14:00 ~ 14:10	개회사, 이기복 (한국원자력학회 수석부회장) Opening Address, Ki Bog Lee (KAERI)
14:10 ~ 14:40	사용후핵연료 저장 현안과 도전, 김용덕 (한수원 중앙연구원) Current Issues and Challenges in Spent Fuel Storage Technologies, Yongdeog KIM (KHNP CRI)
14:40 ~ 15:10	사용후핵연료 안전관리를 위한 처리 기술 개발 전략, 류재수 (한국원자력연구원) A Strategy for the Development of processing Technologies for Safe Management of Various Spent Fuels, Jaesoo Ryu (KAERI)
15:10 ~ 15:40	사용후핵연료 처분 현안 및 기술개발 방향, 지성훈 (한국원자력연구원) R&D Strategy for Spent Fuel Disposal Considering Current Issues, Sung-Hoon Ji (KAERI)
15:40 ~ 16:00	휴식(Break)
16:00 ~ 16:30	사용후핵연료 특성평가 현안 및 기술개발 방향, 임상호 (한국원자력연구원) Current issues and R&D Strategy for Spent Fuel Characterization, Sangho Lim (KAERI)
16:30 ~ 17:00	연구용 지하연구시설 현황과 계획, 정해룡 (한국원자력환경공단) Addressing challenges in Implementing Generic Underground Research Laboratory, Haeryong Jung (KORAD)
17:00 ~ 17:30	패널 토의(Panel Discussion)

| 기타사항 – 등록비 : 50,000원 / 석식 제공
– 문의처 : 이정묵 / 한국원자력연구원 / 042-866-6200 / leejm@kaeri.re.kr

E

혁신 원자력 시스템용 핵연료 및 원자력 재료 기술 현황과 전망

Status of Nuclear Fuel and Materials R&D for Innovative Nuclear System

| 일시 · 장소 2024. 5. 8(Wed) 13:30~18:00 · 제주국제컨벤션센터, 302(Room 302, 3F)
| 주최 한국원자력학회 핵연료 및 원자력 재료 연구부회

일 정	내 용
13:30 ~ 13:50	워크샵 등록 (Registration)
13:50 ~ 14:00	개회 및 안내, 양재호 (한국원자력연구원) Opening, Jae Ho Yang (KAERI)
14:00 ~ 14:25	농축도 상향(LEU+) 핵연료 기반 기술 개발 계획 및 전망, 김동주(한국원자력연구원) Development Plan and Status of Base-Technology for Nuclear Fuel with Increased Enrichment(LEU+), Dong-Joo KIM (KAERI)
14:25 ~ 14:50	국내외 차세대 핵연료(ATF, LEU+, HBU) 개발 현황과 전망, 장훈(한전원자력연료) Status & Prospects of Advanced Nuclear Fuel(ATF, LEU+, HBU) Development, Hun JANG (KepcoNF)
14:50 ~ 15:15	원전 사업자 관점의 핵연료 개발 현재와 미래, 백승진(한국수력원자력) The Present and Future of Fuel Development from the Perspective of Nuclear Power Plant Operators, Seungjin BAEK(KHNP)
15:15 ~ 15:40	국내 신형 핵연료 관련 규제 기술 연구 현황, 박주엽(한국원자력안전기술원) Status of Regulatory Research on Advanced Nuclear Fuel in Korea, Ju Yeop PARK(KINS)
15:40 ~ 16:00	휴식(Break)
16:00 ~ 16:25	국내 고유 다차원/다물리 핵연료 성능해석 기술개발 현황과 미래, 김효찬(한국원자력연구원) Development Status and Future of KAERI Multidimensional/Multiphysics Nuclear Fuel Performance Analysis Technology, Hyochan KIM (KAERI)
16:25 ~ 16:50	차세대 원자력 적용을 위한 혁신 3D프린팅 기술, 김현길(한국원자력연구원) Innovative 3D Printing Technology for Next-generation Nuclear Power Application, Hyun-Gil KIM (KAERI)
16:50 ~ 17:15	용융염 원자로 재료 및 내식성 클래딩의 부식특성, 윤지현(한국원자력연구원) Corrosion Characteristics of Molten Salt Reactor Materials and Corrosion-resistant Claddings, Ji-Hyun YOON (KAERI)
17:15 ~ 17:40	혁신형 소형모듈원자로 무붕산환경 1차계통 부식생성물 거동예측, 심희상(한국원자력연구원) Prediction of Corrosion Product Behavior in i-SMR Boron Free Primary System, Hee Sang SHIM(KAERI)
17:40 ~ 18:00	종합 토의 및 폐회 (Closure)

| 기타사항 – 등록비 : 무료 / 석식 제공 없음
– 문의처 : 김효찬 / KAERI / 042-868-2438 / hyochankim@kaeri.re.kr

F

혁신형 SMR 설계 현황 및 열수력 분야 연구개발 계획

Design Status of i-SMR and Research Plan of Thermal Hydraulics

| 일시 · 장소 2024. 5. 8(Wed) 14:00~17:50 · 제주국제컨벤션센터, 한라홀B(Room HallaHall B, 3F)
| 주최 한국원자력학회 원자력열수력 연구부회, KHNP

일 정	내 용
14:00 ~ 14:10	개회사, 장희승 (한국수력원자력 품질기술본부장) Opening Address, Hee-Seung Chang (KHNP, Executive Vice President of Quality & Technology Division)
	(1부) 혁신형 SMR 기본 설계 현황 및 표준설계 계획 (Part 1) Design status and Plan of i-SMR
14:10 ~ 14:25	혁신형 SMR 기술개발 현황, 이상원 (한국수력원자력 중앙연구원) Development status of i-SMR, Sang-Won Lee (KHNP CRI)
14:25 ~ 14:40	피동안전계통 설계, 유승엽 (한국원자력연구원) Passive safety system design, Seung-Yeob Ryu (KAERI)
14:40 ~ 14:55	노심 열수력 설계, 박성현 (한전연료) Core Thermal-Hydraulic Design, Sung-Hyun Park (KEPCO-NF)
14:55 ~ 15:10	기계 설계, 이장원 (한국전력기술 SD) Mechanical Design, Jang-Won Lee (KEPCO E&C SD)
15:10 ~ 15:25	전력계통 설계, 박경원 (한국전력기술 AE) Elec. power system Design, Kyeong-Won Park (KEPCO E&C AE)
15:25 ~ 15:40	NSSS design parameter WG 및 표준설계계획, 임상규 (i-SMR기술개발사업단) NSSS design parameter WG and Standard Design Plan, Sang-Gyu Lim (i-SMR Development Agency)
15:40 ~ 16:00	휴식 (Break)
	(2부) 혁신형 SMR 혁신 기술 및 열수력 검증 방안 (Part 2) Innovative Technologies and T-H validation
16:00 ~ 16:20	혁신형 SMR PIRT 개발 현황, 김민정 (한국수력원자력 중앙연구원) Development Status of i-SMR PIRT, Min-Jeong Kim (KHNP CRI)
16:20 ~ 16:40	혁신형 SMR 안전성 검증 실험 연구 현황, 강경호 (한국원자력연구원) Research Status of i-SMR Validation Test, Kyoung-Ho Kang (KAERI)
16:40 ~ 17:00	혁신형 SMR 혁신기술 개발, 김성중 (한양대학교) Innovative Technology Development of i-SMR, Sung-Joong Kim (Hanyang Univ.)
17:00 ~ 17:20	혁신형 SMR 피동안전계통 개발 및 설계 중점사항, 홍순준 (미래와도전) Design Focus of i-SMR Passive safety systems, Soon-Joon Hong (FNC)
17:20 ~ 17:40	Beyond Training, Simulation Assisted Engineering with the New Design Nuclear Plants, 김경두 (한국원자력연구원), Kyung-Doo Kim (KAERI)

| 기타사항 – 등록비 : 무료 / 석식 제공 없음
– 문의처 : 강상희 / KHNP / 010-8970-6396 / sanghee.kang@khnp.co.kr
이주연 / KHNP / 010-3911-1076 / migrated.yeon@khnp.co.kr

G

중대사고 분야 인공지능의 적용성 및 활용가능성 연구 현황
Status of R&D on applicability and usability of Artificial Intelligence in severe accident

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 201A(Room 201A, 2F)
| 주최 한국원자력학회 원자력안전 연구부회

일 정	내 용
14:00~14:05	개회사, 박현선 (서울대학교) Opening Address, Hyun Sun Park, Seoul National University
14:05~14:30	중대사고 데이터의 시계열분석을 위한 딥러닝 적용 방안, 이대영 (미래와도전) Deep Learning Application Methods for Time Series Analysis of Severe Accident Data, Dae Young Lee, FNC Technology Co., Ltd.
14:30~14:55	인공지능을 활용한 중대사고 운전 지원, 김종현 (KAIST) Operator Supports in Severe Accident Using AI Techniques, Jonghyun Kim, KAIST
14:55~15:20	인공지능 기술을 활용한 중대사고 연구 방향, 하광순 (한국원자력연구원) Severe Accident Researches with AI Technologies, Kwang Soon Ha, KAERI
15:20~15:45	휴식 Break
15:45~16:10	중대사고관리 지원을 위한 AI 활용 가능성 서미로 (한수원 중앙연구원) Applicability of AI for supporting the Severe Accident Management, Mi-Ro Seo, KHNP CRI
16:10~16:25	중대사고 관리 머신러닝 및 시각화 기술 개발, 윤선홍 (한국전력기술) Technical Development of Machine Learning and Visualization Tools for Severe Accident Management, Sun Hong Yoon, KEPCO E&C
16:25~16:50	기계학습 기반 중대사고 진행예측 대안모델 개발, 이정익 (KAIST) Development of a Machine Learning-Based Surrogate Model for Predicting Severe Accident Progression, Jeong Ik Lee, KAIST
16:50~17:50	패널 토론 Panel Discussion

| 기타사항 – 등록비 : 무료 / 석식 제공 없음
– 문의처 : 김병조 / 한국전력기술 / 054-421-4511 / bjokim@kepco-enc.com

H

장기 가동원전의 계속운전 추진현황 및 안전성 제고
Continued Operation Status and Safety Enhancement of Long-Term Operating NPPs in Korea

| 일시 · 장소 2024. 5. 8(Wed) 14:00~17:40 · 제주국제컨벤션센터, 201B(Room 201B, 2F)
| 주최 한국원자력학회 원자력안전 연구부회

일 정	내 용	
14:00 ~ 14:10	개회 및 인사말(Opening)	김영승(KHNP) 하광순(KAERI)
14:10 ~ 14:50	[특별세션(Special Session)] 국내 계속운전 적기추진을 위한 제도 개선 필요성 제언 (Suggestion on the Need to Improve the Laws and Regulatory Framework for the Timely Promotion of the Continued Operation in Korea)	박윤원 (BEES)
14:50 ~ 15:15	계속운전 추진 현황 (Current Status of the Continued Operation in Korea)	정석진 (KHNP)
15:15 ~ 15:40	계속운전관련 해외원전 벤치마킹 주요 결과 (Major Results of Benchmarking Overseas NPP for the Continued Operation)	박대은 (KHNP)
15:40 ~ 16:00	휴식(Break)	
16:00 ~ 16:25	계속운전시 냉각재환경을 고려한 환경기인피로 감시 (EAF Monitoring Considering the Coolant Environment for Continued Operation)	이종훈 (KHNP)
16:25 ~ 16:50	계속운전을 위한 안전에 영향을 미치는 비안전관련 평가범위 선정기준 (Scoping Criterion of Non-Safety Affecting for Continued Operation)	오창균 (KEPCO E&C)
16:50 ~ 17:15	최신기술기준을 활용한 차이분석 수행 현황 (Current Status of Gap Analysis using the Latest Standard)	김지민 (KHNP)
17:15 ~ 17:40	인간과 시스템 연계(HSI) 분석을 포함한 인적요소 평가 (Assessment of Human Factors including Human-System Interface Review)	이용석 (FNC)
17:40	폐회(Closing)	

| 기타사항 – 등록비 : 무료 / 석식제공 없음
– 문의처 : 백준기 / 한국수력원자력 중앙연구원 / 042-870-2620

I

글로벌시장 진출을 위한 방사선 신약기술의 도약

A leap forward in new radiation technology to enter the global market

– 제41차 방사선의학포럼 공동개최 –

| **일시 · 장소** 2024. 5. 8(Wed) 14:00~18:30 · 제주국제컨벤션센터, 301(Room 301, 3F)
| **주최** 한국원자력학회 방사선방호 연구부회, 한국원자력의학원
※ YouTube 녹화 후 '방사선의학웹진'을 통해 배포 예정임

일 정	내 용
14:00 ~ 14:10	개회사: 김희령 (방사선방호연구부 회장) Opening Address, KIM, Hee Reyoung (President, Professional division of radiation protection) 김경민(한국원자력의학원) KIM, Kyeong Min (KIRAMS) 사회자: 이용진(한국원자력의학원) Moderator, LEE, Yong Jin (KIRAMS)
제1부	방사선 신약 및 의학적 활용 사례, 좌장: 최승진 (방사선보건원) New radiopharmaceuticals and medical application, Chairperson: CHOI, Seung Jin (KHNP RHI)
14:10 ~ 14:30	의료 방사성동위원소의 미래, 이윤상 (대한방사성의약품학회) Future of medical radioisotopes, LEE, Yun–Sang (KSRAMP)
14:30 ~ 14:50	방사선 테라노스틱스의 임상적용, 권성영 (화순전남대학교병원) Clinical application of Radiation theranostics, KWON, Seong Young (CNUHH)
14:50 ~ 15:10	방사선신약 개발 지원을 위한 국가RI신약센터의 역할, 강주현(한국원자력의학원) Role of the Korea Radioisotope Center for Pharmaceuticals to support the development of new radiopharmaceuticals, KANG, Joo Hyun (KIRAMS)
15:10 ~ 15:30	바이오이미징기술의 진화, 염정열 (고려대학교) Evolution of bio–imaging technologies, YEOM, Jungyeol (Korea university)
15:30 ~ 15:50	기념 촬영 및 휴식 Commemorative photo time & coffee break
제2부	신약과 함께하는 미래의학기술, 좌장: 김희령 (UNIST) Future medical technologies with new drugs Chairperson: KIM, Hee Reyoung (UNIST)
15:50 ~ 16:10	우주여행의 의학적 이해, 장원일 (한국원자력의학원) Understanding space travel to medical perspective, JANG, Won Il (KIRAMS)
16:10 ~ 16:30	방사선인체영향연구의 미래, 손태건 (동남권원자력의학원) Future of radiation effects research on human body, SON, Tae Gen (DIRAMS)
16:30 ~ 16:50	난치암을 치료하는 중성자기술, 홍봉환 (한국원자력의학원) Neutron technology to treat refractory cancer, HONG, Bong Hwan (KIRAMS)
16:50 ~ 17:10	암극복을 위한 중입자치료기술, 김진성 (연세대학교) Heavy–ion therapy technology to overcome cancer, KIM, Jin Sung (Yonsei University)
17:10 ~ 17:20	휴 식 Coffee break
제3부	방사선메디컬 R&D의 발전전략, 사회자: 이용진 (한국원자력의학원) Development strategy for R&D on radiation–medical, Moderator: LEE, Yong Jin (KIRAMS)
17:20 ~ 17:40	방사선메디컬 연구기술 정책방향 모색, 장한기 (한국방사선진흥협회) Exploring strategy of R&D on radiation–medical, JANG, Han Ki (KARA)
17:40 ~ 18:10	(지정토론) 길희섭 (㈜퓨처켐) (Discussion) KIL, Hee Seup (Futurechem co.)
18:10 ~ 18:30	(질의응답) 모든 참석자 Q&A session

| **기타사항** – 등록비 : 무료 / 석식제공 없음
– 문의처 : 김혜진 / 한국원자력의학원 전략기획팀 / 02–970–1753 / khj81@kirams.re.kr

J

반도체 산업분야에서의 방사선 활용 기술 현황

Current Status of Radiation Effect Evaluation on the Semiconductor/ Space industry

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 400(Room 400, 4F)
| 주최 한국원자력학회 방사선이용 및 기기 연구부회

일 정	행 사 및 발 표	발표자(소속)
14:00 ~ 14:10	개회사(Opening)	임인철 부원장(KAERI) In-Cheol Lim(KAERI)
14:10 ~ 14:30	양성자과학연구단 이용자 시설 현황 및 반도체 연구 동향 (Status of User Facilities and Research Trend of Semiconductors at KOMAC)	박준규 부장(KAERI) Jun Kue Park(KAERI)
14:30 ~ 15:00	방사선에 의한 반도체의 영향 및 평가기술 연구 (A study on the effects and evaluation technology of semiconductors by radiation)	김기석(㈜큐알티) Kiseok Kim(QRT)
15:00 ~ 15:30	반도체 제품의 방사성 영향성 검증 필요성 및 현황 (Necessity and Status of Radioactive Impact Verification of Semiconductor Products)	황유철 마스터(㈜삼성전자) Yuchul Hwang (Samsung Electronics)
15:30 ~ 16:00	저궤도 위성체용 고출력 전력반도체에 미치는 방사선 효과와 양성자 방사 내성 전력반도체 설계 (Radiation Effect and Proton Radiation Resistance High Power Semiconductor Design for Low-Earth Orbit Satellite Systems)	김선호 전무(㈜FADU) Seonho Kim(FADU)
16:00 ~ 16:20	휴 식	–
16:20 ~ 16:50	우주/대기 방사선이 메모리 반도체에 미치는 영향 및 KOMAC 활용 평가 방안에 대한 연구 (Research on the Effects of Radiation on Memory Semiconductors using by KOMAC)	황인록 박사(㈜SK하이닉스) Inrok Hwang(SK Hynix)
16:50 ~ 17:20	위성 탑재컴퓨터를 위한 ASIC기반 멀티코어 컨트롤러 시스템 설계 (ASIC-based Multi-core Controller System Design for Satellite On-board Computer)	이주형 이사(㈜에델테크) Ju Hyung Lee(EDEL)
17:20 ~ 17:50	우주급 SRAM 소자 및 패키징 기술을 통한 상용급 내방사선 메모리반도체 개발 (Development of commercial-grade rad-hardened memory device through space-grade SRAM devices and packaging technology)	정성근 대표(㈜엠아이디) Seongkeun Jeong(MID)
17:50 ~ 18:00	폐회사(Closing)	이재상 단장(KAERI) Jae Sang Lee

| 기타사항 – 등록비 : 무료 / 석식제공 없음
– 문의처 : 이재상 / 한국원자력연구원 / 054-750-5301 / jslee8@kaeri.re.kr

K

제1차 핵융합/원자력 재료 이온빔 조사 시험 및 평가 워크숍

1st Workshop of the Ion Beam Irradiation Test and Evaluation on Nuclear Fusion/Fission Materials

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 401A(Room 401A, 4F)
| 주최 한국원자력학회 양자공학 및 핵융합기술 연구부회

일 정	내 용
14:00 ~ 14:15	인사말(정영욱, KAERI), 사회 (이동원, KAERI) Opening Address
14:10 ~ 14:35	핵융합/원자력 재료 연구용 KAHIF 시설 현황 (이승현, 한국원자력연구원) Current Status and Plans of KAHIF for nuclear fusion/fission material resrach (Seunghyun Lee, KAERI)
14:35 ~ 15:00	원자력 재료연구를 위한 KOMAC의 복합빔 조사시설 구축 계획 (김한성, 한국원자력연구원) Strategy of the dual and triple beam irradiation facility for nuclear material test at KOMAC (Han-Sung Kim, KAERI)
15:00 ~ 15:25	미래 원자력/핵융합 구조재료 개발을 위한 예비연구와 국내외 이온조사 시험시설 활용 (노상훈, 부경대학교) Preliminary research for advanced nuclear/fusion structural materials and utilization of ion irradiation test facilities (Sanghoon Noh, Pukyong National University)
15:25 ~ 15:50	핵융합 재료 이온조사시험 시설 (KAHIF)을 활용한 이온조사에 따른 극한표면 물성 변화 분석 (전은채, 울산대학교) Analysis of extreme surface properties after He ion radiation using KAHIF (Eun-chae Jeon, University of Ulsan)
15:50 ~ 16:10	기념촬영 및 휴식 Break Time
16:10 ~ 16:35	159 dpa 이온조사된 가연성 흡수체 복합핵연료용 가돌리니아 소결체의 상 안정성 분석 (류호진, 한국과학기술원) Phase Stability Analysis of Gadolinia for Burnable Absorber Composite Fuel by Ion-irradiated up to 159 dpa (Ho Jin Ryu, KAIST)
16:35 ~ 17:00	국내 중이온가속기 시설을 활용한 무붕산 SMR용 UO_2/Gd_2O_3 핵연료 고온 조사 하 반응층 특성 연구 (안상준, 울산과학기술원) Characterization of interaction layer in UO_2/Gd_2O_3 nuclear fuel for soluble boron free SMR utilizing domestic heavy-ion accelerator facilities (Sangjoon Ahn, UNIST)
17:00 ~ 17:25	철계합금 중에너지 양성자 조사실험에 따른 방사화평가 결과 및 철이온 조사 실험 계획 (류진호, 한국원자력통제기술원) Predictive Modeling of Radioisotope Production in Intermediate Energy Proton Irradiation of Iron-based alloy and Fe-ion Irradiation Plan (Jinho Ryu, KINAC)
17:25 ~ 17:50	용융염원자로용 (MSR) 구조재 연구 (윤영수, 가천대학교) Research on structural materials for molten salt reactors (Young Soo Yoon, Gachon University)
17:50 ~ 18:00	마무리 (이동원, 한국원자력연구원) Closing

| 기타사항 – 등록비 : 무료, 석식제공 없음
– 문의처 : 이승현 / 한국원자력연구원 / 010-3455-9070 / lsh0810@kaeri.re.kr
이동원 / 한국원자력연구원 / 010-6403-0655 / dwlee@kaeri.re.kr

L

JAEA–KAERI Joint Workshop for External Hazards Safety Assessment of NPPs

| **일시 · 장소** 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 300(Room 300, 3F)
| **주최** 한국원자력학회 원전건설 및 운영기술 연구부회

Time	Presentation Title	Presenter / Affiliation
14:00 ~ 14:10	Welcome Address	Minkyu Kim / KAERI
14:10 ~ 14:20	Opening Remarks	Tsuyoshi Takada / JAEA
14:20 ~ 14:50	New concept of societal resilience against natural hazards	Tsuyoshi Takada / JAEA
14:50 ~ 15:20	Generation of input motions and strain–compatible soil model for probabilistic soil–structure interaction	Jeonggon Ha / KAERI
15:20 ~ 15:50	Development of seismic response analysis method of piping system	Yukihiko Okuda /JAEA
15:50 ~ 16:10	Coffee Break	All
16:10 ~ 16:40	Estimation of vibration characteristics of nuclear facilities based on observation records	Akemi Nishida / JAEA
16:40 ~ 17:10	Seismic fragility assessment of NPP equipment through probabilistic SSI	Jae–Wook Jung / KAERI
17:10 ~ 17:40	3D modeling of a reactor building using observation records	Byunghyun Choi / JAEA
17:40 ~ 18:00	Discussion & Closing Remarks	Minkyu Kim / KAERI

| **기타사항** – 등록비 : 50,000원 / 석식 제공
– 문의처 : 최진복 / 한국원자력연구원 / 042–868–8335(010–3407–2678) / jbchoi95@kaeri.re.kr

M

우주–원자력 협력을 위한 정책 현안 및 향후 과제

Policy issues and future tasks for space–nuclear cooperation

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 402A(Room 402A, 4F)
| 주 최 한국원자력학회 원자력정책, 인력 및 협력 연구부회
| 공동주최 한국원자력연구원 정책연구부
| 진 행 박근엽 (한국원자력연구원)

일 정	내 용
14:00 ~ 14:05	개회사, 박홍준 (차기 연구부회장, 사용후핵연료관리핵심기술개발사업단) Opening address, Hong Joon Park (iKSNF)
14:05 ~ 14:35	국가 중장기 우주 개발 계획 개괄, 임종빈 (한국항공우주연구원) Introduction to national Space development plan, Jong Bin Im (KARI)
14:35 ~ 15:05	국가 중장기 원자력 개발 계획과 우주, 이영준 (한국원자력연구원) Space within the national strategic Nuclear R&D plan, Young Joon Lee (KAERI)
15:05 ~ 15:35	해외 우주–원자력 협력 사례를 통한 정책적 시사점 도출, 조남경 (한국항공우주연구원) Implications from overseas Space–Nuclear cooperation cases, Nam–Kyung, Cho (KARI)
15:35 ~ 15:50	휴 식 Break
15:50 ~ 16:20	우주탐사 시대 원자력 활용을 위한 정책 과제, 최영준 (한국천문연구원) Policy suggestion for Nuclear application in space exploration era, Young–Jun Choi (KASI)
16:20 ~ 16:50	우주 자원 개발 계획 및 원자력 활용을 위한 정책 과제, 김경자 (한국지질자원연구원) The development of nuclear energy in space and its potential use on the lunar surface , Kyeong Ja Kim (KIGAM)
16:50 ~ 17:20	우주 적용을 위한 국내 원자력 R&D 현황 및 정책 제언, 김찬수 (한국원자력연구원) Domestic Nuclear R&D status for application in the Space field and policy suggestions, Chan Soo Kim (KAERI)
17:20 ~ 17:25	휴식 및 자유토의 준비 Break & Preparing for open discussion
17:25 ~ 17:55	우주–원자력 협력에 대한 청중과 발표자 **6인**의 자유토의 Open discussion between attendees and six speakers regarding collaborative endeavors in Space & Nuclear
17:55~18:00	폐 회 Closure

| 기타사항 – 등록비 : 무료 / 석식제공 없음
– 문의처 : 이지민 / 한국원자력연구원 / 042–866–6048 / jmlee0915@kaeri.re.kr

N

원자력발전소 상용 디지털 기기 규제 방법론

Regulatory Methodologies for the Qualification of Commercial-Grade Digital Equipment in Nuclear Power Plants

| 일시 · 장소 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 202A(Room 202A, 2F)
| 주최 한국원자력학회 원자력계측제어, 인간공학 및 자동원격 연구부회

일 정	내 용
14:00 ~ 14:10	개회사, 박재현 (인하대학교) Opening Address, Jaehyun Park (Inha University)
14:10 ~ 14:50	Guidance on Using IEC 61508 SIL Certification to Support the Acceptance of Commercial Grade Digital Equipment for Nuclear Safety Related Applications Andrew Nack (Rivermist Engineering / on-line 참석)
14:50 ~ 15:10	IEC 61508 SIL 기반의 적합성 검증체계의 국내 원전 적용 효용성 분석, 박재현 (인하대학교) Applicability Analysis of IEC 61508 SIL-based Equipment Dedication to Domestic Nuclear Power Plants, Jaehyun Park (Inha University)
15:10 ~ 15:30	원자력발전소에서의 상용 디지털 기기 적합성 검증 기술 현황, 김만철 (중앙대학교) Current Status of Commercial Grade Digital Equipment Dedication for Nuclear Power Plants, Man Cheol Kim (Chung-Ang University)
15:30 ~ 15:50	TUV Rhinland IEC 61508 SIL 인증체계 및 현황, 노진표 (TUV Rhinland) TUV Rhineland's IEC 61508 SIL Certification and Its Status, Jin-Pyo Noh (TUV Rhineland)
15:50 ~ 16:10	IEC61508 기술기준을 적용한 PLS(Programmable Logic Switch) 개발, 정승권(우리기술) Development of Programmable Logic Switch (PLS) Based on IEC 61508 Technical Standards, Seungkweon Jeong (Woori Technology)
16:10 ~ 16:30	휴식 (Break)
16:30 ~ 17:30	패널토의 (Panel Discussion) 패널: 왕찬식(한국전력기술), 이동연(수산 ENC), 이진(YPP), 홍영희(한국수력원자력(주)) Panel: Chansik Wang (Formally KEPCO E&C), Dongyeon Lee (SUSAN ENC), Jin Lee (YPP), Younghee Hong (KHNP)

| 기타사항 – 등록비 : 무료 / 석식제공 없음
– 문의처 : 김만철 / 중앙대학교 / 02-820-5907 / charleskim@cau.ac.kr

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원전 I&C의 Life-cycle 접근
Life-cycle approach for Nuclear I&C

| **일시 · 장소** 2024. 5. 8(Wed) 14:00~18:00 · 제주국제컨벤션센터, 202B(Room 202B, 2F)
| **주최** 한국원자력학회 원자력계측제어, 인간공학 및 자동원격 연구부회

일 정	내 용
14:00 ~ 14:10	개회사: 김국헌 (서울대학교/글로벌아이앤씨파트너즈) / 김창회 (원자력연구원) Opening Address, Kook Hun Kim & Chang Hwoi Kim (Seoul National University/Global I&C Partners, KAERI)
14:10 ~ 14:35	원전 계측제어계통 고장진단 및 예측기술, 김창회 (원자력연구원) Fault Diagnosis and Prediction Methodology for Nuclear I&C System, Chang Hwoi Kim (KAERI)
14:35 ~ 15:00	인공지능을 이용한 전기전자 부품의 상태진단 및 수명예측, 나만균 (조선대) AI-based Diagnosis and RUL Prediction for Electric/Electronic components, Prof. Man Gyun Na, (Chosun University)
15:00 ~ 15:25	POSAFE-Q PLC의 모듈 및 기구 개선을 통한 신뢰도 확보 경험, 유관우 (수산이앤에스) Experience in securing reliability through improving modules and mechanisms of POSAFE-Q PLC , Kwan Woo Yoo (SOOSAN ENS)
15:00 ~ 15:20	coffee break
15:20 ~ 15:45	FIDES Guide의 전자부품 고장률 예측 방법, 이성섭 (글로벌아이앤씨파트너즈) Failure Rate Prediction Using FIDES Guide Methodology, Sung Sub Lee (Global I&C Partners)
15:45 ~ 16:45	I&C의 생명주기관리 개념, 김국헌 (서울대학교 공학전문대학원, 글로벌아이앤씨파트너즈) Life-cycle Management of I&C system, Kook Hun Kim, (Global I&C partners)
16:45 ~ 17:30	질의응답/자유토론 Q&A/Free Talking

| **기타사항** – 등록비 : 무료 / 석식제공 없음
– 문의처 : 이성섭 / 글로벌아이앤씨파트너즈 / qwessl01@naver.com

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미래를 그리다: 선배와의 진로 탐색 워크숍
Envisioning the Future: A Career Mentoring Workshop

| **일시 · 장소** 2024. 5. 8(Wed) 15:30~17:30 · 제주국제컨벤션센터, 303A(Room 303A, 3F)
| **주최** 한국원자력학회 여성지부/청년지부

일 정	내 용
15:00 ~ 15:30	**등 록** (Registration)
15:30 ~ 15:35	**개회사** (Opening Remarks) 전은주 (여성지부장, 한국원자력연구원) Eunju Jun (KAERI) 손성준 (청년지부장, 한국원자력연구원) Sungjune Sohn (KAERI)
15:35 ~ 15:40	**환영사** (Welcoming Remarks) 한국원자력학회장
15:40 ~ 16:50	**세션1: 커리어 들여다보기** (Session1: Exploring Career Pathways) 진선희 (국회사무처 수석전문위원) Sunhee Jin (National Assembly) 이나영 (한국원자력통제기술원장) Na-Young Lee (KINAC) 최성열 (서울대학교 교수) Sungyeol Choi (SNU) 박효인 (한국원자력연구원 선임연구원) Hyoin Park (KAERI)
16:50 ~ 17:30	**세션2: 커리어 스케치하기** (Session 2: Designing Your Career Blueprint) 실시간 질의응답 플랫폼 운영 (Running a Live Q&A Platform)

| **기타사항** – 등록비 : 무료 / 석식 제공
– 문의처 : 손성준 / 한국원자력연구원 / 042-868-4780 / sjsohn@kaeri.re.kr
이건희 / 한국원자력연구원 / 042-868-8814 / keonhee@kaeri.re.kr

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분과별 논문 발표
(Technical Sessions)

제1분과

원자로시스템기술 (Reactor System Technology)

1A 5.9(Thu) 원자로시스템기술 1 (Reactor System Technology 1)

| 최정대(Choi, Jung Dae), 임성원(Lim, Sung Won) | 301 (3F)

09:00 An Effect of Axial Conduction On Liquid Air Storage Tank for Liquid Air Energy Storage System Coupled to Nuclear Power Plant
Jung Hwan Park and Jeong Ik Lee(KAIST)

09:20 A Study on Secondary Frequency Operation in APR1400 Using Mode-K+
Husam Khalefih, Yunseok Jeong, and Yonghee Kim(KAIST)

09:40 Preliminary Validation of GAMMA+ code for Packed Bed Thermal Storage System
Nayoung Kim, Jung Hwan Park, and Jeong Ik Lee(KAIST)

10:00 An Application of Design for 3D printing to APR1400 Nuclear Fuel Spacer Grid
Seungmin Kim and Ihn Namgung(KINGS)

10:20 An Evaluation of Normal Contact of CSB Oppening and RV Outlet Nozzle
Christopher Omondi and Ihn Namgung(KINGS)

10:40 Coffee Break

11:00 Modal Analysis of CSB and RV Assembly in Case of CSB Slanted Contact with RV Outlet Nozzle
Quang Hieu Pham and Ihn Namgung(KINGS)

11:20 Improvement of PWR Fuel Spacer Grid Model Based on Experimental Results
Minhee Kim and Ihn Namgung(KINGS)

11:40 Modal Analysis of CSB and RV Assembly for Normal Contact
Niniek Yasintha and Ihn Namgung(KINGS)

12:00 Sensitivity Analysis for Metal Containment Vessel Wall Thickness to Accommodate Flooding Safety System using MELCOR Code
Hyo Jun An, Jae Hyung Park, Jinho Song, and Sung Joong Kim(HYU)

1B 5.9(Thu) 원자로시스템기술 2 (Reactor System Technology 2)

| 성지현(Seong, Jee Hyun), 신용훈(Shin, Yong-Hoon) | 301 (3F)

13:30 Preliminary Thermal Analysis of the K-MSR
Joonho Jeong, Gyeong-Hoi Koo, and Taewoo Kim(KAERI)

13:50 Off-Gas System for KMSR
Yonghee Ryu, Jinsung Kwak, Jinho Oh, and Gyeong-Hoi Koo(KAERI)

14:10 Hydraulic Resistance Modelling of the Porous Media Approaches for a Pool-type Sodium-cooled Fast Reactor
Churl Yoon, Huee-Youl Ye, and Jae Hyuk Eoh(KAERI)

14:30 Coffee Break

14:50 CFD Analysis and Benchmarking of XX09 Subassembly for EBR-II Shutdown Heat Removal Tests SHRT-45
Junbeom Park and Jae-Ho Jeong(Gachon Univ.)

15:10 Heat Loss Evaluation of Large-scale Sodium Test Facility, STELLA-2
Jewhan Lee, Yong–Bum Lee, Jung Yoon, and Yong–Hoon Shin(KAERI)

15:30 Numerical Investigation on Thermal-Hydraulic Characteristics for Inter-Wrapper Flow of PLANDTL-DHX
Hanseop Song and Jae–Ho Jeong(Gachon Univ.)

1C 원자로시스템기술 3 (Reactor System Technology 3)

5.10(Fri) | 윤철(Yoon, Churl), 조대성(Jo, Dae seong) | 301 (3F)

09:00 An Experimental Study on the Effect of Thermal Radiation Shielding within a Metal Containment Vessel of Small Modular Reactors
Beomjin Jeong, Geon Hyeong Lee, Geunyoung Byeon, Namgook Kim, and Seong Joong Kim(HYU)

09:20 Proposal of Direct Air Capture and Electricity Cogeneration System for Nuclear Applications
Seongmin Son(Kyungpook National Univ.)

09:40 Preliminary Approach of 1-Dimensional Streamline Method for S-CO_2 Axial Compressor
Seungkyu Lee and Jeong IK Lee(KAIST)

10:00 SPH-DEM-Neutronics Coupling for Preliminary PBR Core Analysis
Joong Young Seo, Eung Soo Kim, and Young Beom Jo(SNU)

10:20 Dynamic Modeling for 20 kWe Heat Pipe Fission Battery with Dual Power Conversion System
Kyeong Jun Park, Tae Hwan Kim, Hee Sang Yoo, Young Beom Jo, and Eung Soo Kim(SNU)

10:40 Coffee Break

11:00 Development of a Time-Series Surrogate Model for Predicting System Dynamics in KAIST-MMR under Load-following Operation
Jeong Yeol Baek and Jeong Ik Lee(KAIST)

11:20 Storage Tank Design and Dynamic Analysis of sCO_2 Power Conversion System for Thermal Energy Storage System
Huee–Youl Ye, Jonggan Hong, Dehee Kim, Yohan Jung, Sunrock Choi, and Jaehyuk Eoh(KAERI)

11:40 Numerical Study on Unsteady Flow Phenomena Behavior with LES Simulation for High Temperature Test Facility's Lower Plenum
Myeongjin Seo, Wonseok Ryoo, Jehyeong Park, and Jaeho Jeong(Gachon Univ.)

1D 원자로시스템기술 (Reactor System Technology)– POSTER 1

5.9(Thu) – 5.10(Fri) | 안형균(Ahn, Hyoung Kyoun), 김영인(Kim, Young In) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO1D01 Experimental Study for Power Generation in Liquid Air Energy Storage System Integrated to PWR Steam Cycle
Yong Jae Chae, Jung Hwan Park, Seok Jun Oh, Nayoung Kim, and Jeong Ik Lee(KAIST)

PO1D02 Compact Design of BANDI CVCS by KEPCO E&C
Jung Dae Choi, Byung Jin Lee, Jun Ha Yang, Do Hyun Kim, and Kun Woo Yi(KEPCO E&C), Eung Soo Kim(SNU)

PO1D03 Configurations of Intermediate Loop for SMART-C oil Sands Application
Joo Hyung Moon and Seok Kim(KAERI)

P01D04 Study of Specific Work Changes with Number of Feed Water Heaters in BANDI-60S Steam Cycle
Eun Sang Yun and Jeong Ik Lee(KAIST)

P01D05 The Feasibility of Controlling Secondary Reactivity Based on Coolant Temperature for Soluble Boron-free Operation
Junggyu Lee, Bum Hee Jo, and Seongho Park(KEPCO NF)

P01D06 Overview of Crane Design Standards for Research Reactors
Kwangsub Jung and Jinho Oh(KAERI)

P01D07 Estimated Wear Amount of Oilless Bearing for Designing Transfer Elevator
Hwanho Lee and Jinho Oh(KAERI)

P01D08 Analysis of LBLOCA Accident in Research Reactor with Flap Valve Installed Outside the Reactor Pool
Hyunwoo Lee, InGuk Kim, Jaeho Bae, Hong Beom Park, and Kyungwoo Seo(KAERI)

P01D09 Preliminary Analysis on Pool Cooling Performance in a Open-Pool Research Reactor using the MARS-KS 1.5 Code
Jae-Ho Bae, Kyoungwoo Seo, and In Guk Kim(KAERI)

P01D10 Improving Configuration Management at the NBSR
Jimyung Ryu(KAERI), Irene M. Dudley(NIST)

P01D11 Simulation of Irradiation Rig Loading/Unloading in Research Reactor
Donghyun Kim(KAERI)

P01D12 Evaluation of Core Average Temperature Using RELAP5
Huiyung Kim, Hyung Min Son, Kiwon Song, and Jonghark Park(KAERI)

1E 원자로시스템기술 (Reactor System Technology)– POSTER 2

5.9(Thu) – 5.10(Fri)

| 김성균(Kim, Sung Kyun), 정요한(Jung, Yo Han) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

P01E01 DNN AI Model to Detect Defection for SFR's Invisible Environment of Internal Structure
Hyungi Byun, Han Gil Lee, Beom Kyu Kim, and Geun Dong Song(FNC Tech.)

P01E02 Review of High Temperature Tensile Properties of P91 Steel for Induction Bent Pipe in Prototype Gen-IV Sodium-cooled Fast Reactor
Tae-Won Na, Jong-Bum Kim, Chang-Gyu Park, and June Hyung Kim(KAERI)

P01E03 Review of Margins for Structural Integrity Evaluation of SALUS Reactor Internal Structures According to ASME Section III Division 5
Jong-Bum Kim and Chang-Gyu Park(KAERI)

P01E04 3-D Visualization of the SLTHEN Code for the Core Thermal-Hydraulic Design in a Sodium-Cooled Fast Reactor
Sun Rock Choi, Huee-Youl Ye, and Jonggan Hong(KAERI), Gun-Hong Kim(openCAE)

P01E05 Numerical Modeling for Full-Core Thermal Hydraulic Analysis of SALUS Nuclear Reactor
Jongtae Kim and Jonggan Hong(KAERI)

P01E06 Development of Cut-cell Mesh Generation for CFD Simulation of Complicated Geometries
Jongtae Kim and Jonggan Hong(KAERI)

P01E07 Improvement of Steady-State IHTS Modeling with GAMMA+
Junkyu Han, Namil Tak, HongSik Lim, and Jonggan Hong(KAERI)

PO1E08 Numerical Investigation of Heat Transfer Characteristics in Non-Uniform Power Distribution in Wire-Wrapped Pin Fuel Assembly
Yohan Jung, Jongtae Kim, and Jonggan Hong(KAERI)

PO1E09 Effectiveness Study of Generative Model Augmentation Techniques for Internal Defect Data in SFR
Han Gil Lee, Beom Kyu Kim, Hyungi Byun, and Geun Dong Song(FNC Tech.)

PO1E10 Initial Conditions and Plant Protection System Setpoints for Safety Analysis in the SALUS
In Sub Jun, Seungjoon Baik, and Huee-Youl Ye(KAERI)

PO1E11 Safety Analysis of All PHTS Pump Failure in the SALUS
In Sub Jun and Huee-Youl Ye(KAERI)

1F 원자로시스템기술 (Reactor System Technology)– POSTER 3

5.9(Thu) – 5.10(Fri)

| 손성민(Son, Seongmin), 박수기(Park, Su Ki) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO1F01 Investigation of Industries Using Superheated Steam and Expected Effects of Using Small Modular Reactor as Heat Source with Superheating Technology
Changmin Yoon and Jeong IK Lee(KAIST)

PO1F02 Preliminary Study on Financing Strategies for Small Modular Reactors: Insights from the Barakah Nuclear Power Plant Example
Yeonjoo Cho, Joo Hyung Moon, Hyoin Park, and Eunju Jun(KAERI)

PO1F03 Selecting Optimal Heat Transfer Chloride Salt for Molten Salt Fast Reactor: Heat Exchanger Design and Mass Comparison
Sungwook Choi and Jeong Ik Lee(KAIST)

PO1F04 Size Comparison of Closed sCO_2 Brayton Cycle and Open Air Brayton Cycle for Molten Salt Reactor Applications
Taeyeon Min and Jeong Ik Lee(KAIST)

PO1F05 Assessment of Reactor Integrity and Operational Conditions with Open Source Software
Dehee Kim, Nam-il Tak, Jin Haeng Lee, Huee-Youl Ye, and Jonggan Hon(KAERI)

PO1F06 A Preliminary Thermal Analysis and Modeling Study of MSRE Freeze Valve for K-MSR Valve Development
Chan Lee, Dongyeol Yeo, and Gyeong-Hoi Koo(KAERI)

PO1F07 Preliminary Evaluation of a Sodium Loop Heat Pipe Design using the Lumped Model
HYEWON KIM, HYEONMIN CHOI, HYEWON LIM, and HYUNGMO KIM(Gyeongsang National Univ.), BYUNG HA PARK(KAERI)

PO1F08 Design of a Heat Loss Compensation System for Reliable Operation of the 6kW High-Temperature Steam Electrolysis Device
SungDeok Hong, SinYeob Kim, and ChanSoo Kim(KAERI)

PO1F09 Study of sCO_2 Brayton Cycle Layout for Molten Salt Reactor Applied to Marine Propulsion
Gihyeon Kim, Seungkyu Lee, and Jeong Ik Lee(KAIST)

PO1F10 Investigating the Impact of Refrigerant Mixing on Supercritical CO_2 Power Systems
Jeong Min Baek, Jeong Yeol Baek, and Jeong Ik Lee(KAIST)

PO1F11 A Review of Historical Development and Current Application of Micro Modular Reactors and Path Foward
Jinsun Choi and Jeong Ik Lee(KAIST)

제2분과

원자로 물리 및 계산과학 (Reactor Physics and Computational Science)

2A
5.9(Thu)

원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)

| 박호진(Park, Ho Jin), 심천보(Shim, Cheonbo) | 402B (4F)

09:00 Approach to Criticality and Control Rod Worth Calculations by McCARD with Improved AGN-201K Educational and Research Reactor Benchmark Model
Ho Jin Park and Jeong Woo Park(KHU)

09:20 McCARD Analysis for Molten Salt Reactor Experiment Benchmark
Jaeyoung Kwon and Hyungjin Shim(SNU)

09:40 Calculation of Adjoint Flux Distribution Using Iterated Fission Probability Method in the iMC Monte Carlo Code
Taesuk Oh, Inyup Kim, and Yonghee Kim(KAIST)

10:00 Diffusion Analysis of Cylindrical Molten Salt Fast Reactor Based on Simplified Few-Group GET
Sungtaek Hong(KAERI), Taesuk Oh and Yonghee Kim(KAIST)

10:20 A Study on Application of Sliding Mode Observer for Enhanced Load-Follow Operation in PWR
Husam Khalefih and Yonghee Kim(KAIST)

10:40 Coffee Break

11:00 Deleterious Feedback From Equilibrium Xenon and Bias in 3D Power Distribution When Insufficient Neutron Histories Per Cycle are Used in Monte Carlo Simulation of CANDU6
Yeseul Seo, Arief Rahman Hakim, and Douglas A. Fynan(UNIST)

11:20 Core Follow Calculations for Hanbit Unit 3 Cycles 1 and 2 using the McCARD/MASTER Code System
Jeongwoo Park and Ho Jin Park(KHU)

11:40 Preliminary Benchmarking of DeCART2D/MASTER Two-Step Core Design System for APR-1400 Benchmark using Improved Cross Section Library
Chihun Kim and Ho Jin Park(KHU), Seungsu Yuk(KAERI)

2B
5.9(Thu)

원자로물리 및 계산과학 2 (Reactor Physics and Computational Science 2)

| 이경훈(Lee, Kyunghoon), 육승수(Yuk, Seungsu) | 402B (4F)

13:30 Analysis of Energy-Dependent Displacement Damage on High Thermal Absorber by Neutron Irradiation
Hae Sun Jeong, Kee Nam Choo, Sung Jae Park, and Seong Woo Yang(KAERI)

13:50 Nuclear Design Study for Chlorine-based Micro Molten Salt Reactor Utilizing HALEU
Eunhyug Lee, Youngjune Lee, Taesuk Oh, and Yonghee Kim(KAIST)

14:10 Load Follow Operation Performance Analysis of 180MWt SMR Core with GdN-CBA
Sung Hyun Cho, Woojin Lee, and Ser Gi Hong(HYU)

14:30 Coffee Break

14:50 Shutdown Margin Study for a Passively-Cooled Molten Salt Fast Reactor
Luqman Hasan Nahari, Nariratri Nur Aufanni, Eunhyug Lee, and Yonghee Kim(KAIST)

15:10 A Preliminary SMR Core Design using LEU+ Fuels with Gadolinium-Nitride Coating Burnable Absorber
SeungHyeon Choi and Ser GI Hong(HYU)

2C 5.10(Fri) 원자로물리 및 계산과학 3 (Reactor Physics and Computational Science 3)

| 홍현식(Hong, Hyunsik), 조유권(Jo, YuGwon) | 402B (4F)

09:00 GPU Acceleration of 3D MOC Solver in STREAM3D Using OpenACC
Siarhei Dzianisau and Deokjung Lee(UNIST)

09:20 Development and Benchmarking of an MOC-based Transport Solver with CMFD Acceleration Exploiting Parallel Architectures
Zafar Iqbal Zafar and Ser Gi Hong(HYU)

09:40 Computational Efficiency Assessment of Pin-by-pin SP3 Solvers Under a Unified Response Matrix Formulation
Sicheng Wang and SerGi Hong(HYU)

10:00 Development of Control Rod Depletion Methodology for non-Boron Operation of SMR
Jinsu Park, Wonkyeong Kim, Yeongseok Kang, and Deokjung Lee(UNIST)

10:20 Online Kalman Filter Fission Source Convergence Diagnosis In Monte Carlo Eigenvalue Calculation
Seung-Ah Yang(KAERI), Ho Jin Park(KHU)

10:40 Coffee Break

11:00 Preliminary Analysis of True Variance of Local Power Tallies in Monte Carlo Simulation of Fast Spectrum Reactors
Yanuar Ady Setiawan and Douglas Fynan(UNIST)

11:20 A Feasibility Study for Passive Load-Follow Operation of Micro Molten Salt Reactor with Dynamics of Delayed Neutron Precursor
Youngjune Lee, Taesuk Oh, Eunhyug Lee, and Yonghee Kim(KAIST)

11:40 Generation of the Thermal Neutron Scattering Library for Crystalline Graphite
Haelee Hyun and SerGi Hong(HYU), DoHeon Kim(KAERI)

2D 5.9(Thu) – 5.10(Fri) 원자로물리 및 계산과학 (Reactor Physics and Computational Science) – POSTER

| 이윤희(Lee, Yoonhee), 조현호(Cho, Hyunho) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO2D01 Uncertainty Analysis Results for MHTGR-350 Benchmark 3D Cores
Tae Young Han(KAERI)

PO2D02 Sensitivity Analysis of MOX-1000 MWth in NEA-SFR Benchmark Using MCS Code
Saisundar Mohanty, Tuan Quoc Tran, Siarhei Dzianisau, and Deokjung Lee(UNIST)

P02D03 Feasibility Assessment of Low Boric Acid SMR with Gadolinia Burnable Absorber
Jong Hoon Kim, Bum Hee Jo, Jin Sun Kim, and Gong Hoon Bae(KEPCO NF)

P02D04 Similarity Analysis of Reactor Physics Benchmark Experiments for Uncertainty Quantification of SFR TRU Burner
YuGwon Jo, Jaewoon Yoo, Jong-Hyuk Won, and Jae-Yong Lim(KAERI)

P02D05 Evaluation of Pulse Signal Normalization for Reactivity Measurement using Fission Chamber Ex-core Detector
Hwan-Soo Lee and Eun-ki Lee(KHNP CRI)

P02D06 Development of PENECA-F for Equilibrium Cycle Analysis in a Fast Neutron Environment
Jae Uk Seo, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)

P02D07 Optimization Technology of Gas Centrifuge Cascade with Various Structures for HALEU Production with Gray Wolf Optimization Algorithm
Seokjun Oh, Jeonghwan Park, and Jeongik Lee(KAIST)

P02D08 Improvement of Axial Power Distribution Control through Increase Overlap of Lead Bank in APR1400 Nuclear Power Plants using HIPER16 Fuel
Hyoje Cho, Jinsun Kim, Gonghoon Bae, Hoseong Yoo, and Jongsung Chung(KEPCO NF)

P02D09 Decay Heat Calculation Program Development Adopting State-of-the-art Standard, ANS-2014
Eun Hyun Ryu and Sung Il Kim(KAERI)

P02D10 Foundation Model for Time-series Forecasting : Amazing Adaptation to Data
Junyoung Song and Yonggyun Yu(KAERI)

P02D11 The Effect of Random Displacement in Spent Nuclear Fuel Cask Criticality Safety Analysis
Seok Geun Cho, Keon Il Cha, and Kyoon Ho Cha(Sejong Univ.)

P02D12 Criticality Possibility Study in the Event of an Accident While Transporting Spent Nuclear Fuel Container
KiHo Park, Keonil Cha, Nakwoong Yang, and Chang Je Park(Sejong Univ.)

P02D13 Sensitivity Study on Plutonium Production Potential from 5MWe YongByon Reactor Using McCARD Simulation
Hyoeun LEE and Jaehyun CHO(CAU), Eunhyun RYU(KAERI), Yonhong JEONG(KINAC)

P02D14 Feasibility Study for Spent Fuel Pool Storage of LEU+ fuel
JINHO JEONG(KHNP)

P02D15 Analysis of Axial Shape Index and Peaking Factors Considering Flexible Operation for Boron-Free i-SMR Core
Seunghwan Jun(HYU|KEPCO NF), Bum Hee Jo(KEPCO NF), Ser Gi Hong(HYU)

P02D16 Preliminary Core Design with Internal Structure for Small-Sized Molten Salt Fast Reactor
Seong Jun Yoon, Sung-Kyun Zee, Tongkyu Park, and Yubin Go(FNC Tech.)

P02D17 A Study of Long-term Cycle and Sensitivity Evaluation with NaCl-KCl-UCl3 Fueled MSR Core Design
Yubin Go, Seong Jun Yoon, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.)

P02D18 The Identification of Chemical form of Fission Products Released in the Operation of 100Mw Chloride based Molten Salt Reactor(MSR) using FactSage Modeling
JuHo Lee and ChangHwa Lee(KAERI)

제3분과

원자력시설해체 및 방사성폐기물관리
(Nuclear Facility Decommissioning and Radioactive Waste Management)

3A
5.9(Thu)

원자력시설해체 및 방폐물관리 I
(Nuclear Facility Decommisioning and Radioactive Waste Management I)

| 차완식(Cha, Wansik), 조용흠(Jo, Yongheum) | 401A (4F)

13:30 Efficient Inorganic 14C Removal using Ettringite from Waste Solution
Bhupendra Kumar Singh, Nurul Syiffa Mahzan, and Wooyong Um(POSTECH)

13:50 Development of Multi-element Hollandite Ceramic for Immobilizing Radioactive Cesium Using Active Learning Based on Bayesian Optimization
Hyun Woo Seong, Ho Jin Yoon, and Ho Jin Ryu(KAIST)

14:10 Preliminary Study of Exploring the Multi-elements Layered Double Hydroxides for Iodate Decontamination by Machine Learning
Sujeong Lee, Tien–Shee Chee, and Ho Jin Ryu(KAIST), Juhwan Noh(KRICT)

14:30 A Theoretical Study on the Half-life of Bound-State Beta Decay of Long-Lived Fission Products
Konstantinos Volanis, Sunjoo Yoon, and Yonghee Kim(KAIST)

14:50 Application of Fuzzy TOPSIS in Selecting Cutting Technology for Radioactive Waste Metal Melting Facility
Hyunjin Boo, Su Hyeon Lee, and Byung Gi Park(SoonChunHyang Univ.)

15:10 Sorption and Diffusion of Non-radioactive Isotopes under Oxidizing Disposal Environments
Hyojoo Kim, Jaeeun Kang, and Wooyong Um(POSTECH), Jae–Kwang Lee and Jang–Soon Kwon(KAERI)

15:30 Comparative Study of Thermodynamic Database (TDB) for Estimation of Radionuclide Solubility in KURT Conditions
Jueun Kim, Kyungwon Kim, and Wooyong Um(POSTECH), Hye–Ryun Cho, Hee–Kyung Kim, Wansik Cha(KAERI)

3B
5.10(Fri)

원자력시설해체 및 방폐물관리 II
(Nuclear Facility Decommisioning and Radioactive Waste Management II)

| 임상호(Lim, Sang Ho), 최은영(Choi, Eun Young) | 401A (4F)

09:00 Unexpected Spontaneous Formation of UCl3 from Metallic Uranium in Molten LiCl-KCl Salt with Stainless Steel Containment Material
Eun–Young Choi, Seungwoo Paek, Sang–Eun Bae, and Jae Soo Ryu(KAERI), In–Ho Jung and Taehyoung Kim (SNU), Seol Kim (UST)

09:20 Investigation of Carbon Steel Corrosion Behavior in Hydrazine-Based Reduction Metal Ion Decontamination
Miguta Faustine Ngulimi, Mohammad Shabpiray, Kamal Asghar, Sion Kim, and Changhyun Roh(UST|KAERI), Bum Kyoung Seo(KAERI)

09:40 Identifying Radiation Sources in BIM with Gamma-ray Imaging
Hyong Chol Kim, Jae Hee Roh, Moonjoo Gil, and Young Jin Lee(NSE)

10:00 Estimation of Neutron Distribution Flux in Reactor Vessel and Bio-Shield of Kori Unit 1 with Core Follow Calculations
Hyun chul Roh, WooJin Lee, Chang Ho Shin, and Ser Gi Hong(HYU)

10:20 Coffee Break

10:40 Effect of BSS Corrosion Characteristics on the B-10 Areal Density in an Accelerated Corrosive Environment of Spent Nuclear Fuel Pool
Daehyeon Park, Yunju Lee, Junhyuk Ham, and Ji Hyun Kim(UNIST), Seung Chang Yoo(KINS), Kiyoung Kim, Donghee Lee, and Yongdeog Kim(KHNP)

11:00 Cyclic Voltammetry of Fe, Ni, Cr, Co, and Mn ions in NaCl-MgCl2 at 823 K
Suhyeon Lee, Hyunjin Boo, and Byung Gi Park(SoonChunHyang Univ.)

11:20 A Study on the Optimized Segmentation of RVIs (Reactor Vessel Internals) of Kori unit 1
Hyo–jeon Kim, Kyung–min Kim, You–jin Kang, Dong–jun Lee, and Yong–soo Kim(HYU)

3C
5.9(Thu) – 5.10(Fri)

원자력시설해체 및 방폐물관리 (Nuclear Facility Decommisioning and Radioactive Waste Management) – POSTER

| 박경우(Park, Kyung Woo), 홍창호(Hong, Chang Ho) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO3C01 Leaching Behavior of Cesium from Geopolymer Waste Form with Heterogeneously Distributed Spent Ion Exchange Resin
Seokyoung Oh, Byoungkwan Kim, Hyun–min Ma, and Wooyong Um(POSTECH)

PO3C02 System Requirements Analysis and Design for Supporting the Radioactive Waste Certification Program
Hee Seoung Park, Dong Ju Lee, Il Sik Kang, Jin Woo Lee, Tack Jin Kim, Jong Jin Kim, Jun Lee, Hye Jin Kim, and Hee Chul Eun(KAERI)

PO3C03 Effect of Organic Ligands on Uranium Release from Uranophane Dissolution
Zarina Salkenova and Um Wooyong(POSTECH)

PO3C04 Application of Ce-based Metal–Organic Framework (MOF) for Efficient Uranium Extraction from Seawater (UES)
Muhammad Asim, Bhupendra Kumar Singh, and Wooyong Um(POSTECH)

PO3C05 Performance Enhancement of Adsorbent for Capturing Radioactive Technetium
Namcheol Kim(UST), Chang Hwa Lee, Eun–Young Choi, and Seok–Min Hong(KAERI)

PO3C06 The Case Study on the Handling of Non-Fuel Materials in the SFP of PWR
Kyungho Roh, Beomgyu Kim, Taehyung Na, and Donghee Lee(KHNP CRI)

PO3C07 The Treatment of Boron-containing Radioactive Liquid through Ion Exchange Resin
So Jung Shim, Seung Su Shin, Young–Ku Choi and Chang Heon Lee(NDRI)

PO3C08 Surfactant Analysis of Simulated Laundry Waste for Treatment of Radioactive Laundry Waste
Dong Yeon Kim, Sung Hyeon Kim, and Ki Tae Kim Kim(NILEPLANT.Co.LTD)

PO3C09 Development of the Concept of Treatment Process by Type of Solid Radioactive Waste in Radioactive Waste Treatment Facilities
gangwoo Ryu, hyunmin Kim, sukwon Jung, hyungwoo Seo, and junki Baik(KHNP)

PO3C10 Improvement of Radioactive Waste Plasma Melting Reactor
JEONGSU JEONG, SUNGHOON HONG, and SEUNGMIN BAEK(KHNP)

PO3C11 Development of Treatment Technology Using Plasma Torch Melting Facility for Heat Insulation Material
Sunghoon Hong, Jeongsu Jeong, Seung–min Baek, and Jung–Kwon Son(KHNP)

PO3C12 Study On Treatment Technology Using Plasma Torch Melting Facility for Heat Insulation Material (Perlite)
Seung–Min Baek, Jeongsu Jeong, Sunghoon Hong, and Jung–Kwon Son(KHNP)

PO3C13 Statistical Method for Reducing Error in Surface Contaminated CLW Radioactivity Analysis
YuJeong Choi and Won Hyuk Jang(KAERI)

PO3C14 GoldSim Modeling Approaches to Earthquake Events
Youn–Myoung Lee, Changsoo Lee, and Dong–Geun Cho(KAERI)

PO3C15 Formation of Calcium-Iodide Ion-pair in the Interlayer of Ca-montmorillonite
Seonggyu Choi, Ja–Young Goo, and Jang–Soon Kwon(KAERI), Yongheum Jo(HYU)

PO3C16 Alternation of Physicochemical Properties of Cation Exchange Resins by Gamma Irradiation
Seung Joo Lim, Mansoo Choi, Wang Kyu Choi, and Byung Seon Choi(KAERI)

PO3C17 Development of an Alternative Disposal System for CANDU Spent Nuclear Fuel and a Review on the Finnish Posiva's FEPs and Scenarios
HeuiJoo CHOI, Jong Youl Lee, Changsoo Lee, and Dong Keun Cho(KAERI)

PO3C18 Review of Test Methods for the Cation Exchange Capacity of Bentonite Buffer in a High-Level Waste Repository
Yunjin Choi(NETI), Byeoungkwan Kim, Seokju Hong, Seokyoung Oh, Hyunmin Ma, and Wooyong Um(POSTECH)

PO3C19 A Case Study for Clearance of Activated Carbon Waste Using RESRAD Computer Code
MinHo Lee, DoWon Hyeun, WooBeom Ha, HyunJin Yu, SangHeon Lee, and JongSoon Song(CSU)

PO3C20 Hydrogeological Evaluation of Unsaturated Zone In-situ Test Facility Designed for Small-scale Field Infiltration Test
Byeong–Hak Park, Won–Tak Joun, and Kyung–Woo Park(KAERI)

PO3C21 Hydrogeological Properties of Excavation Damage Zone (EDZ) in Deep Geological Repository
Kyung Woo Park, Byeong–Hak Park, Sung–Hoon Ji, and Nak–Youl Ko(KAERI)

PO3C22 Preliminary Tracer Tests at the Inclined Boreholes of Fractured Rock in KURT
Seonyi Namgung, Yong–Kwon Koh, Ki–Jong Jang, Ja–Young Goo, and Jang–Soon Kwon(KAERI)

PO3C23 Long-term Simulation of THM Coupled Behavior in the Heater Emplacement Experiment at Mont-Terri Underground Research Laboratory
Taehyun Kim, Changsoo Lee, and Jin–Seop Kim(KAERI), Chan–Hee Park(KIGAM)

PO3C24 Thermal Conductivity Variation for the Bentonite-graphite Mixture Ratio
Seok Yoon and Gi–Jun Lee(KAERI)

PO3C25 Comparative Validation of the Discontinuum-based Numerical Simulator for Modelling the Coupled Hydro-Mechanical Processes of Near-Field Rock
Saeha Kwon, Kwang–Il Kim, Changsoo Lee, and Jin–Seop Kim(KAERI)

PO3C26 Comparative Study on the Colloid Formation by Chemical Erosion of Compacted Bentonite
Sang–Ho Lee, Jin–Seok Kim, Ja–Young Goo, Jisoo Kim, Seung Yeop Lee, and Jang–Soon Kwon(KAERI)

PO3C27 Laboratory Gas Injection Test Considering Disposal Environment
Jung–Tae Kim and Jin–Seop Kim(KAERI)

PO3C28 Evaluation of the Hydraulic and Mechanical Characteristics of Bentonite-Sand Mixed Backfill for Engineered Barrier System
Yohan Cha and Jin–Seop Kim(KAERI)

PO3C29 Experimental Evaluation on the Applicability of Friction Stir Welding for Sealing Spent Nuclear Fuel Disposal Canister
Young–Ho Lee, Jeong–Mok Oh, Jun–Hyung Kim, and Jin–Seop Kim(KAERI)

PO3C30 Alterations of Bentonite Buffer by Cement-induced Reactions: A Literature Review
Ja–Young Goo, Jin–Seok Kim, and Jang–Soon Kwon(KAERI), Ho Young Jo(Korea Univ.)

PO3C31 EBS Performance Demonstration of the First Stage R&D Results of Development of Long-term Safety Evaluation Technology of Engineered Barrier System
Geon Young Kim and Jin–Seop Kim(KAERI)

PO3C32 Evaluation of Nuclide Behavior Due to Non-Reactive Gas Breakthrough Buffer Material
Jin–Seok Kim, Sang–Ho Lee, Seung Yeop Lee, and Jang–Soon Kwon(KAERI)

PO3C33 Nuclear Criticality Analyses for Disposal Systems with Two Different Canisters
Hyungju Yun, Manho Han, Seo–Yeon Cho, and Mijin Kwon(KORAD)

PO3C34 Stress-dependent Hydraulic Characteristics of Natural Barrier Fractures: A Compilation of Lab Experiments and In-Situ Tests
Chae–Soon Choi, Yong–Ki Lee, and Kyung–Woo Park(KAERI)

PO3C35 Study on the Evaluation Method of Aperture Distribution of Fractured Rock
Ki–Jong Jang, Seonyi Namgung, Ja–Young Goo, Yong–Kwon Koh, and Jang–Soon Kwon(KAERI)

PO3C36 Electrical Resistivity Equations of Bentonite Block for HLW Disposal Repository Monitoring
Chang–Ho Hong and Jin–Seop Kim(KAERI)

PO3C37 Investigation for Characteristics of Alteration Zone and Rock of Bentonite Study Area for Natural Analogue
Yoonah Bang, Wanhyoung Cho, and Ji–Hun Ryu(KAERI)

PO3C38 Diffusion Properties of Radionuclides on Altered Granitic Rock under Aerobic Condition
Hyun–Kyu Lee , Jae–Kwang Lee, Seonggyu Choi, Nak–Kyu Kim, and Jang–Soon Kwon(KAERI),
Jaeun Kang, Hyojoo Kim, and Wooyong Um(POSTECH)

PO3C39 Current status of Domestic Natural Analogues Study Database System
Hun Suk Im, Dawoon Jeong, Min Hoon Baik, and JI–Hun RYU(KAERI)

PO3C40 Prediction of National-Scale Groundwater Level Change Using Deep Learning Approaches to Verify Long-Term Stability of Geological Disposal System
Sanghoon Lee and Ji–Hun Ryu(KAERI), Kang–Kun Lee(SNU)

PO3C41 Production Feasibility Evaluation of Engineering Scale Bentonite-Graphite Buffer Blocks
Deuk–Hwan Lee, Seok Yoon, Gi–Jun Lee, and Minhyeong Lee(KAERI)

PO3C42 Development of Effective Bi-Fidelity Surrogate Model for Disposal Holes
Gil–Eon Jeong, DongHyuk Lee, Soobin Kim, Hong Jang, and Jung–Woo Kim(KAERI)

PO3C43 Hydrogeochemistry and Origin of Saline Groundwater in Fennoscandian and Canadian Shields
Eunhye Kwon and Kyung–woo Park(KAERI)

PO3C44 Activation Analysis of Nuclear Power Plant Internal Structures Based on Neutron Flux Levels and Impurity
Hyuk Han and Chang–Je Park(Sejong Univ.)

PO3C45 A Review on the Status of Spent Nuclear Fuel and Intermediate Level Waste Generated from NPPs Decommissioning
Hyung–Woo Seo, Young–Il Na, Chan–Geun Park, and Gang–Woo Ryu(KHNP)

PO3C46 Dissolution Study of Oxide Layer on Carbon Steel Using Oxalic Acid Solution
Sion Kim, Miguta Faustine Ngulimi, Mohammad Shabpiray, Kamal Asghar, and Changhyun Roh(UST|KAERI),
BumKyoung Seo(KAERI)

PO3C47 Study on the Requirement for Selecting System Decontamination Methods for Nuclear Power Plant Decommissioning
SangHeon Lee, MinHo Lee, KiTae Yang, HyunJin Yu, and JongSoon Song(CSU)

PO3C48 Copper Modified Mesoporous Silica for H_2 and D_2 Separation via Chemical Affinity Quantum Sieving
Daeuk Kang(UST), Chan Woo Park and Hyung–Ju Kim(KAERI)

PO3C49 Analysis of Magnetite-coated Carbon Steel by Hydrazine Based Chemical Decontamination Reagent
Mohammad Shabpiray, Miguta Faustine Ngulimi, Sion Kim, Kamal Asghar, and Changhyun Roh(UST|KAERI), Bum Kyoung Seo(KAERI)

PO3C50 Corrosion Activity of Carbon Steel in Oxalic Acid Solution
Kamal Asghar, Sion Kim, Mohammad Shabpiray, Miguta Faustine Ngulimi, and Changhyun Roh(UST|KAERI)

PO3C51 High-performance Coolant Purification System for High Temperature · Pressure CVCS of Small Modular Reactor with Inorganic Metal Oxide Nanoparticle Adsorbents
Jichan Kim, Jun Heo, Jae Woo Lee, Jae Young Im, and Sung Oh Cho(KAIST)

PO3C52 A Review of the Overseas Decommissioning Plans and Domestic Preparations
YOUNG–IL NA, HYUNG–WOO SEO, GANG–WOO RYO, and CHAN–GEUN PARK(KHNP)

PO3C53 Optimal Abrasive Selection of Automated Blasting Decontamination Platform for Large-scale Very Low-level Waste
You–jin Kang, Hyo jeon Kim, Kyungmin Kim, Dongjun Lee, Insun Sung, and Yongsoo Kim(HYU), Hogeun Ryu, Yongtae Kim, and Dongik Lee(SOOSAN INDUSTRIES), Sungwook Lee and Jaeehee Lee(KOREA SHOT BLAST)

PO3C54 The Plan for a Long-term Storage Demonstration Test of Heavy Water Reactor Spent Fuel
Donghee Lee, Yongdeog Kim, and Taehyung Na(KHNP)

PO3C55 Thermal Evaluation Based on Spent Fuel Transport Velocity
Yeji Kim and Taehyeon Kim(KHNP)

PO3C56 Analysis Methods for the Uncertainty of Costs in Spent Nuclear Fuel Disposal Systems
Kwilim Lee, Jongyoul Lee, Heuijoo Choi, Changsoo Lee, and Dongkeun Cho(KAERI)

PO3C57 A DFT Study of the Radium Adsorption on Bentonite
Jaeeun Kang and Wooyong Um(POSTECH)

PO3C58 Development of PHWR Spent Fuel Transportation and Dry Storage Management Program
Kiyoung Kim, Donghee Lee, and Taehyung Na(KHNP)

PO3C59 Fire Test of Fresh Fuel Transport Cask for the Gijang Research Reactor
Kyoung–sik Bang, Yun–young Yang, and Gil–eon Jeong(KAERI)

PO3C60 Introduction of Slip Casting for Disposition Solidification Fabrication Using CeO_2
Yunmock Jung, Kwenho Kang, Sun Seok Hong, Seok Min Yoon, and Chang Hwa Lee(KAERI)

PO3C61 Safety Classification and Applicable Codes and Standards for Structures, Systems, and Components (SSCs) in Nuclear Fuel Cycle Facilities (NFCs)
Hyojik Lee and Jong Hui Han(KAERI)

PO3C62 Analysis on the Deep Geological Disposal Concepts for CANDU Spent Nuclear Fuels
Jongyoul Lee, Heuijoo Choi, Changsoo Lee, and Dongkeun Cho(KAERI)

PO3C63 Literature Survey of Ultrasonic Techniques for Pyroprocessing
Sang–Jin Park and Jonghui Han(KAERI)

PO3C64 Characterization Method about the Vadose Zone for Modeling Long-term Geological Evolution on the Safety of Deep Geological Disposal
Won–Tak Joun, Byeong–Hak Park, and Kyung–Woo Park(KAERI)

PO3C65 Long-Term Experiments for Bentonite Transformation under High Temperatures for High-Level Waste Disposal
Seeun Chang, Deuk–Hwan Lee, Yoonah Bang, Changsoo Lee, and Dong–Keun Cho(KAERI)

PO3C66 Cold Spray Coating Technique for Mitigation of Chlorine-Induced Stress Corrosion Cracking (CISCC) in Stainless-Steel Dry Storage Canister for Spent Nuclear Fuel
Jinwook Choi and Hwasung Yeom(POSTECH)

PO3C67 Experimental Emulation of Neutron Absorber Degradation under Spent Nuclear Fuel Dry Storage Environment
Woong Ha, Daehyeon Park, Hogyu Yi, Ji Hyun Kim, and Sangjoon Ahn(UNIST)

PO3C68 The Impact of Air Gap Thickness Around the Canister on Heat Transfer in COSMOS
Taehyeon Kim, Donghee Lee, Sunghwan Chung, Eunjin Sim, and Yongdeog Kim(KHNP)

PO3C69 Using UV Irradiation for Radiochemical Analysis of C-14 in Radioactive Wastes
Eunkyeom Lee, Jeongmook Lee, and Jong–Yun Kim(UST|KAERI),
Chan–Yong Jung, Junhyuck Kim, Tae–Hyeong Kim, Dong–Woo Lee, Byungman Kang(KAERI)

PO3C70 The Influence of Natural Convective Flow on the Electrochemical Analysis
Seungmin Ohk, Kyeongtae Park, Joonha Park, and Jaeyeong Park(UNIST)

PO3C71 Concentration Measurement of Uranium Dissolved in Seawater using Laser-induced Fluorescence Spectroscopy
Seungmo Yeon and Jong–Il Yun(KAIST)

PO3C72 Chelating Agent Separation Analysis Using a HILIC Column
Chang Hyuk Kang, Eun–sung Moon, and Hee–Jung Im(Jeju National Univ.)

PO3C73 The Evaluation of the Influence of Matrix in the Analysis of 63Ni Recovery Ratio at ICP-OES Measurement
DaYoung Gam, JiYoung Park, and JongMyoung Lim(KAERI)

제4분과 핵연료 및 원자력재료 (Nuclear Fuel and Materials)

4A 5.9(Thu) 핵연료 제조, 성능 및 평가 I (Fuel Fabrication, Performance & Test I)

I 류호진(Ryu, Ho Jin), 김재용(Kim, JaeYong) I 302 (3F)

초청발표

09:00 Issues on Flow-induced Vibrations in Nuclear Fuel Assemblies and Structural Components of Nuclear Power Plants
Heung Seok KANG, Kang Hee LEE, Dong Seok OH, and Soo Ho KIM(KAERI)

09:30 Analysis of Cracking Behavior of Gadolinia Disks in a Nuclear Fuel Pellet
Hyeong Jin Kim and Ho Jin Ryu(KAIST)

09:50 Advanced Characterization of Circumferential and Radial Hydrides in Reactor-Grade Zirconium Cladding Tube to Enhance the Understanding of Their Precipitation Mechanisms
Dahyeon Woo and Youho Lee(SNU)

10:10 Effect of Hydrogen on Post Quench Ductility of HANA-6 Cladding Tube
Daegyun Ko, Dong–Hyeon Kwak, Joongjin Kim, Jae Ik Kim, Hun Jang, and Yoon Ho Kim(KEPCO NF)

10:30 Investigation of Diffusion Behavior of 110mAg in ZrC at Ultra High Temperature Using Machine Learning Interatomic Potential
Jae Joon Kim and Eung–Seon Kim(KAERI), Hyun Woo Seong and Ho Jin Ryu(KAIST)

10:50 Coffee Break

11:10 Development of Oxide Growth Model for Cr-coated ATF and Microstructural Characterization on the Oxide Layer
Hyeongtak Kang, Dongju Kim, and Youho Lee(SNU)

11:30 Experimental Investigation of Eutectic Formation in Cr Coated Accident Tolerant Fuel Cladding and its Safety Implications
Boyeon Kweon, Hyunwoo Yook, and Youho Lee(SNU)

11:50 An Attempt to Evaluate Mechanical Deformation of ATF Cladding
JaeYong Kim, SungUk Lee, and YongSik Yang(KAERI), JuYeop Park(KINS), SeungKyun Kang(SNU)

12:10 Microstructural Characterization and Strength Analysis of Hydride in Partially Recrystallized Annealed Cladding Tube Compared to CWSR Cladding
Donghyeon Son, Dahyeon Woo, and Youho Lee(SNU)

4B 5.9(Thu) 원자력 신소재 기술/원전 기기 건전성 (Nuclear Materials Development/Structural Integrity of Nuclear Components)

I 윤지현(Yoon, Ji–Hyun), 김진원(Kim, Jin Weon) I 303A (3F)

09:00 Development of Nanostructured Ferritic Alloy (NFA) Fuel Cladding Tubes using Cold Spray Deposition Technology
Hwasung Yeom(POSTECH), Kumar Sridharan(University of Wisconsin–Madison)

09:20 Evaluation of Mechanical Properties and Helium Swelling Response of Ti/Ta-RAFM Steels under Fe Ion Irradiation and Helium Implantation
Sangeun Kim, Jinwoo Park, and Chansun Shin(Myongji Univ.), Hyung-Ha Jin(KAERI), Chang-Hoon Lee(KIMS)

09:40 Development for Fe-Cr-Ni-based Structural Materials on the Molten Salt Reactor
Jeonghwan Lee and Kunok Chang(KHU)

10:00 Corrosion Behavior of Alumina-Forming Austenitic Stainless Steels in Cl-based Molten Salt Environment
Sumin Kim, Hyun Joon Eom, and Changheui Jang(KAIST), Won Seok Lee(SNU)

10:20 Development Strategy of Molten Chloride Salt Corrosion Resistive Ni Superalloy
Hyeon-Geun Lee, Chaewon Kim, Jung-Min Kim, Daejong Kim, Byung-Hyuk Jun, Ji-Hyun Yoon, and Junhyun Kwon(KAERI)

10:40 Coffee Break

11:00 Development of Alumina-Forming Ni-base Alloys as Structural Materials for Molten Salt Reactors
Chaewon Kim, Hyeon-Geun Lee, Ji-Hyun Yoon, Byung-Hyuk Jun, and Daejon Kim(KAERI)

11:20 JIc Prediction Model Based on Microstructure and Strength for SA508 Gr.1A Low-Alloy Steel
Se-Mi Hyun and Seok Su Sohn(Korea Univ.), Seokmin Hong, Min-Chul Kim, and Jongmin Kim(KAERI)

11:40 Automation of Pre-Cracking Without Additional Sensors for CT Specimens
Bong-Sang Lee, Min-Chul Kim, and Jong-Min Kim(KAERI)

12:00 Impact of In-Situ Synthesized Nitride and Oxide Precipitates on L-PBF Fe-12Cr-6Al as ATF Candidate Material
Omer Cakmak, Hwasung Yeom, and Jung-Wook Cho(POSTECH)

4C 5.9(Thu) 핵연료 제조, 성능 및 평가 II (Fuel Fabrication, Performance & Test II)

| 김동주(Kim, Dong-Joo), 임광영(Lim, Kwang-Young) | 302 (3F)

13:30 Machine Learning Approach for Extracting Uranium Nonuniform Distribution in U-Zr-RE Metallic Fuel Slugs Induced by Immiscibility
Seung Uk Mun, Jung Su Ahn, Sang-Gyu Park, Soo Min Nam, and Jun Hwan Kim(KAERI),
Byung Mook Weon(Sungkyunkwan Univ.)

14:00 Exploring the Maximum Allowable Oxidation and Peak Cladding Temperature Limits of Cr Coated Accident Tolerant Fuel Cladding
SungHoon Joung and Youho Lee(SNU)

14:20 Evaluation of Creep-Based Deformation Model in FRAPTRAN-KATF for In-situ Cladding Ballooning Measurement Data
Changhwan Shin, Sung-Uk Lee, and Hyochan Kim(KAERI)

14:40 Coffee Break

15:00 TRISO Temperature Distribution Simulation using MOOSE Framework
Jiho Kim and Kunok Chang(KHU)

15:20 Validation of Cs Diffusion Behavior in UO_2 for Accident Tolerant Fuels with Moment Tensor Potentials
Jiwoo Kim, Hyeongseob Kim, and Ho Jin Ryu(KAIST), Jae Joon Kim(KAERI)

4D
5.9(Thu)

부식 및 조사손상 I (Corrosion and Radiation Damage I)

| 권준현(Kwon, Junhyun), 장근옥(Chang, Kunok) | 303A (3F)

13:40 Atomic Scale Insights into Flow-Accelerated Corrosion of SA106 Gr.B Carbon Steel in Simulated Secondary Water
Do Haeng Hur and Jeoh Han(KAERI)

14:00 Evaluation of the Threshold Stress Inducing Hydride Reorientation in Zirconium Cladding Including Dislocation Loops Using Multiphase-field Method
Wooseob Shin and Kunok Chang(KHU)

14:20 Oxidation Behavior of Proton-irradiated 316 SS Prepared by Inclined Grinding Method
Yun Soo Lim, Dong Jin Kim, Sung Sik Hwang, Sung Woo Kim, Min Jae Choi, and Jong Yeon Lee(KAERI)

14:40 Coffee Break

15:00 Emulating Neutron Irradiation Effect on Stainless steel by Non-Irradiation Method
Hyeonje Ryoo, Junhyuk Ham, and Ji Hyun Kim(UNIST)

15:20 Protection of the Structural Materials of MSR Through Ni-coating
Younghwan Jeon(KAERI), Kyeongtae Park and Jaeyeong Park(UNIST)

4E
5.10(Fri)

핵연료 제조, 성능 및 평가 III (Fuel Fabrication, Performance & Test III)

| 장훈(Jang, Hun), 김주성(Kim, Ju-Seong) | 302 (3F)

09:00 Researches on Nuclear Fuel Pellets and Neutron Absorbers with an Overview of the Irradiation Tests at KAERI
Dong Seok Kim, Dong-Joo Kim, Jae Ho Yang, Ji-Hae Yoon, Ji Hwan Lee, and Seongwoo Yang(KAERI)

09:20 Oxidation Behavior in High Temperature Steam Environments of Liquid Phase Sintered Silicon Carbide Ceramics for TRISO-Based Accident Tolerant Fuel
Kwang-Young Lim, Yeon-Soo Na, Tae-Sik Jung, Min-Jae Ju, Hun Jang, and Yoon-Ho Kim(KEPCO NF)

09:40 Comprehensive Study on the Loss of Protectiveness Behavior in Cr-Coated ATF in HighTemperature Steam Oxidation
Dongju Kim and Youho Lee(SNU)

10:00 Development of Advanced Hydride Reorientation Model and Experimental Validation
Changhyun Jo and Youho Lee(SNU)

10:20 Coffee Break

10:40 Preliminary Study of Sensitivity Analysis for IFA-650.9 Experiment with MERCURY Fuel Performance Code
Hyochan Kim, Changhwan Shin, Sung-Uk Lee, and Donghwa Lee(KAERI)

11:00 Ballooning, Burst and Oxidation Behavior of Cr-coated ATF Cladding in during LOCA
Hyunwoo Yook, SungHoon Joung, and Youho Lee(SNU)

11:20 Effect of Coating Material and Oxidation Model on the Fuel Performance Of Accident-Tolerant Fuel (ATF) with Multi-layered Cladding
Jiwon Mun, Hyeong-Jin Kim, and Ho Jin Ryu(KAIST)

11:40 The Relationship between Oxygen Composition and Lattice Parameter in a UO_2-Gd_2O_3 System with High Gd_2O_3 Content
Jae Ho Yang, Dong Seok Kim, Ji-Hae Yoon, Ji-Hwan Lee, and Dong-Joo Kim(KAERI)

4F
5.10(Fri)

부식 및 조사손상 II (Corrosion and Radiation Damage II)

| 김성우(Kim, Sung Woo), 반치범(Bahn, Chi Bum) | 303A (3F)

09:00 Effect of Stress Distribution of Thin Disk Specimen of Rupture Disk Corrosion Test on SCC Initiation of Nickel Alloys
Sung-Woo Kim, Tae-Young Kim, and Jong-Yeon Lee(KAERI)

09:20 Corrosion Resistance Assessment of Nickel in Molten Salt Environments
Seong Sik Hwang, Soon Hyeok Jeon, Ji Hyun Yoon , Gyeong Hoi Koo, and Sang Ji Kim(KAERI),
Jeoung Han Kim and Won Chan Lee(Hanbat National Univ.)

09:40 Predicting Fatigue Crack Growth Rate of Austenitic Stainless Steels in Water Reactors Using Machine Learning Algorithms
DAYU FAJRUL FALAAKH and Chi Bum Bahn(Pusan National Univ.), Jongweon Cho(Myongji Univ.)

10:00 Development of Fuel (GIFT) and Thermal Analysis (COBRA-SFS) Integrated Code for Advanced Spent Fuel Safety Analysis During Extended Dry Storage
Chansoo Lee and Youho Lee(SNU)

10:20 Coffee Break

10:40 Development of Surface Stress Improvement System for Preventing Defects in Grade 1 Nuclear Power Plant Equipment and Standardization by KEPIC
ChulHee Choi, TAEJUN CHUNG, and MYOUNGSUNG SOHN(KEA)

11:00 Driving Force and Thermal Activation Process in PWSCC (Primary Water Stress Corrosion Cracking) in Alloy 600
SungSoo Kim and Jong Yeop Jung(KAERI), Young Suk Kim(MacTec)

11:20 Mechanical Properties of SA508 Gr.3 Low Alloy Steel made by Laser Power Directed Energy Deposition
Wonjong Jeong and Ho Jin Ryu(KAIST), Young-Bum Chun, Suk Hoon Kang, Chang Kyu Rhee, and Min-Chul Kim(KAERI),
Hongmoule Kim(HANA amt)

4G
5.9(Thu) – 5.10(Fri)

핵연료 (Nuclear Fuels) – POSTER

| 김동석(Kim, Dong Seok), 박동준(Park, Dong Jun) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

P04G01 Considerations of Chlorination Process for Molten Chloride Fast Reactor Fuel in View of Material Corrosion by Impurities
Jun Woo Park, Seokjoo Yoon, and Jong-Il Yun(KAIST)

P04G02 Development of Mold Design of Injection Casting for Annular Fuel Fabrication
Sang-Gyu Park, Jungsu Ahn, and Jun Hwan Kim(KAERI)

P04G03 Fabrication of Annular Metal Fuel Pellet Using Powder Metallurgy Process
Jungsu Ahn, Sang-Gyu Park, and JunHwan Kim(KAERI)

P04G04 Synthesis of Alternative Y2O3-based High-temperature Material for Melting Crucible of Metal Fuel
Ki-Hwan Kim, Hoon Song, Seung-Uk Mun, Sang-Kyu Park, and Jun-Hwan Kim(KAERI)

P04G05 Development of a Water Ingress Analysis Module in COPA
Young Min Kim and Tae Young Han(KAERI)

P04G06 Fatigue Evaluation of the Mid Grid with ATF Cladding Tube
Joo–Young Ryu, Chae–Young Nam, Dong–Geun Ha, Hun Jang, and Yoon–ho Kim(KEPCO NF)

P04G07 Parametric Study: The Effect of QT Model Factors on Axial Relocation
JangSoo Oh and YongSik Yang(KAERI), JuYeop Park(KINS)

P04G08 SMART100 Fuel Assembly Vibration Test at End of Life
Juyeob Yoon, Kyeonghong Kim, Dongguen Ha, and Yoonho Kim(KEPCO NF)

P04G09 Control of Pulse Reverse Electroplating Parameters to Enhance Cr Diffusion Barrier Performance
SungSoo Ryu, JeongMok Oh, SungHwan Yeo, Sung Ho Kim, and Jun Hwan Kim(KAERI),
Young–Kook Lee(Yonsei Univ)

P04G10 Analysis of Cladding Property in Post LOCA Condition by Chromium Coating
Dong–Hyeon Kwak, Daegyun Ko, Hun Jang, and Joongjin Kim(KEPCO NF)

4H 원자력 재료 (Nuclear Materials) – POSTER

5.9(Thu) – 5.10(Fri)

| 심희상(Shim, Hee Sang), 김대종(Kim, Daejong) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

P04H01 Effect of Fission Product Bombardment on Structural Materials in Molten Salt Reactor Environments
Junhyun Kwon, Gyeong–Geun Lee, Min–Jae Choi, and Han–Young Yoon(KAERI)

P04H02 Thermal Aging in Cast Stainless Steels of LWR Systems: A Statistical Approach to Modeling Mechanical Properties
Gyeong–Geun Lee, Seokmin Hong, Ji–Su Kim, Dong–Hyun Ahn, and Jong–Min Kim(KAERI)

P04H03 Evaluation of Chemical/Mechanical Diffusion Barriers for Mitigating FCCI in Nuclear Metallic Fuel
Jeong Mok Oh, Dongha Kim, Seongsoo Yoo, Sung Ho Kim, Jun Hwan Kim, and Sunghwan Yeo(KAERI),
TaiHong Yim and Minsu Lee(KITECH)

P04H04 Impact of Additives on Structural Materials in NaCl-MgCl2 Molten Salt
Taeho Kim, Seol Kim, Dong Jun Shin, Dalsung Yoon, Eun–Young Choi, and Chang Hwa Lee(KAERI)

P04H05 Study on the Microstructural Characteristics of Al-B4C Composites Based on the B4C Content
Seongjun Kim, Daehyeon Park, and Ji Hyun Kim(UNIST)

P04H06 Wall Thinning Evaluation of Welded Pipeline using FAC Demonstration Facility
Kyung Mo Kim, Jong Yeon Lee, and Seong In Moon(KAERI)

P04H07 Analysis of HT9 Creep Resistance and Predict Creep Correlations
DongHa Kim, Sunghwan Yeo, JunHwan Kim, SungHo Kim, JeongMok Oh, and Cheol Lee(KAERI),
Yong–Kook Lee(Yonsei Univ.)

P04H08 An Overview of Hydrogen Degradation of Structural Materials in Nuclear Energy System
Junyeong Jo and Hwasung Yeom(POSTECH)

P04H09 Crack Density Analysis of 35% Cold Rolled Type 304 SS Specimen According to Slow Strain Rate Test using IASCC Test Facility (ITF) Mock-up
Sung Hwan Cho, Sung Woo Kim, and Seong Sik Hwang(KAERI)

PO4H10 Irradiation Test of High Temperature Irradiation Capsule (15M-03K) up to 1000C in HANARO
Kee–Nam Choo, Sung–Jae Park, Yoon–Taek Shin, Chul–Yong Lee, Hae–Sun Jeong, Hune–Sic Park, Jong–Woo Kim, and Sung–Woo Yang(KAERI)

PO4H11 Immersion Test of Pure Nickel Cladded 316H Steel in KCl-MgCl2 Molten Salt at 650 ˚C
SEUNGJU NAM, Won Chan Lee, Uijun Ko, Jin woong Park, and Jeoung Han Kim(Hanbat National Univ.), Giseung Shin and Jihyun Yoon(KAERI)

PO4H12 High Temperature Corrosion Behavior of Pure Nickel in NaCl-MgCl2 Molten Salt at 600 ˚C
Won Chan Lee, Seung Ju Nam, Ui Jun Ko, Jin woong Park, Jeoung Han Kim (Hanbat National Univ.), Seong Sik Hwang, Soon Hyeok Jeon, and Ji Hyun Yoon(KAERI)

PO4H13 Thermal Dehydration of Magnesium Chloride for Molten Salt Reactor Application
Seol Kim(UST), Taeho Kim, Chang Hwa Lee, and Eun–Young Choi(KAERI)

PO4H14 Effect of Cellular Structure of the Additively Manufactured 316 Stainless Steels on Mechanical Property and Molten Salt Corrosion in NaCl-MgCl2
Jung–Min Kim(UST|KAERI), Hyeon–Geun Lee, Chaewon Kim, Young–Bum Chun, and Suk Hoon Kang(KAERI)

PO4H15 Prediction of Steam Generator Tube Wear Using a Developed Finite Element Analysis Code
Won Man Park, Sungman Son, and Choengryul Choi(Elsoltec), Heung Seok Kang(KAERI), In–Su Yang(KEPCO E&C)

PO4H16 Prediction of Steam Generator Tube Behavior via Fluid-Structure Interaction Analysis
Dae Kyung Choi, Won Man Park, and Choengryul Choi(Elsoltec),
Young–Jin Oh, Sang–Hoon Lee, and Kunwoo Yi(KEPCO E&C)

PO4H17 Carbon-Boron Composites for the Canisters in Dry Spent Nuclear Fuel Casks
Hong In KIM and Young–Kook Lee(Yonsei Univ), Sunghwan Yeo, Sung Ho Kim, and Jun Hwan KIM(KAERI)

PO4H18 Determination of Negligible Creep Curve for P92 Steel
Woo–Gon Kim, Youngjin Roh, and Seonwha Kim(KETG), Ki–Ean Nam and Hyeong–Yeon Lee(KAERI)

PO4H19 Short-Term Corrosion Characteristics of Molten Salt Reactor Materials and Cladding
Ji–Hyun Yoon, Giseung Shin, Chaewon Kim, Hyeon–Geun Lee, and Chang Hwa Lee(KAERI),
Jeoung Han Kim(Hanbat National Univ.)

제5분과

원자력 열수력 (Nuclear Thermal Hydraulics)

5A 원자력 열수력 및 열전달 (Thermal Hydraulics and Heat Transfer)

5.9(Thu) | 김석(Kim, Seok), 이연건(Lee, Yeon-Gun) | 202B (2F)

09:00 Analysis of Heat Flux Partitioning Model for Copper and SUS304 using High Speed Camera at Low Heat Flux
Se Hyeon Park and HangJin Jo(POSTECH)

09:20 Experimental Observation of Flow Boiling CHF on Heater Rod with Axially Cosine Shape Power Distribution under Rolling Condition
Heepyo Hong, Jin-Seong Yoo, Hyukjae Ko, Ja Hyun Ku, Giwon Bae, Goon-Cherl Park, and Hyoung Kyu Cho(SNU)

09:40 Experimental Performance Evaluation of a Printed Circuit Type Multi-stream Heat Exchanger with Helium Loop for Hydrogen Production
Sin-Yeob Kim, Sung-Deok Hong, Byung-Ha Park, and Chan-Soo Kim(KAERI)

10:00 Experimental Studies for Hydraulic Characteristics of Corrugated Channel for Printed Circuit Steam Generator (PCSG)
Taemin An, Armanto Simanjuntak, and Jaeyoung Lee(Handong Global Univ.)

10:20 Mass Transfer Experiment on Natural Convection Heat Transfer in a Vertical Plate at Under High Rayleigh Number Conditions
Dong-Gyu Lee, Seong-Il Beak, and Bum-Jin Chung(KHU)

10:40 Coffee Break

11:00 Numerical Analysis of Melting/Solidification Problems using OpenFOAM
Erol Bicer, Youngjae Park, Youcho Choi, and Soon-Joon Hong(FNC Tech.)

11:20 Prediction Methodology of Critical Heat Flux on a Heater Rod Under Inclined and Rolling Conditions Based on Bubble Tracking Method and Continuum Percolation Theory
Geon-Woo Kim and Jae Soon Kim(KINS), Hyoung Kyu Cho(SNU)

11:40 Probabilistic Neural Network Approach for Critical Heat Flux Prediction with Uncertainty Quantification
Kyung Mo Kim(KENTECH)

12:00 Thermal-hydraulic Performance Analysis of Zigzag Channel PCHE according to Bending Angle
Yoomyeong Lee and Donghwi Lee(Jeonbuk National Univ.), Seongmin Lee, Hong Beom Park, and Kyoungwoo Seo(KAERI)

5B (초)소형모듈형원자로 열수력 (SMR & MMR Thermal-hydraulics)

5.9(Thu) | 송민섭(Song, Min Seop), 박영재(Park, Youngjae) | 203 (2F)

09:00 Applicability of GeN-Foam to Fast-Spectrum Molten Salt Reactors with BeO Reflector and Preliminary Analysis
Wooseong Park and Yong Hoon Jeong(KAIST)

09:20 Influences of Bed Height on Mixed Convection Heat Transfer in a Packed Bed
Seong-Il Baek and Bum-Jin Chung(KHU)

09:40 Validation of the Transient Heat Pipe Code with the SAFE-30 Experiment
San Lee, Ye Sung Kim, and Hyoung Kyu Cho(SNU)

10:00 Scaling Analysis for Conceptual Design of Steel Containment Vessel in i-SMR Integral Effect Test Facility
Jin-Hwa Yang, Byoung-Uhn Bae, Hwang Bae, and Kyoung-Ho Kang(KAERI)

10:20 Design Consideration of ECCS Valve for Integral Type SMR
Jan Hruskovic, Youngjae Park, Youcho Choi, Young Seok Bang, Seong-Su Jeon, and Soon-Joon Hong(FNC Tech.)

10:40 Coffee Break

11:00 Preliminary Experiment for Validation of Fission Product Flotation System in Passive Molten Salt Fast Reactor
Yun Sik Cho, Hyo Jun Ahn, Do Won Lee, and Sung Joong Kim(HYU)

11:20 Parametric Study of Hydraulic Performance of Flow with Helical Cruciform Fuel for LWRs
Hyeongi Moon and Minseop Song(HYU)

11:40 Modeling of Dynamic Response of Passive ECCS Valves Using MARS-KS Code in Support of i-SMR
Young Seok Bang, Youngjae Park, and You Cho Choi(FNC Tech.)

12:00 Thermal Analysis of the KRUSTY Experiment Using OpenFOAM-PRAGMA Coupled Code with Heat Pipe Thermal Analysis Module
Myung Jin Jeong, Jaeuk Im, San Lee, and Hyoung Kyu Cho(SNU)

5C
5.10(Fri)

원자로계통 사고 해석 및 실험 (Reactor Safety Accident Anaylsis and Experiment)

| 이승준(Lee, Seung Jun), 이제희(Lee, Jehee) | 202B (2F)

09:00 A Mass and Energy Release Analysis of Postulated Main Steam Line Break Accidents on APR1000 Using KIMERA Methodology
Jisu Kim, Sung Yong Kim, Seng Ho Jee, Chan Eok Park, Min Shin Jung, Eun Ju Lee, and Seok Jeong Park(KEPCO E&C)

09:20 CFD Investigation of a MONJU 169-Pin Wire-Wrapped Fuel Assembly Experiment
Seongchul Park and Jae-Ho Jeong(Gachon Univ.)

09:40 Effect of Asymmetric Inlet Mass Flow Conditions on Flow Behavior Inside Subchannel of a 6×12 Rod Bundle
Jun Yeong Jung, Seok Kim, and Hae-Seob Choi(KAERI)

10:00 Evaluation of Condensation Models for the Outer Wall under Pure Steam Condition
Dongwon Jeong and Byongjo Yun(Pusan National Univ.), Jinhoon Kang(KIMM), SangGyun Nam(FNC Tech.)

10:20 Experimental Investigation on Wall Friction Factor in a Vertical Annulus Channel under Natural Circulation Water Flow Conditions
Seongbae Park, Youngchang Ko, and Byongjo Yun(Pusan National Univ.)

10:40 Coffee Break

11:00 Investigation of Thermal Hydraulic Characteristics of PCCS According to the Containment Size
Sang Gyun Nam, Youngjae Park, Jehee Lee, Jungjin Bang, and SeongSu Jeon(FNC Tech.)

11:20 Modeling Steam Condensation on Passive Heat Sinks within Containment for Realistic Analysis of Heat Removal Behavior
Jia Yu and Yeon-Gun Lee(Sejong Univ.)

11:40 Preliminary CFD Analysis of Spreading and Solidification of FLiNaK and KCl-UCl3
Ye Hwan Chun, Jin Ho Song, Yun Sik Cho, Juhyeong Lee, Won Jun Choi, Jihun Im, and Sung Joong Kim(HYU), Sang Mo An and Sung-Il Kim(KAERI)

12:00 Validation of RV Model in CUPID Code Against a Rod Bundle Test, SIRIUS-3D, and Design of a New Rod Bundle Test
Byong Guk Jeon, Jae Ryong Lee, Sang-Ki Moon, HaeSeop Choi, and Seok Kim(KAERI), Hyungmin Park(SNU)

5D
5.10(Fri)

열수력 실험/해석 기술 응용 (Application of Thermal Hydraulics Technologies)

| 이재룡(Lee, Jaerryong), 이창원(Lee, Chang Won) | 203 (2F)

09:00 Calibration of Fuel Assembly Mockup of Advanced Research Reactor
Taeil Kim, Yohan Lee, Donkoan Hwang, WooHyun Jung, Nakjun Choi, and HangJin Jo(POSTECH), Jonghark Park, Hyung Min Son, Huiyung Kim, Kiwon Song(KAERI)

09:20 Numerical Simulation for ROCOM PTS Test using Generalized k-ω Turbulence Model
Dong-Hyeon Choi and Yoon-Suk Chang(KHU)

09:40 Parametric Study of the Fuel Salt Drain System Design of K-MSR
Dongyeol Yeo, Chan Lee, and Gyeong-Hoi Koo(KAERI)

10:00 Review of Prediction Capability of System Analysis Code for Density Wave Oscillation
Dong-Young Lee, Seong-Su Jeon, Jan Hruskovic, YoungJae Park, and Jungjin Bang(FNC Tech.)

10:20 Rolling Motion Effect on Differential Pressure Measurement in NEOUL-R Flow Boiling Experiment
Hyukjae Ko, Jin-Seong Yoo, Heepyo Hong, Ja Hyun Ku, Giwon Bae, Goon-Cherl Park, and Hyong Kyu Cho(SNU)

10:40 Coffee Break

11:00 Sensitivity Assessment of Gas Injection Effect in Terms of Natural Circulation Performance through Adiabatic Two-Phase Experiment
Won Jun Choi, Jae Hyung Park, Seung Gyu Hyeon, and Sung Joong Kim(HYU)

11:20 Temperature Prediction of Cladding in CANDU Spent Fuel Dry Storage Canister using CFD Code and Uncertainty Analysis
Tae Gang Lee and Jae Jun Jeong(Pusan National Univ.), Tae Hyung Na(KHNP CRI)

11:40 Verification Methods of Pressure Matrix Integration and Reduction for Implicit Coupling of Two Codes Using One Code
Kum Ho Han, Bub-Dong Chung, and Soon-Joon Hong(FNC Tech.), Jaeseok Heo(KAERI)

12:00 Development of Molten Salt Reactor related Thermal Hydraulic Properties for Safety Analysis with AMESIM Code
Seon Gon Kim, Han Seop Song, and Jae Ho Jeong(Gachon Univ.), Sang Hwan Kim(KRISO)

5E
5.9(Thu)

안전해석 현안 (Safety Analysis Issues)

| 이경원(Lee, Kyung-Won), 전성수(Jeon, Seong-su) | 202B (2F)

13:30 Development of a Mean Bubble Size Correlation under Pool Scrubbing Conditions
Erol Bicer, Yeon-Jun Choo, and Soon-Joon Hong(FNC Tech.)

13:50 Development of Regulatory Audit Codes for Performance Analysis of Cr-coated ATF Fuel
Joosuk Lee, Hyedong Jeong, Sarah Kang, Seulbeen Kim, Jangkeun Park, Byunggil Huh, and Yongseok Choi(KINS)

14:10 Comparative Assessment of Two-phase Crossflow Behavior of System Codes in Bundle
Yunseok Lee and Taewan Kim(Incheon National Univ.)

14:30 Coffee Break

14:50 Analysis of Inadvertent Operation of the Emergency Core Cooling System During Shutdown Cooling System Operation on APR1400 Using SPACE Code
Ye Eun An, Se Young Ro, Sang Jin Lee, Min Shin Jung, and Seok Jeong Park(KEPCO E&C)

15:10 Development of Robustness Assessment Methodology for Performance Issue on Passive Safety System
Jehee Lee, Seong–Su Jeon, and Youngjae Park(FNC Tech.), Ju–Yeop Park(KINS)

15:30 MARS-KS Analysis on an Integral Effect Test of CLOF for the SMART Design
Hyun–Sik Park, Jin–Hwa Yang, Byong–Guk Jeon, and Hwang Bae(KAERI)

5F
5.9(Thu)

열수력 신기술 (Advanced Thermal Hydraulics)

| 김형모(Kim, Hyungmo), 김동억(Kim, Dong Eok) | 203 (2F)

13:30 Enhancement of Critical Current Density Using Electro-deposited Micro Porous Structure
Suyeon Park and DongHyuk Park, and Bumjin Chung(KHU), HaeKyun Park(Kyungpook National Univ.)

13:50 A Pool Boiling Experiment using a Fiber Optic Sensing Wire for Direct Measurement of Local Temperatures on a Heating Surface
Hyeonmin Choi, Jiyun Oh, Hyeonsu Kim, and Hyungmo Kim(Gyeongsang National Univ.), Dong Eok Kim(CAU)

14:10 A Study on the Performance of Conditional Generative Adversarial Networks for Reconstructing IR Thermometry in Flow Boiling
UngJin Na and HangJin Jo(POSTECH), ByongGuk Jeon(KAERI), JunYoung Seo(Ajou Univ.)

14:30 Coffee Break

14:50 Group Invariant Neural Networks-based Deep Reinforcement Learning for Optimal Control of Natural Convection Flow
Joongoo Jeon, Su Yeong Jo, Minseo Lee, Shilaj Baral, and Sangam Khanal(Jeonbuk National Univ.),
Ricardo Vinuesa(KTH), Jean Rabault(Independent Rese)

15:10 Impact of Reactor Height on Natural Circulation Performance and Thermal Characteristics in Passive Molten Salt Fast Reactors
Juhyeong Lee, Sangtae Kim, and Sung Joong Kim(HYU), Yonghee Kim(KAIST)

15:30 A Comparative Experiments for Efficient Operation of Packed Bed Cold Energy Storage System
Dahui Kwack, Chunsik Lee, and Choongsub Yoem(IAE)

5G
5.9(Thu) – 5.10(Fri)

원자력 열수력 실험 및 열수력 신기술 (Thermal Hydraulic Experiment and Advanced Thermal Hydraulics) – POSTER

| 김건우(Kim, Geon–Woo), 김신엽(Kim, Sin–Yeob) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO5G01 Experimental Investigation about Capillary Properties of Braided Wire Wick for Heat Pipe
Yohan Kim and Hyungdae Kim(KHU)

PO5G02 Post-calculation for C2.1 of OECD-ATLAS3 Program
Seok Cho, Byoung–Uhn Bae, Yu–Sun Park, Nam–Hyun Choi, Jae–Bong Lee, Jong–Rok Kim, and Kyoung–Ho Kang(KAERI)

PO5G03 Natural Convection Cooling Characteristics in Narrow Rectangular Channel at Horizontal and Low Slopes Conditions
Dongwook Jang, Huiyung Kim, and Jonghark Park(KAERI)

PO5G04 Visualization of Natural Convection Heat Transfer on a Sphere with Various Contact Points
MinSeo Park, JeongWon Han, and BumJin Chung(KHU)

PO5G05 Simulation of the SMR Steam Extraction Operation for Corresponding to Intermittency of Renewable Energy
Keon Yeop Kim, Ha Neul Na, So Eun Shin, and Youngsuk Bang(FNC Tech.)

PO5G06 Optimizing Thermal Distributors in Heat Pipe-Cooled Micro Reactors using Generative Design
Ju Hyeong Lee and Eung Soo Kim(SNU)

PO5G07 Sensitivity Assessment of Natural Circulation SMR Applicable to Maritime Ships Using MARS-KS Code
Seung gyu Hyeon, Jae Hyung Park, Hyo Jun An, JinHo Song, and SungJoong Kim(HYU)

PO5G08 Implementation of Start-up/Shutdown Model into Alkali Metal Heat Pipe Analysis Code
Ye Sung Kim, San Lee, and Hyoung Kyu Cho(SNU)

PO5G09 Very Efficient Boiling Surfaces and Their Performance
Dong Ju Lee, Young Jae Yang, and Dong Eok Kim(CAU)

PO5G10 Preliminary Design of System-integrated Heat Exchangers for Passive Molten Salt Fast Reactor
Jihun Im, Jae Hyung Park, Won Jun Choi, and Sung Joong Kim(HYU)

PO5G11 Lessons Learned for Design of ECCS Valve Obtained from NRC's Design Review Results
Youngjae Park, Young Seok Bang, and You Cho Choi(FNC Tech.)

5H
5.9(Thu) – 5.10(Fri)

원자력 열수력 해석 및 안전해석 현안 1 (Thermal Hydraulic Analysis and Safety Analysis Issues 1) – POSTER

| 이종혁(Lee, Jonghyuk), 전준구(Jeon, Joongoo) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO5H01 Preliminary CFD Analysis for the Rotating Cavitation Flow inside a Centrifugal Pump
Gong Hee Lee(KINS), Yong Kab Lee(SIMEX)

PO5H02 Numerical Prediction of DNB under Vertical and Inclined Condition with R134a Refrigerant
Giwon Bae and Hyoung kyu Cho(SNU)

PO5H03 Critical Flow Prediction by Direct Solving of Characteristic Equations
Kwi Seok Ha, Jaeseok Heo, Jonghyuk Lee, and Kyung Doo Kim(KAERI)

PO5H04 Coupling of CUPID Subchannel Module with Neutron Kinetics Code and Fuel Performance Code for Pin-Wise Multi-physics
Yeonghun Lee, Kyuseok Sim, Youho Lee, Jae Ryong Lee(KAERI), Hyoung Kyu Cho(SNU)

PO5H05 Exploring Two-Phase Flow Instabilities in Helical Steam Generators Using MARS-KS Code
Seunghwan Oh, Doh Hyeon Kim, and Jeong Ik Lee(KAIST)

PO5H06 Validation of SPACE-CAP Codes for Coupling the RCS and Containment Systems with OECD-ATLAS3 C1.2 Test
Byoung Uhn Bae, Jae Bong Lee, Yusun Park, Seok Cho, and Kyoung Ho Kang(KAERI)

PO5H07 Development of Thermal Analysis Module of MSRE Core for Monte Carlo Neutron Transport Code
Min Seo Son, Moon Hee Choi, and Hyoung Kyu Cho(SNU)

PO5H08 Prediction on Mixed Convection Sodium Flow using MULTID Component Model of the MARS-LMR Code
Jae–Ho Bae(KAERI), Hae–Yong Jeong(Sejong Univ.)

PO5H09 Adequacy Results of 2nd Exercise in OECD/NEA ATRIUM Project for SPACE
Chiwoong CHOI, Jaeseok Heo, and Seungwook Lee(KAERI)

PO5H10 Sizing Orifice for Sustaining Flow Instability of a Steam Generator in NuScale SMR
Hee Joon Lee(Kookmin Univ.), Youngmin Bae(KAERI)

PO5H11 Effect of CCFL in Upper Plenum for ATLAS DVI Line Break Test
Hae Min Park and Seung Wook Lee(KAERI)

PO5H12 CFD Investigation on Sagging Effects in CANDU Reactors
Jin Yoo(Chungnam National Univ.|NESS), Chul–Kyu Lim, Hyun–Sik Kang, Hyeon–Sik Chang, Han–Rim Choi, Chang–Sup Lee, Hyun–Woo Park, Beom–Seock Kim, Seong–Kyu Park, Chul–Jin Choi, Chang–Sok Cho, and Mi–Suk Jang(NESS), Byoung–Jae Kim(Chungnam National Univ.)

PO5H13 Predictive Model for Entrainment Limitation in Non-Condensable Gas Pressurized Thermosyphon
Benrico Fredi Simamora, Jiyong Kim, and Jaeyoung Lee(Handong Global Univ.)

5I 5.9(Thu) – 5.10(Fri)

원자력 열수력 해석 및 안전해석 현안 2 (Thermal Hydraulic Analysis and Safety Analysis Issues 2) – POSTER

| 최치웅(Choi, Chiwoong), 박일웅(Park, Il Woong) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO5I01 LBLOCA ME Release and Containment PT Analysis using KIMERA Methodology for APR1000
Sung Yong Kim, Jisu Kim, Seong Ho Jee, Min Shin Jung, Eun Ju Lee, and Seok Jeong Park(KEPCO E&C)

PO5I02 Analysis of Main Steam Line Break and Induced Steam Generator Tube Rupture Accident Using SPACE Code for OPR1000
Chang–Keun Yang and MinJeong Kim(KHNP CRI)

PO5I03 Extension of CRUD Heat Transfer Model to Low-Pressure Condition for Bubble Tracking Heat Partitioning Model
Yong Suk Choi, Yeong Hun Lee, and Hyoung Kyu Cho(SNU)

PO5I04 Sensitivity Analysis on Steam Generator Volume to Feedwater Temperature for Small Modular Reactor
Jun Ha Hwang, Semin Joo, and Jeong Ik Lee(KAIST)

PO5I05 Literature Survey on Flow Instability Analysis Cases using System Code
Seong–Su Jeon, Dong–Young Lee , Jan Hruskovic, Youngjae Park, and Jungjin Bang(FNC Tech.)

PO5I06 Computational Fluid Dynamics for Hot Water Layer in Pool-Type Research Reactor
Seongmin Lee, Kyungwoo Seo, and Min Gyu Jung(KAERI)

PO5I07 Preliminary Core Cavity Design of a Micro Molten Salt Reactor (MSR) Using CFD Code
Yong Hwan Yoo, Taewoo Kim, Dongyeol Yeo, Minkyu Lee, and Sang Ji Kim(KAERI), Wooseong Park(KAIST)

PO5I08 Comparison of Steady-state and Transient CFD Results for Two-Phase Flow Analysis in Steam Generator Helical Tube
Doh Hyeon Kim, Seunghwan Oh, and Jeong Ik Lee(KAIST)

PO5I09 Preliminary Modeling and Analysis of Thermal Energy Storage System Using Modelica
Hyuk Joon Lee and Min seop Song(HYU)

PO5I10 Melting Points of Molten Salt Coolants for Chloride-based Molten Salt Fast Reactor
Sunghyun Yoo, Sungwook Choi, and Jeong Ik Lee(KAIST)

PO5I11 Development of Long-term Safety Assessment Methodology for Multi-Module by Using Simplified Model of Flooding Safety System
Jae Hyung Park, Hyo Jun An, Jihun Im, Hongsik Kim, Jinho Song, and Sung Joong Kim(HYU)

PO5I12 Multiphase Sloshing Dynamics of Water and Molten Salt in Drain Tanks using OpenFOAM
Moon Hyeok Kang and Jeong Ik Lee(KAIST)

제6분과 원자력 안전 (Nuclear Safety)

6A 확률론적 안전성평가 1 (PSA 1)

5.9(Thu) | 김동산(Kim, Dong-San), 이용석(Lee, Yong Suk) | 201A (2F)

09:00 Review of Issues Related to the Cs-137 Safety Goal
JOONEON YANG(KAERI)

09:20 A New Initiating Event Frequency Unit for Multi-unit PSAs
Jae Won Lim and Jung Kuk Song(KEPCO E&C), Beom Seok Kim, Dae In Choi, Bub Lin Kim, and Seong Kyu Park(NESS)

09:40 A Study on Baseline Period for Evaluating Frequency of Not Sparse Initiating Event Group
Sun Yeong Choi, Jin Hee Park, and Dong-San Kim(KAERI)

10:00 Numerical Validation of Dynamic Event Tree Analysis Platform DICE™ Physical Module by Preliminary Calculation
Hyunjoon Jeong and Taewan Kim(Incheon National Univ.), Jaeseung Suh(SENTECH), Gyunyoung Heo(KHU), Jonghyun Kim(CSU)

10:20 Coffee Break

10:40 Quantitative Assessment of Human Error Probability Dependencies through the EMBRACE Method
Seolsonghwa Song and Jaehyun Cho(CAU), Yochan Kim and Jaewhan Kim(KAERI)

11:00 Estimating Prior Distribution for Common Cause Failure Parameters Using Empirical Bayes
Gyun Seob Song and Man Cheol Kim(CAU)

11:20 A Sequential Fragility Framework using Machine Learning for Prestressed Concrete Containment Vessel in Nuclear Power Plant
Bu-Seog Ju, Hoyoung Son, Jongryun Lee, Jeongeun Park, and Sangwoo Lee(KHU), Shinyoung Kwag(Hanbat National Univ.)

11:40 A Quantification Method using Monte Carlo Sampling for the Seismic Probabilistic Safety Assessment Model of Nuclear Power Plants with Correlated Seismic Failures
u sung Moon and woo sik Jung(Sejong Univ.)

12:00 Application of Jung's Method for Accurate Risk Assessment in an Actual NPP PSA Model by Incorporating Human Failure Event Recovery into the Minimal Cut Set Generation Stage
Jae Hoon Kim and Woo Sik Jung(Sejong Univ.), Seong Kyu Park(NESS)

6B 확률론적 안전성평가 2 (PSA 2)

5.9(Thu) | 이승우(Lee, Seungwoo), 김지훈(Kim, Jihun) | 201A (2F)

13:30 Considering the Availability of Required Staffs in Terms of the Human Reliability Analysis of Multi-Unit Accidents
Jinkyun Park and Seong Woo Park(KAERI)

13:50 Proposal to Estimate the Mobile Equipment Installation Time during a Multi-unit Accident Management using an Agent-Based Model
Seong Woo Kang and Jinkyun Park(KAERI)

14:10 Development of Level 3 PSA Event Tree Model for Determination of Offsite Alarm Time
Kiwon Song, Sung–yeop Kim, Wi–Ho Ha, and Chanki Lee(KAERI)

14:30 Preliminary Analyses of Nuclear Emergency Response Procedures in Korea for Application to Level 3 Probabilistic Safety Assessment
Chanki Lee, Wi–Ho Ha, Kiwon Song, Hyun Ki Kim, and Sung–yeop Kim(KAERI)

14:50 Coffee Break

15:10 The Sensitivity Analysis for the Design Effectiveness of Diverse CSS in the APR1400+ Level 2 PSA
Jaegab Kim, Jeongguk Song, Wonjik Kim, and Jinkyoo Yoon(KEPCO E&C), Jiyong Oh(KHNP)

15:30 Analysis on Molten Salt Reactor Component Failure Rate based on Systems and Components Performance of Molten Salt Reactor Experiment
Yeongchan Kim and Jeonglk Lee(KAIST)

6C 5.9(Thu) 중대사고 1 (Severe Accident 1)

I 김종태(Kim, Jongtae), 임국희(Lim, Kukhee) I 201B (2F)

09:00 Investigation of Steam Velocity Effect on Cladding Oxidation Phenomena
Siwon Seo, Simamora Benrico Fredi, and Jaeyoung Lee(Handong Global Univ.)

09:20 Validation Calculation of TRACER-3D Code for Corium Experiments
Kwang–Hyun Bang(TETRAS), Min–Soo Kim, Dong–Jin Shin, and Dong–Ha Kim(Korea Maritime and Ocean Univ.)

09:40 Analysis of Scaled Down Model of RCCV and PCCV Under Internal ANFO Explosion
Seung–Jai Choi and Minkyu Kim(KAERI), Jang–Ho Jay Kim(Yonsei Univ.)

10:00 Preliminary MELCOR Analysis of I-SMR under Hypothetical Loss of Coolant Accident
Chang Hyun Song, JinHo Song, and Sung Joong Kim(HYU), Sang Ho Kim and Jaehyun Ham(KAERI)

10:20 Coffee Break

10:40 Numerical Investigation of Corium Spreading Phenomena using Smoothed Particle Hydrodynamics
Heesang Yoo and Eungsoo Kim(SNU)

11:00 Preliminary Analysis on Spreading and Heat Transfer Behavior of Molten Salt during the Salt Spill Accident
Sang Mo An and Sung Il Kim(KAERI)

11:20 Generic CFD Model for Hydrogen Removal by Passive Auto-Catalytic Recombiners
Jongtae Kim and Jaehoon Jung(KAERI)

11:40 Analytical Study on Stratification of Released Hydrogen in a Containment Building
Jongtae Kim(KAERI), Kukhee Lim(KINS)

12:00 Modeling and Validation of Steam Condensation for Containment Thermal Hydraulic Analysis during a Severe Accident
Jongtae Kim(KAERI)

6D 5.9(Thu) 중대사고 2 (Severe Accident 2)

I 김형태(Hyoung Tae Kim), 이연건(Lee, Yeon–Gun) I 201B (2F)

13:30 Feasibility Study of Applying an Explainable AI (XAI) Model for an Accelerated Prediction of Severe Accident Progression
Semin Joo, Seok Ho Song, Yeonha Lee, and Jeong Ik Lee(KAIST)

13:50 Autoregressive Multivariate Time Series Forecasting of Modular Accident Analysis Program Dataset, Inspired by Video Prediction Methods Using Deep Learning
Joon Young Bae, JinHo Song, Injae Kim, Sung Joong Kim, and Chang Hyun Song(HYU), Jeong Ik Lee(KAIST), Miro Seo and Tae–Young Shin(KHNP)

14:10 Source Term Estimation based on Invertible Neural Network
Suhyeon Kim, Siho Jang, and Eung Soo Kim(SNU)

14:30 Source Terms Analysis in the PHEBUS FPT-1 Experiment Using MELCOR 2.2 Code
Han Sol Park and Yeon–Gun Lee(Sejong Univ.)

14:50 Assessment of the Hygroscopic Aerosol Model of the SIRIUS Module in the Severe Accident Analysis Code
Hyoung Tae Kim, Jaehyun Ham, Kwang Soon Ha, and Sang Ho Kim(KAERI)

6E
5.10(Fri)

안전현안 / 화재방호 (Safety Issues / Fire safety in nuclear facility)

| 이신호(Lee, Sin Ho), 김용상(Kim, Yong Sang), 이재호(Lee, Jaiho) | 201A (2F)

09:00 An Approach to Estimating the Frequency of Forest Fire-induced Loss of Offsite Power using Cellular Automata with GIS Data
Kyungho Jin, Yong Hun Jung, and Dong San Kim(KAERI)

09:20 Uncertainty Analysis on the Effect of Combustion Products in Fire Modeling Analysis
Yongjae Kim, Seokhyeon Han, Doohee Lee, Samwon Chung, and Seungjun Oh(PNE)

09:40 A Review of ASME/ANS PRA Standard 2022 with Focus on Fire PRA Requirements
Yong Hun Jung, Kyungho Jin, and Dae Il Kang(KAERI)

10:00 Quantitative Analysis of Multiple Spurious Operation Scenarios for the Electrical Power System of Domestic Nuclear Power Plant
Dae Il Kang and Yong Hun Jung(KAERI)

10:20 Technical Review of the 55th Multiple Spurious Operation (MSO) Generic Scenario in Appendix G of the NEI 00-01 Guidance
Jaiho Lee and Young Seob Moon(KINS)

10:40 Building a Testbed to Obtain Data for Intelligent Fault Diagnosis of Pump in Nuclear Power Plant
Jihyun Jun, DaeSik Jang, Taeyoung Ko, and JeongHan Lee(KAERI)

11:00 Application of Emergency Boration System for ATWS Mitigation of Innovative Small Modular Reactor
Min Seok Lee, Seong Min Hong, and Hyoung Kyoun Ahn(KEPCO E&C)

11:20 Study on Single CEA Withdralwal Event in a Typical SMR using 3-Dimensional Core Simulation Methodology
Yeonguk Jo, Jinwoo Park, and Sungju Cho(KEPCO NF)

11:40 Development of GOD MASTER Program for Accident Dose Effect in DBA/BDBA
Seung–Chan LEE(KHNP)

12:00 Study of LOCA Shine Dose Evaluation Methodology by NAME_LSC Code
Seung–Chan LEE(KHNP)

6F
5.9(Thu) – 5.10(Fri)

중대사고 (Severe Accident) – POSTER

| 홍성완(Hong, Seong–Wan), 서미로(Seo, Mi Ro) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO6F01 Preliminary Validation Analysis of Severe Accident Progression on LOCA without Safety Injection of Real Power Plant for CINEMA Computer Code
Rae–Joon Park, Jaehyun Ham, Dong Gun Son, Sangho Kim, and Jaehoon Jung(KAERI)

PO6F02 Preliminary Analysis on Spreading Distance and Time of Spill Molten Salt using Simple Analytical Model
Rae–Joon Park, Eun Hyun Ryu, Hyoung Tae Kim, and Sung Il Kim(KAERI)

PO6F03 Estimation of In-Containment Source Terms under Severe Accident for OPR1000 Plant with MAAP5 Code
Byung Jo Kim and Sun Hong Yoon(KEPCO E&C)

PO6F04 Analysis of the Dispersion Distance of Molten Salt in Accident Condition
Sung Il Kim, Hyoung Tae Kim, Hwan Yeol Kim, Rae Joon Park, and Eun Hyun Ryu(KAERI)

PO6F05 MELCOR Analysis of TOSQAN ISP-47 Experiment
Hyoung Tae Kim and Jongtae Kim(KAERI)

PO6F06 Experimental Study on Heat Transfer Characteristics of Downward Facing Inclined Heating Channel
Seokgyu Jeong, Jun–young Kang, Byeonghee Lee, Ki Han Park, Chang Wan Kang, and Seong Ho Hong(KAERI)

PO6F07 Analysis on the Effect of the In-Vessel Coolant Injection in a Severe Accident of a Small Modular Reactor with a Metal Containment Vessel
Sang Ho Kim, Jaehyun Ham, and Donggun Son(KAERI)

PO6F08 A Parametric Concept Model of Ex-Vessel Steam Explosion in the SAFARI Project
Jubin Kim, Eungsoo Kim, and Hyunsun Park(SNU), Sai Raja Gopal Vadlamudi(Helmholtz–Zentrum Dresden–Rossendorf)

PO6F09 Preliminary Severe Accident Analysis of INCV-LOCA in I-SMR Using CINEMA Code
Jaehyun Ham, Sang Ho Kim, and Seokgyu Jeong(KAERI)

PO6F10 Concept of Corium Coolability Module for Debris Bed Formation during Severe Accidents
Minchan Kwon, Seokwon Whang, Eung Soo Kim, and Hyun Sun Park(SNU)

PO6F11 Calculation of Natural Convection Phenomena in Core Catcher System
Byeonghee Lee and Seokgyu Jeong(KAERI)

PO6F12 Effect of Thermal-hydraulic Coupling on the Fission Products Behavior by Using SIRIUS Modules in CINEMA Code
Yongjun Lee, Chang Hyun Song, Jinho Song, and Sung Joong Kim(HYU)

PO6F13 Performance Evaluation of Conceptual Hybrid Safety Injection Tank under SBO Accident by Using MELCOR Code
Se Hee Kwon, Won Jun Choi, Chang Hyun Song, Jin Ho Song, and Sung Joong Kim(HYU)

PO6F14 Current Status of Fission Products Behavior Analysis Code Development in Salt Spill Accident Condition
Sung Il Kim, Hyung Seok Kang, Jae Hyun Ham, Donggun Son, and Kwang Soon Ha(KAERI)

PO6F15 Feasibility Analysis of Cooling Performance of Passive Containment Cooling System Applicable for OPR1000
Geunyoung Byeon, Hyo Jun An, Chang Hyun Song, JinHo Song, and Sung Joong Kim(HYU)

PO6F16 Preliminary Analysis for Applicability of Physics Informed Neural Networks (PINNs) on Water Flow Analysis in Tanks
Cheolwoong Kim, Joon Young Bae, Chang Hyun Song, Jinho Song, and Sung Joong Kim(HYU), Joongoo Jeon(Jeonbuk National Univ.)

PO6F17 Modeling of Slowly Leaking Hydrogen Buoyant Jets in Open Space
Kukhee Lim and Yong Jin Cho(KINS), Jongtae Kim(KAERI)

PO6F18 Phenomena Identification for Accident Condition of Molten Salt Reactor
Byeonghee Lee and Sung-Il Kim(KAERI)

PO6F19 Towards Robust 3D Perception in Emergency Condition: An Analysis on Commercial Depth Sensors
Geonhwa Son, Sangin Lee, Taejoo Kim, and Yukyung Choi(Sejong Univ.)

PO6F20 Development of a Robust Machine Learning Model for Detecting Major Events during Severe Accidents in Nuclear Power Plant
Yeonha Lee and Jeong Ik Lee(KAIST), Kyusang Song(KHNP), Sung Joong Kim(HYU)

6G PSA / 안전현안 (PSA / Safety Issues) – POSTER

5.9(Thu) – 5.10(Fri)

| 김동역(Kim, Dong Yuk), 김상진(Kim, Sang Jin), 김보경(Kim, Bogyung) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO6G01 Review of Existing Cases and IAEA Documents for Combination of External Hazards
JEONGGON HA and MINKYU KIM(KAERI)

PO6G02 Thermal-hydraulic Analysis of Prevention of Core Damage in APR1400 using MAAP5 Simulation Automation Algorithm based on PSA Accident Sequences
Taehyub Hong(KHNP CRI)

PO6G03 Accident Sequence Analysis for Beyond Design Basis External Hazards
Seunghyun Jang and Daegi Hahm(KAERI)

PO6G04 The Final Seismic PSA for Post-Irradiation Examination Facility (PIEF)
Seung-Cheol Jang, Sang-Hoon Han, and Yoon-Hwan Lee(KAERI)

PO6G05 Severe Accident Risk Assessment for SMART-100
Sein HONG and Jaehyun CHO(CAU), Jinhee PARK(KAERI)

PO6G06 Various Spatial Grid Settings for Effective Offsite Consequence Analysis
Seunghwan Kim and Sung-yeop Kim(KAERI)

PO6G07 Reviewing the Application Methods of New Requirements Related to DSA for Continued Operation of PHWRs
Bong-Jin Ko, Dong-Sik Jin, Jae-Geun Lee, and Hyun-Wook Kang(NET)

PO6G08 Safety Categorization and Design Consideration for Nonreactor Nuclear Facilities
Woojin Jo and Jonghui Han(KAERI)

PO6G09 Evaluation of Standoff Distances for NPP-Linked Hydrogen Production Facilities through Analysis of Hydrogen Flammable Mass and Explosion Overpressure
Younghun Shin, Kiljung Kim, and Kagsu Jang(KEPCO E&C)

PO6G10 Comparative Analysis of Pressurized Accidents in Accident Management Program for Innovative Small Modular Reactor
Hyoung Kyoun Ahn, Min Seok Lee, and Seok Jung Park(KEPCO E&C)

PO6G11 Implementation of Continuous Diagnosis for Secondary Systems in Operating Nuclear Power Plants
DongYun Cho(UST), You–Rak Choi and Tae–Jin Park(KAERI)

PO6G12 Mitigation of Freezing in Molten Salt Reactors Using Phase Change Materials
Hoon Chae and Eung Soo Kim(SNU), Hong Sik Lim and Nam–il Tak(KAERI)

PO6G13 Detection of Containment Building Defects Through Moisture-Induced Temperature Differences by Infrared Thermography
Ha Rin Jeong, Joo Hee Park, Young Jun Lee, and Joo Hyung Kim(Inha Univ.)

PO6G14 Classification of Radioactive Materials Release Timing for Emergency Preparedness
Yunho Kim and Jaehyun Cho(CAU), Wasin Vechgama(UST|KAERI)

제7분과

방사선 방호 (Radiation Protection)

7A 방사선 방호 (Radiation Protection)

5.9(Thu)

| 신창호(Shin, Changho), 유재룡(Yoo, Jaeryong) | 303B (3F)

09:00 McSEE Beta: A Visual-aided Monte Carlo Simulation Code for External Exposure
Hyeonil Kim, Bangho Shin, Suhyeon Kim, Sungho Moon, Gahee Son, Jaehyo Kim, and Chan Hyeong Kim(HYU), Chansoo Choi(University of Florida)

09:15 Radiation Exploration Algorithm Using the Combination of Spatial and Radiation Data for Radiation Distribution
Woosung Cho and Janghee Lee(POSTECH), Minjae Lee and Songhyun Kim(SierraBASE Co. Ltd.)

09:30 Monte Carlo Radiation Simulation of a Radiological Accident in the Batan Indah Case
Nurhadiansyah and Juyoul Kim(KINGS)

09:45 Algorithm for Airborne Radiation Monitoring and Environmental Radiation Survey in Fukushima
Eunjoong Lee, Young-Yong Ji, Wanook Ji, Sungyeop Joung, and Byoungil Jeon(KAERI)

10:00 In situ Radioactivity Measurement at Underwater Sediment at Fukushima Prefecture
Wanook Ji, Eunjoog Lee, Sungyeop Joung, and Young-Yong Ji(KAERI)

10:15 Study on Radon Concentration inside Building Materials by Experiment and Simulation using Gamma-ray Spectrometry: Influence of the Moisture and Porosity
Seyoung Yu, Yeongjun Jo, and Sang Hoon Lee(Kyungpook National Univ.), Seongjin Maeng(KHNP)

10:30 Coffee Break

10:50 Evaluation of Tritium Concentration in the Atmosphere and Precipitation
Insuk Song and Hyun Chul Lee(Pusan National Univ.)

11:05 Application Status of Operational Intervention Levels for Prompt Decision-Making of Public Protective Actions in Nuclear or Radiological Emergencies
Wi-Ho Ha, Chanki Lee, Sooin Shin, Ilje Cho, and Hyun Ki Kim(KAERI)

11:20 Development and Verification of Calculation Tool of Operational Intervention Levels for HANARO Research Reactor
Sooin Shin(HYU|KAERI), Wi-Ho Ha, Chanki Lee, and Hyun Ki Kim(KAERI), Yoonsun Chung(HYU)

11:35 Local Dose Distribution in Cell Nucleus from Gold Nanoparticles with Radioisotopes
Taewan Kim, Changmin Lee, Yoonho Na, Kyuri Kim, and Sung-Joon Ye(SNU)

7B 방사선 방호 (Radiation Protection) – POSTER

5.9(Thu) – 5.10(Fri)

| 최승진(Choi, Seung Jin), 김문오(Kim, Moonoh) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

P07B01 Assessment of Radiation Source Term in Reactor Coolant System during Power Operation and Overhaul for the Dose Assessment for Radiation Workers
Junhyeok Kim, Sunhong Yoon, and Jinhyoung Bai(KEPCO E&C), Jeongin Kim(KHNP RHI), Gilyong Cha(RADCORE)

P07B02 Selection of Spatial Interpolation Method for Dose Deriving Maps in Worker Dose Assessment
Dae Ho Lee, Ji Woo Kim, Ju Young Kim, and Kwang Pyo Kim(KHU)

P07B03 Radiation Safety Assessment for Decontamination and Reuse of RI Utilization Facilities Using the RESRAD-BUILD Code
Ji Hyeong Lee, Chul Heo, and Seungmin Lee(KINAC)

P07B04 Study of Dose limits for Crews on Nuclear-Powered Ship from Risk Comparison between Radiation and Carcinogens
Kyung Rae Yook and Jeiong Ik Lee(KAIST)

P07B05 Dose Evaluation According to Depth Variation during MVCT Imaging
Min–Ho Choi(Pusan National Univ. Hospital), Yeong–rok Kang and Hyo–jin Kim(DIRAMS),
Dong–yeon Lee(Dong–Eui Univ.)

P07B06 Improvement of DNN Model Performance for External Exposure Dose Estimate
Yoomi Choi, Hyoungtaek Kim, Sora Kim, Minchae Kim, Byung–Il Min, and Kyungsuk Suh(KAERI)

P07B07 Validation of Alanine Dosimeter Measurement Using Electron Paramagnetic Resonance Spectroscopy
HyoJin Kim, Yeong–Rok Kang, Jeung Kee Kim, Chang Geun Lee, Yong UK Kye, and Wol–Soon Jo(DIRAMS),
Dong–Yeon Lee(Dong–Eui University)

P07B08 Evaluation of Personal Dosimeter Response for Organ Dose of Korean Radiation Workers
Byung Min Lee, Jae Seok Kim, and Min Seok Park(KIRAMS), Ho Yeon Jeong(Yonsei Cancer Center)

P07B09 Trend of Leak Rate of HANARO Reactor Building after Seismic Reinforcement
youngsan Choi, minwoo Lee, kyungchul Kim, soonkyu Hong, and minsu Kim(KAERI)

P07B10 Optimization of Shielding Material Thickness, Composition for 14.1 MeV D-T Fusion Neutron Shielding Facility
Beomkyu Kwon, Illhyuk Han, Jaehyo Kim, and Geehyun Kim(SNU)

P07B11 In Vitro Gastric and Intestinal Bioaccessibility of Cesium from Ingested Contaminated Concrete Waste
Nurul Syiffa Mahzan, Nur Shahidah Abdul Rashid, Kyungwon Kim, and Wooyong Um(POSTECH)

P07B12 Sensitivity Analysis of Primary Contaminated Zone Parameters after Landfilling By-product Generated from Coal-fired Power Plants
Ji Hyeon Lim, Seong Yeon Lee, Seung Beom Yoo, and Kwang Pyo Kim(KHU)

P07B13 A Comparision of Efficiency of Moisture Absorbents to Find More Suitable Material for Anlaysis of Tritium in the Air
Jeong–Min Park and Yi–Sub Min(KAERI)

P07B14 Deep Learning-based Trapezoidal Pulse Height Estimation Methods for Pile-up Correction in High Radiation Environments
Hyunbin Yun, Wonku Kim, Sangho Lee, Deokseong Kim, and Gyusung Cho(KAIST)

P07B15 Feasibility Study on Development of Underwater Beta & Gamma Measurement System
SuJung Min, SangBum Hong, and BumKyoung Seo(KAERI)

P07B16 International Comparison of Pre-distribution Systems for the Potassium Iodide (KI) Against Radiological Emergency
Se Jong Lee and Geum Cheol Jeong(KIRAMS)

P07B17 Development of a Program to Assess the Correlation Between Environmental Radiation according to Diverse Geographical Regions and Elevations
Chae Hyun Lee, Han Young Joo, Jeong Yeon Lee, Sang Yun Lee, and Joo Hyun Moon(Dankook Univ.), Si Hyun Lee(GIST)

P07B18 Comparison of the Diagnostic Value between Serum Uric Acid Level and Triglyceride/High-Density Lipoprotein Cholesterol Ratio in Nuclear Power Plant Workers with Metabolic Syndrome
Sook Hee Sung, Ji Young Moon, and Seung Jin Choi(KHNP)

제8분과 방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A 5.9(Thu) 방사선 이용 및 기기1 (Radiation Utilization and Instrumentation 1)

| 이필수(Lee, Pilsoo), 박병건(Park, Byung-Gun) | 400 (4F)

09:00 Multi-Pinhole X-ray Fluorescence Imaging System on Pixelated Detector: A Monte Carlo Study
Taeyun Kim, Mingi Eom, and Sung-Joon Ye(SNU)

09:20 Energy and Time Resolution of CeBr3 Scintillators Using Digital Detection Methods
Young-Su Jeong, Bo-Young Han, Jinyu Kim, jaegi Lee, and Gwang-Min Sum(KAERI), Youngmin Kim(Daegu Catholic Univ.)

09:40 Design of Radiation-Hardened Self-Reset Preamplifier for Nuclear Fission Detectors
Minuk Seung, Woo-Young Choi, and Inyong Kwon(Yonsei Univ.), Jong-Gyun Choi(KAERI)

10:00 Optimization of Pulse Shape Discrimination for Enhanced Neutron Depth Profiling in Solid State Electrolytes
HwiJoon Jeong and KyungTaek Lim(Sejong Univ.), JinHwan Kim and ByungGun Park(KAERI)

10:20 Computational Analysis of Ex-core Neutron Facility Beam in HANARO for TEPC Dosimetry
Junyoung Lee, Sukwon Yoon, and Sung-Joon Ye(SNU)

10:40 Coffee Break

11:00 Mössbauer and Positron Annihilation Spectroscopy for Red Pottery Bodies from Neolithic and Bronze Age in South Korea
Young Rang Uhm, Hyunkyung Choi, Young-Su Jeong, and Jaegi Lee(KAERI), Min-Su Han(NUCH)

11:20 Magnetic Resonance Spectroscopy for N+ Beam-irradiated ZnAlO
JunKue Park, Yu-Mi Kim, GiWan Jeon, Sunmog Yeo, Jaekwon Suk, JunMok Ha, and InMoK Yang(KAERI)

11:40 Interpretation using Multi-Physics Simulation of Rechargeable Battery Electrolyte Gelation Process by Electron Beam Irradiation
Woojien Lee and Kunok Chang(KHU), Jaehyeon Kim and Taeshik Earmme(Hongik Univ.)

8B 5.9(Thu) 방사선 이용 및 기기2 (Radiation Utilization and Instrumentation 2)

| 최강혁(Choi, Kanghyuk), 한보영(Han, Bo-Young) | 400 (4F)

13:30 Separation of Lutetium from Ytterbium for Carrier-free Lu-177 Large-Scale Production Processes
Kangmin Lee and Kanghyuk Choi(KAERI), Hyojoon Kim(DongA Univ.)

13:50 Ultrasound-mediated Gold Nanoparticles Delivery in Human Breast Cancer Cells
Jiwon Kim, Rodrigo Hernandez Millares, Chaewon Bae, and Sung-Joon YE(SNU)

14:10 Raman Spectroscopy and Raman Imaging in the Characterization of Radiation-Induced Biomarkers in MDA-MB-231 Breast Cancer Cells
Seok-Jin Kim, Rodrigo Hernandez Millares, Kiok Han, and Sung-Joon Ye(SNU)

8C
5.9(Thu) – 5.10(Fri)

방사선 이용 및 기기 (Radiation Utilization and Instrumentation) – POSTER

| 김한수(Kim, Han Soo), 문명국(Moon, Myung Kook) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO8C01 Optical-Lens Coupled X-ray Micro-Tomosynthesis System Coupled for Visualizing Micro-Crack of LLZAO Electrolyte
Heon Yong Jeong, Ji Chan Kim, and Sung Oh Cho(KAIST), Yang Jeong Park(MIT)

PO8C02 Feasibility of Induction Heating to Evaluate the Thermal Stability of Graphite Target
Jae Young Jeong, Jae Chang Kim, Chan Jung Kim, Junehyung Bernaski, Gyuhyeon Sim, and Yong Kyun Kim(HYU)

PO8C03 Deep Learning-based Beam Profile Restoration for Real-time Proton Beam Monitoring
Gwangil Jung, Young Seok Hwang, Chan Young Lee, Jun Mok Ha, Yu Mi Kim, and Eun Joo Oh(KAERI), Jimin Lee(UNIST)

PO8C04 Development of a Prototype of Radiation-Spatial Information Data Linkage Analysis Integrated System
Sungyeop Joung, Young–Yong Ji, Eunjoong Lee, and Wanook Ji(KAERI)

PO8C05 Characterization of 30 MeV Proton Cyclotron-Based Neutron Source by Utilizing Bonner Sphere Spectrometer
Gyuhaeng Jo, Soobin Lim, and Kyoung–Jae Chung(SNU), Bong–Ki Jung(KAERI)

PO8C06 Preliminary Study on the Machine Learning Models to Predict Radiation Source Directions
Jae Wook Kim, Min Beom Heo, Hee Kwon Ku, and Sang Hun Shin(FNC Tech.), Hyun Jin Boo and Byung Gi Park(SoonChunHyang Univ.)

PO8C07 Feasibility Study of Fiber-Optic Radiation Sensor based on Cherenkov Radiation
Seunghyeon Kim, Sangjun Lee, Jae Hyung Park, Jinhong Kim, Seokhyeon Jegal, and Siwon Song(CAU), Bongsoo Lee(KHNP RHI)

PO8C08 Scintillation Properties of Flexible Scintillator Composed of PMMA and Nanocrystals
J.M. Park, C.G. Kang, S.J. Kim, J.H. Ha, H.S. Kim, Y.S. Kim, and Y.S. Lee(KAERI)

PO8C09 Assessment of Self-Absorption Correction Factors for Cs-137 662 keV Gamma-ray Measurements in Magnetite and Ordinary Concrete Samples
Hyoungmun Kwon(KAERI), Hang–Goo Lee(Jeju National Univ.)

PO8C10 Performance Testing on the Safeguards Instruments for CANDU Spent Nuclear Fuel Verification
Woojin Kim, Sunyoung CHANG, Ji–Hwan Cha, Hojik Kim, and Sung–woo Kwak(KINAC)

PO8C11 Simulation of Low-Energy X-Ray Tubes Emitted by Carbon Nanotube Field Emitter
MuHyeop Cha, GyuHaeng Jo, SooBin Lim, and KyoungJae Chung(SNU), SeHoon Gihm, HyeonGu Cho, and HyunJin Kim(aweXomeRay)

PO8C12 Development of NTD-Ge Sensor in Low-temperature Bolometers
Bo–Young Han and Jinyu Kim(KAERI)

PO8C13 The Effect of Space Radiation on MOSFET
Habin Kim and Inyong Kwon(Yonsei Univ.)

PO8C14 Development of Automatic Calibration System for KOMAC
Yi–Sub Min and Jeong–Min Park(KAERI)

PO8C15 Fluence Monitor Design for Irradiation Test at CT and IP hole of HANARO
Junesic Park, Seong Woo Yang, Sung Jae Park, Kee Nam Choo, Yoon Taeg Shin, Chul Yong Lee, and Ye Eun Na(KAERI)

PO8C16 Luminescent Properties of Nanoparticle-Polymer Composite Films
Su Jin Kim, Jeong Min Park, Yongsu Lee, Han Soo Kim, Young Soo Kim, Jang Ho Ha, and Chang Goo Kang(KAERI)

PO8C17 Fabrication and Characterization of Si PIN Diode with Al_2O_3 Anti-Reflection Layer for Radiation Detectors
Chang Goo Kang, Jeong Min Park, Su Jin Kim, Yongsu Lee, Han Soo Kim, Young Soo Kim, and Jang Ho Ha(KAERI)

PO8C18 Feasibility Study of Development a Light Guide Using an SLA Based 3D Printer
Seung Beom Goh, Han Cheol Yang, Young Ho Roh, Ju Hyung Kim, Hyeong Gu Kang, and Yong Kyun Kim(HYU)

PO8C19 Field-effect Transistor with Electret Layer for Radiation Sensor Applications
Yongsu Lee, Jeong Min Park, Su Jin Kim, Han Soo Kim, Young Soo Kim, Jang Ho Ha, and Chang Goo Kang(KAERI)

PO8C20 Signal Counting Properties according to Pulse Duration for the High-Dose Radiation Environment
Seonkwang Yoon, Chaehun Lee, Seok Jun Seo, and Seong-Kyu Ahn(KAERI)

PO8C21 Feasibility Study of Lu-177 Production in CANDU Reactor Based on MCNP Simulation
Kwangho Ju, Dong-Hwan Park, and Jin-Ho Jeong(KHNP)

PO8C22 Study on the Optimal Irradiation Location for Radioisotope Production Using Heavy Water Reactors
Tae kyu Ham(KHNP)

PO8C23 Measurement of Proton-Induced Nuclear Reactions on Natural Titanium in the High Energy Protons
Myung-Hwan Jung, Won-Je Cho, and Jun Kue Park(KAERI)

PO8C24 Measurement of Neutron Energy from ^{252}Cf Using the Inverse Time-of-Flight Technique with a VME-based DAQ System
DalHo Moon, SungChul Yang, and TaeYung Song(KAERI)

PO8C25 Nitrogen-Ion Irradiation Enabling Fast Operation of High-Capacity Lithium-Ion Battery Anodes
Jaewoo Lee, Seunguk Cheon, and Sung Oh Cho(KAIST)

PO8C26 Effective Dispersion of BNNT through Electron Beam Induced Graft Polymerization
Dabin Cheon, Jihyun Kim, Junseop Shin, and Seung Hwa Yoo(Jeonbuk National Univ.)

PO8C27 Improvement in the Safety and Performance of Polyethylene/Montmorillonite Composite Separator for Lithium-Ion Batteries by Silane Surface Treatment and Electron Irradiation
Sung Woo Kim and Sung Oh Cho(KAIST)

제9분과

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

9A
5.9(Thu)

양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion)

| 김한성(Kim, Han–Sung), 김석권(Kim, Suk–Kwon) | 401A (4F)

09:00 Development and Preliminary Results of 30 MeV Cyclotron-based Neutron Source at KAERI
Dong Won LEE, Bongki Jung, Kihyun Lee, and Pilsoo Lee(KAERI)

09:20 Controller Upgrade for High Voltage Converter Modulator at KOMAC
Hae–Seong Jeong, Seong–Gu Kim, Kyung–Hyun Kim, Won–Hyeok Jung, Han–Sung Kim, and Hyeok Jung Kwon(KAERI)

09:40 Current Status and Plans of KAHIF for Nuclear Fusion/Fission Material Research
Seunghyun Lee, Dong Won Lee, Dae–sik Chang, Sangbeen Lee, Kihyun Lee, Sung–Ryul Huh, and Youngbeom Chun(KAERI)

10:00 Predictive Modeling of Radioisotope Production in Intermediate Energy Proton Irradiation Using PHITS-DCHAIN
Jinho Ryu(KAIST|KINAC), Sung–Woo Kwak(KINAC), Ho Jin Ryu(KAIST)

10:20 Development of GPU Accelerated Nuclear Fragmentation Model for Dose Calculation in Heavy Ion Therapy
Chang–Min Lee, Taewan Kim, Yoonho Na, Kyuri Kim, and Sung–Joon Ye(SNU)

10:40 Study on Enhancing Experimental Procedure for Assessing ARAA's Hydrogen Permeation Properties
Seok–Kwon Son, Yunsong Jeong, Soon Chang Park, Yi–Hyun Park, Hyoseong Gwon, Youngmin Lee, and Mu–Young Ahn(KFE)

9B
5.9(Thu) – 5.10(Fri)

양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion) – POSTER

| 이동원(Lee, Dong Won), 송영기(Song, Young–Gi) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO9B01 Beam Diagnostic at KOMAC Beam Test Stand (BTS)
SeokHo Moon, Dong–Hwan Kim, Seung–Hyun Lee, Han–Sung Kim, and Hyeok–Jung Kwon(KAERI), Emre Cosgun(UNIST)

PO9B02 Interlock Implementation of Resonance Frequency Control Mode for Resonance Control Cooling System at KOMAC
Kyunghyun Kim, Hyeokjung Kwon, Hansung Kim, Haeseong Jeong, Seonggu Kim, Wonhyeok Jung, and Sangpil Yun(KAERI)

PO9B03 Choke Flange Type Waveguide DC Break for Microwave Ion Source
Han–Sung Kim, Yong–Sub Cho, and Hyeok–Jung Kwon(KAERI)

PO9B04 Conceptual Design of the Operation Logbook System at KOMAC
Sung–Yun Cho, Jae–Ha Kim, Young–Gi Song, and Hyeok–Jung Kwon(KAERI)

PO9B05 Development of the Modulator Auto Start at KOMAC
Won–Hyeok Jung, HaeSeong Jeong, Seong–Gu Kim, Kyung–Hyun Kim, Han–Sung Kim, and Hyeok–Jung Kwon(KAERI)

PO9B06 Construction of Integrated Software Development Environment for Upgrade of Commercial Digitizer System
Young–Gi Song, Jae–Ha Kim, Sung–Yun Cho, and Hyeok–Jung Kwon(KAERI)

PO9B07 Preliminary Study for Beam Transport Line Upgrade in KAHIF
Sangbeen Lee, Seunghyun Lee, Kihyun Lee, Dae–Sik Chang, Sung–Ryul Huh, and Dong Won Lee(KAERI)

PO9B08 Preliminary Characterization of Dispersed Beams at KOMAC
Seunghyun Lee, Hyeok–Jung Kwon, Han–Sung Kim, and Sang–Pil Yun(KAERI)

PO9B09 Design of Slit Scanner for 4 D Phase Space Distribution Measurement
Seunghyun Lee, Hyeok–Jung Kwon, and Han–Sung Kim(KAERI)

PO9B10 Analysis of Physical Damage of Hydrogen Plasma Discharge on Microwave Window for Microwave Ion Source
Dae–Il Kim, Han–Sung Kim, and Sang–Hun Lee(KAERI)

PO9B11 Study on the Beam Current Measurement Based on the Beam Position Monitor
Hyeok–Jung Kwon, Han–Sung Kim, Seunghyun Lee, Sang–Pil Yun, and Young–Gi Song(KAERI)

PO9B12 Proton Beam Induced SRAM SEU Measurement Depending on the Temperature
Hyeok–Jung Kwon, Sang–Pil Yun, Kye–Ryung Kim, Han–Sung Kim, Seunghyun Lee, and Young–Gi Song(KAERI), Woo–Je Han and Kyung–Hee Kim(KTL), Ho–Sang Yoon and Hong–Joon Park(HCT)

PO9B13 Optical Design of the Camera Based Beam Viewer for 100 MeV Proton Beam
Sang–Pil Yun, Young–Gi Song, Seung–Hyun Lee, Han–Sung Kim, and Hyeok–Jung Kwon(KAERI)

PO9B14 Kinetic Analysis of Electron Transport in Hot Cathode Penning Ionization Gauge Sources
Jaeyoung Choi, Y. S. Hwang, and Kyoung–Jae Chung(SNU), June Young Kim(Korea Univ.)

PO9B15 Development of Shield Design and Fabrication Procedure Considering Manufacturability for Test Blanket Module
Jae Sung Yoon, Seong Dae Park, Suk–Kwon Kim, and Dong Won Lee(KAERI), Hyoseong Gwon(KFE)

PO9B16 Beam Characteristics Measurements of Neutral Beam Injector in Versatile Experiment Spherical Torus by Using Commercial Smartphone Camera
Yunho Jung, Soo–Ghee Oh, JongYoon Park, and Y.S. Hwang(SNU)

PO9B17 Feasibility and Design of Beam Emission Spectroscopy System in VEST
Wonseok Lee, TaeHee Eom, Yunho Jung, Wonik Jung, Soo–Ghee Oh, and Y.S. Hwang(SNU), C. Sung(KAIST)

PO9B18 Entrance Key Consideration of RCC-MRx for TBM-shield
SeongDae Park, Suk–Kwon Kim, Dong Won Lee, and Jae–Sung Yoon(KAERI), Hyoseong Gwon(KFE)

PO9B19 In-vessel LOCA Crack Size Sensitivity Analysis for HCCR-TBS
HYUNG GON JIN, Seong Dae Park, Suk–Kwon Kim, Jae–Sung Yoon, Dong Won Lee, and Chang Wook Shin(KAERI), Mu–Young Ahn(KFE)

PO9B20 Progress in the Performance Test of Key Components in the Helium Cooling System for Nuclear Fusion Reactors
Chang Wook Shin, Suk–Kwon Kim, Dae–Sik Chang, HyungGon Jin, and DongWon Lee(KAERI), Myungho Kim, Seok–Kwon Son, Youngmin Lee, and Mu–Young Ahn(KFE)

PO9B21 Current Status and Future Plan for Control System of Two-Region Arc Plasma (TRAP) Ion Source
Dae–sik Chang, Tae–Seong Kim, Seung Ho Jeong, Kihyun Lee, and Jeong Tae Jin(KAERI)

PO9B22 Time-resolved Measurements of Negative Ion Density in a Negative Deuterium Ion Source System using Multi-pulsed Plasma Sources
Sung–Ryul Huh, Kihyun Lee, Bong–Ki Jung, Jong–Gab Jo, Seung Ho Jeong, Tae–Seong Kim, and Dae–Sik Chang(KAERI)

PO9B23 Effect of Magnetic Field Configuration on the Plasma Parameters of Cylindrical Indutively Coupled Plasma
Jiseong Nam, Geunwoo Go, and Kyoung–Jae Chung(SNU), Jimo Lee(SAMSUNG ELECTRONICS)

PO9B24 Development of 8-stage Gas Discharge Tube-based Compact Marx Generator as High Voltage Pulse Generator
YeongHwan Choi, Muhyeop Cha, and Kyoung–Jae Chung(SNU),
Haeok Kwon, Haejin Kwon, and Donghee Son(Hanwha Aerospace)

PO9B25 Development of Transformer-based High-voltage Trigger Generator for Pulsed Power Experiments
YeongHwan Choi, Muhyeop Cha, and Kyoung–Jae Chung(SNU),
Haeok Kwon, Haejin Kwon, and Donghee Son(Hanwha Aerospace)

PO9B26 Low Inductance Design for SNU X-pinch
Hsiao–Chien Chi, YeongHwan Choi, and Kyoung–Jae Chung(SNU)

PO9B27 Shadowgraph Imaging System Using an Intensified CCD for Underwater Electrical Wire Explosion
Hsiao–Chien Chi and Kyoung–Jae Chung(SNU)

제10분과 원전 건설 및 운영 기술 (Nuclear Power Plant Construction and Operation Technology)

10A 구조해석 (Structural Analysis)

5.9(Thu) | 김민규(Kim, Minkyu), 최진복(Choi, Jinbok) | 401B (4F)

09:00 A Review of Strain-Based Permeability Approach for Leakage Rate Estimation
Yousang Lee and Hong-Gun Park(SNU)

09:20 Assessment of Structural Integrity of Concrete Biological Shield Wall Considering Radiation-Induced Volumetric Swelling
Jinbok Choi and Daegi Hahm(KAERI)

09:40 Wind-borne Missile Fragility Assessment for Nuclear Power Plant Equipment to External Hazard due to High-wind
Jae-Wook Jung and Daegi Hahm(KAERI)

10:00 Study on the High Wind Fragility Assessment for 154kV Transmission Tower using LHS
Gibae Kim, Gilyoung Chung, Youngsun Choun, and Soohyuk Chang(CENITS Corp.)

10:20 Sensitivity Analysis of the Ultimate Pressure Capacity of Containment Buildings to Variability in Material Properties and Thermal Loads
Hyung-Kui Park, Young-Sun Choun, and Soohyuk Chang(CENITS Corp.)

10:40 Coffee Break

11:00 Numerical Analysis of Concrete Behavior under Water Pressure using a Phase-field Fracture Model
Donghwi Eum, Se-Yun Kim, and Tong-Seok Han(Yonsei Univ.)

11:20 Preliminary Study in Performance Evaluation of RC Shear Wall with Concrete Voids
Yongmoon Hwang, Hye-Min Shin, Hyeon-Keun Yang, and Jae-Wook Jung(KAERI)

11:40 Effect of Concrete Microstructure Using Computed Tomography Image based Analysis
Hyeongtae Kim and Kyoungsoo Park(Yonsei Univ.)

12:00 Assessing Grid Resilience for Optimal Integration of Renewable Energy Sources in Kenya
Kapis Goga Ondiegi and Choong-koo Chang(KINGS)

12:20 Generating the 100,000-year Frequency Wildfire Hazard Map Near Kori Nuclear Power Plant
Kyungmin Kim, Dongchang Kim, Seokhyun Hong, and Seunghyun Eem(Kyungpook National Univ.)

10B 내진해석 (Seismic Analysis)

5.9(Thu) | 구경회(Koo, Gyeong-Hoi), 곽신영(Kwag, Shinyoung) | 401B (4F)

13:30 Seismic Fragility Variations of Twin Units Based on the Separation Distance
Seunghyun Eem(Kyungpook National Univ.), Shinyoung Kwag(Hanbat National University), In-Kil Choi and Jin Hee Park(KAERI)

13:50 Auto-Generation Technique of Near-Far Field Soil and Effective Seismic Load for Domain Reduction Method
Jae–Sung Lim, Sung–Min Lee, Gyu–Sung Woo, and Choon–Gyo Seo(KEPCO E&C)

14:10 Seismic Capacity Re-evaluation of Age Degraded NPP Equipment using Bayesian Updating
Eujeong Choi and Daegi Hahm(KAERI)

14:30 Near-real-time Seismic Damage Identification Using Graph Attention Network
Minkyu Kim(KAERI), Junho Song(SNU), Chul–Woo Kim(Kyoto Univ.)

14:50 Generation of Earthquake Input Ground Motions for Seismic Risk Evaluation
Hae Yeon Ji and Jung Han Kim(Pusan National Univ.)

15:10 Evaluation of Weak Area in Reinforcement Concrete Walls of Containment Building by Over-pressure Analysis
Hye–Min Shin and Tae–Hyun Kwon(KAERI)

15:30 Design of Cylindrical Wall Considering the Increment of Strain of Reinforcing Bar Considering the Shape Under Seismic Loading
HYEON KEUN YANG(KAERI)

10C 수화학 (Water Chemistry)

5.10(Fri) | 심희상(Shim, Hee Sang), 권혁철(Kwon, Hyuk Chul) | 400 (4F)

09:00 A New Inhibition Mechanism of SA106 Gr.B Carbon Steel Corrosion by Nitrite in Simulated Closed Cooling Water
Do Haeng Hur, Jeoh Han, Soon–Hyeok Jeon, and Hee–Sang Shim(KAERI), Hyuk–Chul Kwon(KHNP)

09:20 The Study about Characterization of Corrosion Products on Surface Materials of Secondary System in Operation Environments at NPPs
Hyuk–Chul Kwon, Seung–Ho Lee, Cho–Rong Kim, Da–Seul Ham, Yong–Sang Cho, and Kyu–Min Song(KHNP), Hee–Sang Shim, Soon–HyeoK Jeon, and Seong–Jun Ha(KAERI)

09:40 Effect of Deformation on the Microstructure and Corrosion Behavior of Alloy 690TT Tube in Steam Generator Crevices
Soon–Hyeok Jeon, Ji–Young Han, Do Haeng Hur, Hee–Sang Shim, and Sung–Woo Kim(KAERI)

10:00 Integrity Evaluation Methodologies of Secondary System Materials in Nuclear Power Plants during Long-Term Layup
Seong–Jun Ha, Hee–Sang Shim, Do Haeng Hur, and Soon–Hyeok Jeon(KAERI),
Hyuk–Chul Kwon, Byung–Hoon Kim, and Soon–Woo Kwon(KHNP)

10:20 Potential Candidates to Replace the Hydrazine as an Oxygen Scavenger in the Secondary Water System of Pressurized Water Reactor
Hee–Sang Shim, Soon–Hyeok Jeon, Seong Jun Ha, and Do Haeng Hur(KAERI), Hyeok Chul Kwon(KHNP)

10D
5.10(Fri)

원전 운영 및 설계 (NPP Operation & Design)

| 김정한(Kim, Jung Han), 안경희(An, Gyeonghee) | 402A (4F)

09:00 Comparison of APR1400(Shin-Hanul 1,2) and AP1000(Vogtle 3,4) Construction: What Brought Such Big Differences?
Youho Lee and Seungmin Kwak(SNU)

09:20 TEG Heat Sink Dynamic Surface Temperature Measurement Utilizing Thermographic Phosphor
Seongmin Kang, Myungjin Seo, Kyungjun Lee, and Jae-Ho Jeong(Gachon Univ.), Mori Hideo(Kyushu Univ.)

09:40 Prerequisite Conditions to Apply On-Line Maintenance (OLM) for Emergency Diesel Generator in Domestic Nuclear Power Plants
YoungJu Lee, GungSu Cho, and Jae-sung Kim(KHNP)

10:00 Ask Nuclear Question & Answer, Generative Artificial Intelligence Information Retrieval System using Retrieval Augmented Generation
Seung Hyeok Yang, Sang Beom Kang, Han Gil Lee, and Dae Young Lee(FNC Tech.)

10:20 Investigation on Thermal Behavior of Thermocline Thermal Energy Storage Based on Operation Scenarios
Jeong-Won Han and Bum-Jin Chung(KHU)

10:40 Coffee Break

11:00 Investigating Sulfate Attack on Concrete in a Nuclear Power Plant in the UAE: An Experimental Study
Gyeonghee An(KAERI)

11:20 Thermal Effect of Crud Deposition and Irradiation Heat on the In-Vessel Control Element Drive Mechanism
Won Ho Lee, Jin Seok Park, and Min Gyu Kim(KEPCO E&C)

11:40 Proposed Architecture of the Virtual Power Plants for the South African Power Grid
Melissa-Jade Williams and Choong-koo Chang(KINGS)

10E
5.9(Thu) – 5.10(Fri)

원전건설 및 운영기술 (Nuclear Power Plant Construction and Operation Technology)–POSTER

| 함대기(Hahm, Daegi), 권태현(Kwon, Tae-Hyun) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO10E01 Preliminary Study on the Strategic Role of SMRs in South Korea's Energy Transition to Carbon Neutrality
Seok Ho Song and Jeong Ik Lee(KAIST)

PO10E02 Analysis of Electrical System Related Incidents and Implications
Sungbaek Park, Juhwan Kim, and Sang Houn Joung(KINS)

PO10E03 Analysis of Economic Feasibility for Nuclear Renewable Hybrid Energy System
Ha Neul Na, Youngsuk Bang, So Eun Shin, Keon Yeop Kim, and Heung Gyu Park(FNC Tech.)

PO10E04 Consideration on Abnormal Signal Graphs During Diagnostic Testing of Air-operated Valves (AOVs) in NPPs
Wonjun Lee(KHNP)

PO10E05 Parametric Study of Adsorption Dehumidification according to the Various Adsorbents for Performance Enhancement of Nuclear Plant Steam Turbine
Jung–Gil Lee, Jin Man Kim, and Cheonkyu Lee(KITECH)

PO10E06 Development of a Feature Extractor for a Concentration-Prediction Machine Learning Model Applicable to Molten Salt Environment
Yonadan Choi and Wonseok Yang(KAIST), Sungyeol Choi(SNU)

PO10E07 Automatic Detection of Hotspot for Condition Monitoring using Algorithm
JUNSU LEE, JUSIK KIM, JUNHEE PARK, and JOOHYUNG KIM(Inha Univ.)

PO10E08 Mechanical Properties of Dissimilar Metal Weld Joints made by Laser Power Directed Energy Deposition
Tae Yang Lee, Wonjong Jeong, and Ho Jin Ryu(KAIST)

PO10E09 A Study on Leak Before Break Evaluation for Elbow
Seung Hyun Kim, Youn Jung Kim, and Min Gyu Kim(KEPCO E&C)

PO10E10 Study on the Design of Heat Pump Cycle Utilizing Waste Heat from Nuclear Power Plants
Jin Man Kim, Cheonkyu Lee, and Jung–Gil Lee(KITECH)

PO10E11 Conceptual Design of Electrical Power System On Innovative Small Modular Reactor
gyuhyeon Ryu(KHNP)

PO10E12 Simulated Corrosion Product Deposition Experiment on Zirconium Fuel Cladding in PWR Primary Water Condition for Evaluating Thermal Properties
Junhyuk Jeong, Yunju Lee, Ji Yong Kim, In Cheol Bang, and Ji Hyun Kim(UNIST)

PO10E13 Review of the Impact of pH and Conductivity due to Dissolution of Carbon Dioxides in Air of System Water Storage Tanks for Nuclear Power Plants
Kyunghee Lee, Limji Yun, Seonghoon Lee, and Jimin Kim(KHNP)

PO10E14 The Corrosion Behavior of Zr-1.0Nb Alloy Fuel Cladding in High Temperature Pressurized Water
Mingyo Seo, Do Haeng Hur, and Hee–Sang Shim(KAERI), Soo–Yeol Lee(Chungnam National Univ.)

PO10E15 Seismic Signal Upsampling with Integration of Interpolation and LSTM
SeongJin Jeon, JeongBeom Seo, and Jin Koo Lee(KITValley)

PO10E16 Prediction of the Internal Pressure Capacity at Liner Failure of the Small-scaled Prestressed Concrete Containment Vessel under Hydrogen Burning Conditions
Woo–Min Cho and Seong–Kug Ha(KINS), Han–Sang Woo and Yoon–Suk Chang(KHU)

PO10E17 Evaluation of the Internal Pressure Capacity at Leak Failure of PWR Containment Building Considering High Temperature and Pressure at Hydrogen Burning Conditions
Woo–Min Cho, Yong–Jin Cho, and Seong–Kug Ha(KINS)

PO10E18 Rainfall-runoff Assessment at NPP Site Base on Climate Change Scenarios
Beom–Jin Kim and Minkyu Kim(KAERI)

PO10E19 Probabilistic Safety Assessment of the Offsite Power System of Hanul Nuclear Power Plant Considering the Damage Correlation Caused by Typhoon-Induced High Winds
Gungyu Kim, Dongchang Kim, and Seunghyun Eem(Kyungpook National Univ.),
Shinyoung Kwag(Hanbat National Univ.)

제11분과 원자력정책, 인력 및 협력 (Nuclear Policy, Human Resources and Cooperation)

11A 5.9(Thu) 원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)

| 고문성(Koh, Moon Sung), 최성열(Choi, Sungyeol) | 402A (4F)

09:00 A Study on MBA & KMP for Implementing Safeguards by Design (SBD) in SNF Interim Storage Facility
Jae Wook Kim, Sang Hun Shin, and Yong Suk Lee(FNC Tech.), Ju Ae Yu(KORAD)

09:20 Preliminary Estimates of Nuclear Weapon Potential in North Korea's New ELWR
Seungnam Lee and Ser Gi Hong(HYU), BeomJin Kim(CBRN)

09:40 Approaches of Uncertainty Expression in Nuclear Material Accounting
Haneol LEE, Hyun Cheol LEE, Jung Youn CHOI, Hyun Ju KIM, and Jinho Ryu(KINAC)

10:00 A Study on the Need for a New International Treaty Prohibiting Military Attacks by States on Nuclear Facilities
sangcheol Hyung and Hosik Yoo(KINAC)

10:20 A Study on the Coordinating Safety and Security Regulatory Requirements for Nuclear Power Plant
Joon-Seok Kim and Ieck-Chae Euom(CNU)

10:40 Coffee Break

11:00 Derivation of Regulatory Elements for Target Sets in Nuclear Power Plants
Yun Seon Chung and Min Ho Kang(KINAC), Jae Hoon Kim(Sejong Univ.)

11:20 Implication on Korea's Exemption Regulation through a Review of Foreign Exemption Procedures
YoungA SUH and Sujin Jeong(KINS), hyojeong Kim(GINIS)

11B 5.9(Thu) 원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)

| 이은제 (Lee, Eun Je), 손희동 (Sohn, HeeDong) | 402A (4F)

초청발표

13:30 Commercialization of Small Modular Reactors: Opportunities, Challenges, and Strategic Approaches
Won-Pil Baek(KAERI)

14:00 International Cooperation in the Field of Research Reactors using KAERI-ICERR
Sung Ho Ahn, Youngmi Nam, Gwang Min Sun, Jin Won Shin, Young Soo Han, Jintae Hong, and Dosik Kim(KAERI)

14:20 Comparative Analysis of Nuclear R&D Program and Budgets: A Case study of the U.S. and Korea
Dong Hoon Lee, Keonhee Lee, Jihwan Lim, Kwang Seok Lee, and Eunju Jun(KAERI)

14:40 Nuclear R&D Policy Implementation Trend during 2012 to 2021: Comparing the 4th and 5th Nuclear Policy Promotion Plan
Youngjune Kim, Youngjoon Lee, Eunje Lee, and Youngwoo Lee(KAERI)

11C
5.9(Thu) – 5.10(Fri)

원자력정책, 인력 및 협력 (Nuclear Policy, Human Resources and Cooperation)–POSTER

| 안성규(Ahn, Seong Kyu), 이영준(Lee, Youngjoon) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO11C01 The Acquisition of ISO 21001 Educational Management System Certification: Insights from the International Nuclear Nonproliferation and Security Academy
Junghyun Na(KINAC)

PO11C02 Design, Implementation, and Evaluation of Capacity-Building Course on International Cooperation for Supporting Nuclear Nonproliferation and Security
EunBee Park(KINAC)

PO11C03 A Study on the Effect of the Education Program for a Fundamental Thermal Hydraulic Test in Nuclear Power Generation System
Woong Ki Kim and Hwang Bae(KAERI)

PO11C04 Development and Operation of Curriculum for Evaluation of Material Aging in Nuclear Components
Byungchul Shin, Youngmi Nam, and Sunyoung Noh(KAERI)

PO11C05 Implementation of Procedural Education for Enhancing Nuclear Security during Transport
SANG SEONG KIM(KINAC)

PO11C06 Considerations of Determinants for Optimized Staffing of SMR Operators
HanSuk KO(KAERI)

PO11C07 Development of Virtual Reality Training Content for Security Screening at Nuclear Facilities
Junghyun Na(KINAC)

PO11C08 Development and Implementation of Education Programs for Strengthening of Nuclear Understanding
Jinmyeong Shin, Hyunkyung Kim, Hyewon Yu, Jihyun Kim, Seungah Yang, and Ik Jeong(KAERI)

PO11C09 Expertise Market: A Key for Enhancing Professional and Sectoral Growth
Cheonbo Shim(KAERI)

PO11C10 Analysis of Safeguards-by-Design Regulation Approach for Spent Fuel Dry Storage Facility Construction in Site
Ji–Hwan Cha, Seungmin Lee, and Myungtak Jung(KINAC)

PO11C11 Analysis on the Shifts in North Korea's Nuclear Strategy
Yonhong Jeong, Hojung Do, and Dongjin Kim(KINAC)

PO11C12 Considerations on the Application of IAEA Safeguards in SMRs
Yonhong Jeong and Dongjin Kim(KINAC)

PO11C13 A Study on the Status of the Internal Compliance Programs and the Operational Plan for Trigger List Items
Beomseok SHIN and Heesu CHOE(KINAC)

PO11C14 Uncertainty Analysis for Graphite Isotope Ratio Method (GIRM) in a HANARO Simulation
Somyung Park and Hyun Chul Lee(PNU)

PO11C15 Bridging the Gap between Policy Practitioners and Technical Experts in Nuclear Nonproliferation and Security
EunBee Park(KINAC)

PO11C16 A Study on Strengthening Export Controls on Strategic Items under Bilateral Nuclear Cooperation Agreements
Heesu Choe and Siwon Kim(KINAC)

PO11C17 Satellite Imagery Analysis of Yongbyon Experimental Light Water Reactor (ELWR)
Gayeon Ha, Sangwon Hwang, and Byungmarn Koh(KINAC)

PO11C18 The Operational Strategies of KAERI's IAEA Additional Protocol System for Optimizing Nuclear Nonproliferation
Ju–Ang JUNG, Byung Doo Lee, and Hyun Jo Kim(KAERI)

PO11C19 Investigation of Nuclear Ship-Related Legislations and Recommendations for Legal Framework Establishment
Jeongeun Kim, Soojae Kim, and Jeongik Lee(KAIST)

PO11C20 Derived Acceptance Criteria (DAC) of Anticipated Operational Occurrences (AOOs) in Deterministic Safety Analysis for CANDU Reactors
Chul–Kyu Lim, Hyeon–Sik Chang, Han–Rim Choi, Hyun–Sik Kang, Chang–Sup Lee, Jin Yoo, Hyun–Woo Park, Beom–Seock Kim, Seong–Kyu Park, Chul–Jin Choi, Chang–Sok Cho and Mi–Suk Jang(NESS)

PO11C21 Comparison between CNSC Regulatory Documents and CSA Standards of Overpressure Protection Requirements for Primary Heat Transport System in CANDU Reactors
Chul–Kyu Lim, Hyeon–Sik Chang, Han–Rim Choi, Hyun–Sik Kang, Chang–Sup Lee, Jin Yoo, Hyun–Woo Park, Beom–Seock Kim, Seong–Kyu Park, Chul–Jin Choi, Chang–Sok Cho, and Mi–Suk Jang(NESS)

PO11C22 Relationship between Radiological Impact on the Environment Review and Environmental Impact Assessment and Suggestions of Improving RER
Heewon Kim(KINS)

PO11C23 Analyzing the Opinions of the Public Monitoring Group on the 3rd Comprehensive Plan for Nuclear Safety
Jihye Park and Youngjun Kim(KoFONS)

PO11C24 Deriving Safety Performance Indicator of Radioactive Waste Management Facility for Periodic Safety Review
Ja–Woon Lee, Chul–Kyu Lim, Hyeon–Sik Chang, Han–Rim Choi, Hyun–Sik Kang, Chang–Sup Lee, Jin Yoo, Hyun–Woo Park, Beom–Seock Kim, Seong–Kyu Park, Chul–Jin Choi, Chang–Sok Cho, and Mi–Suk Jang(NESS)

PO11C25 A Review on the Adaptability of the Most Recent Technical Standards for Continuous Operation of Nuclear Power Plants
Min–Soo Jeon, Chul–Kyu Lim, Hyeon–Sik Chang, Han–Rim Choi, Hyun–Sik Kang, Chang–Sup Lee, Jin Yoo, Hyun–Woo Park, Beom–Seock Kim, Seong–Kyu Park, Chul–Jin Choi, Chang–Sok Cho, and Mi–Suk Jang(NESS)

제12분과 원자력 계측제어, 인간공학 및 자동원격 (Nuclear I&C, Human Factors and Automatic Remote Systems)

12A 5.9(Thu) 원자력계측제어, 인간공학 및 자동원격 1 (Nuclear I&C, Human Factors, and Automatic Remote Systems 1)

| 구서룡(Koo, Seo Ryong), 이성진(Lee, Sungjin) | 202A (2F)

09:00 Metadata Standardization in the Nuclear Energy Sector with Data Catalog Vocabulary
Young Ho Chae and Seo Ryong Koo(KAERI), Yoonjoon Lee(SUREDATALAB)

09:20 Emergency Response Robot Motion Optimization using Complementarity Constraints
Minji Lee, Jeonmin Lee, and Dongjun Lee(SNU)

09:40 Analysis of the Impact of Positioning Uncertainty On Dose Estimation
Janghee Lee and Woosung Cho(POSTECH), Minjae Lee and Song Hyun Kim(SierraBASE)

10:00 Two-stage Prediction Model of Nuclear Power Plant Parameter Trends for Preventing Significantly Erroneous Predictions
Donghee Jung, Junyong Bae, and Seung Jun Lee(UNIST)

10:20 Software Platform to Assimilate Simulation Modules with Referenced Plant Data
Sungchul Lee, Minkook Kwon, Boyeon Lee, and Keunbyul Lee(WHEELERS Inc.)

10:40 Coffee Break

11:00 Development of the Automatic Verification and Validation System for the CUPID Code Quality Assurance
J. S. Suh(SENTECH), I. K. Park, S. J. Do, and H. Y. Yoon(KAERI)

11:20 A Research on the Application of Entropy Theory to Identify the Impact of Nuclear Facility Cyber Security Controls
Kakyung KIM, Seongsu Yoon, Joonseok KIM, Doyeon KIM, and Ieckchae Euom(Chonnam National Univ.)

12B 5.9(Thu) 원자력계측제어, 인간공학 및 자동원격 2 (Nuclear I&C, Human Factors, and Automatic Remote Systems 2)

| 김지태(Kim, Jitae), 김종현(Kim, Jonghyun) | 202A (2F)

13:30 Insights from Human Performance Experiments Integrating Operator Support Systems in Emergency Situations
Jung Sung Kang and Seung Jun Lee(UNIST)

13:50 Performance Evaluation of Prompt Response Characteristics of Cobalt SPND
Kyung Gun Kim, Do Yeon Kim, and Yu Seon Choi(KHNP)

14:10 Optimization of the Surrogate Model for Acoustic Wave Propagation: Defect Detection
Hogeon Seo, Soyeon Kim, and Yonggyun Yu(UST|KAERI), Hee–Sun Choi and Byoungil Jeon(KAERI)

14:30 Coffee Break

14:50 Detection of Untrained Class for Accident Diagnosis Model with Open Set Recognition Method
Seung Geun Kim, Young Ho Chae, and Seo Ryong Koo(KAERI)

15:10 Analysis of the Atomic Propulsions for Space Mining Inspiring by PSYCHE Mission: Historic Rich Project for Space Gold Rush (SGR)
Tae Ho Woo, Kyung Bae Jang, and Chang Hyun Baek(The Cyber Univ.), Hyo Sung Cho(Yonsei Univ.)

12C
5.10(Fri)

원자력계측제어, 인간공학 및 자동원격 3
(Nuclear I&C, Human Factors, and Automatic Remote Systems 3)

| 김승근(Kim, Seung Geun), 김종현(Kim, Jonghyun) | 201B (2F)

09:00 Flow Rate Estimation of Mobile Hydraulic Manipulator
Gaeun Shin and Yonghun Kim(Chungnam National Univ.), Jinyi Lee and Jongwon Park(KAERI)

09:20 A Study On Improving Cooling Efficiency of micro-Hydraulic Power Units (m-HPUs) for Mobile Manipulators with Heavy-duty Applications
Jinyi Lee, Jongwon Park, and Ki Hong Im (KAERI), Hyub Lee(KITECH), Gaeun Shin(Chungnam National Univ.)

09:40 Development of Integrated Control System for the Nuclear Disaster Response Robot
Hyeokbeom Kwon(UST), Ki Hong Im(KAERI), Yonggyun Yu and Jongwon Park(UST|KAERI)

10:00 Development of Spatial Radiation Mapping Framework using Mobile Robot with LiDAR and Radiation Sensor
Wonseo Lee, WooCheol Lee, Sugon Shim, and Dongseok Ryu(KAERI)

10:20 Coffee Break

10:40 Joint Angular Position Sensing Algorithm for Mobile Hydraulic Manipulator
Seongjin Park and Wonsuk Jung(Chungnam National Univ.), Jinyi Lee and Jongwon Park(KAERI)

11:00 An Automated Generation of 3D Point Cloud Training Data for Object Recognition using Depth Cameras Mounted on Robotic Arms
Ki Hong Im, Jongwon Park, Jinyi Lee, and Yun Jun Nam(KAERI)

12D
5.10(Fri)

원자력계측제어, 인간공학 및 자동원격 4
(Nuclear I&C, Human Factors, and Automatic Remote Systems 4)

| 이승준(Lee, Seung Jun), 채영호(Chae, Young Ho) | 202A (2F)

09:00 Remaining Useful Life Prediction for IGBT using LSTM with Monte Carlo Dropout
Hye Seon Jo, Ji Woo Hong, Min Seon Kim, and Man Gyun Na(CSU)

09:20 A Study on an Adaptable Deep Learning Algorithm for Dynamic Environments using CycleGAN
Doyeob Yeo(KAERI), Hyunseok Lee(KMEDIhub)

09:40 Study on the Effectiveness of Time Series Data Augmentation for Anomaly Detection in Measurement and Control Systems
Han Gil Lee, Seung Hyeok Yang, Sang Beom Kang, and Dae Young Lee(FNC Tech.)

10:00 Interpretability of Unsupervised Anomaly Detection Model : One-Class Support Vector Machine with Rule Extraction
Ji Hun Park, Sang Won Oh, and Man Gyun Na(CSU)

10:20 Considerations for the Application of IoT Technology to Nuclear Power Plants
You-Rak Choi and Do-Yeob Yeo(KAERI)

10:40 Coffee Break

11:00 Comparison between XGBoost and LightGBM Using Abnormal Data in a Nuclear Power Plant
Jeong-Mu Eun, Moon-Ghu Park, and Jae-Yong Lee(Sejong Univ.)

11:20 Design of Turbine Testbed Based On Similarity and Simulation for Dynamic Characteristics
DaeSic Jang, Jin-Ho Park, Jihyun Jun, and Jeong-Han Lee(KAERI)

11:40 Preliminary Modeling and Applicability Evaluation for Condition Diagnosis and Failure Detection in Reactor Protection System
Ho Jun Lee, Sang Hyun Lee, and Man Gyun Na(CSU)

12E
5.9(Thu) – 5.10(Fri)

원자력계측제어, 인간공학 및 자동원격 (Nuclear I&C, Human Factors, and Automatic Remote Systems) – POSTER

| 성노규(Seong, Nokyu), 김재민(Kim, Jae Min) | Lobby (3F)

| **게시시간** 5.9(Thu) 13:00 ~ 18:00 / 5.10(Fri) 09:00 ~ 12:00

| **저자 발표시간** 5.9(Thu) 13:00 ~ 14:00

PO12E01 A Smart Maintenance Support System (SMSS) for Research Reactors
Yong Suk Suh, Seung Yong Han, Dane Baang, Sang Mun Seo, Jong Bok Lee, Tae Jin Kim, and Seung Ki Shin(KAERI)

PO12E02 Study on Performance Test of Master Node in MMIS Digital Twin
Min-seok Kim and Hosun Ryu(KHNP)

PO12E03 Evaluation of Functional and Performance Equivalence between Virtual DCS and Real DCS
Hosun Ryu and Min-seok Kim(KHNP)

PO12E04 Study of Network Segregation Implementation in MMIS Digital Twin Virtualized Network
Soonae Lee and Jung-Woon Lee(ONETECSYSTEM)

PO12E05 Estimation of Remaining Useful Life of Electronic Components in the OPERA DCS Platform depending On Time-varying Temperature and Electrical Stress
Inseok Jang and Chang Hwoi Kim(KAERI)

PO12E06 Risk Management Plan for Intelligent Decision Support System of Korean NPPs
Gwi-sook Jang and Seo Ryong Koo(KAERI)

PO12E07 Development of Deep Learning AI-based Electronic Circuit Card Assembly (PCB) Diagnosis Technology
Myung-sub Roh, Sang-jin Lee, and Sang-bok Kim(DAEKYEONG ENGINEERING)

P012E08 Implementation of an Air Sampler Controller using Atmega128
Yuntaek Im, Hoonjo Jo, Seohyun Lim, Heegon Kim, Jaesam Han, and Wonho In(KAERI)

P012E09 Improvement of Hardware Version Management Method for POSAFE-Q PLC
Sung Wook Kim, Min–Hyuk Yoon, Chi–Uk An, Kwan–Woo Yoo, and Dong–Yeon Lee(SOOSAN ENS)

P012E10 Improved Monitoring System Using NHDL-1Q for POSAFE-Q PLC
Yeong–Jin Kim, Taegyu Kang, Su–Hyun Kim, Ka–Ram Park, Kwan–Woo Yoo, and Dong–Yeon Lee(SOOSAN ENS)

P012E11 Normal State Detection Capability of an Operator Support System that Detects a Plant State
Hyun–Chul Lee(KAERI)

P012E12 Study on I&C Design Features for Implementation of the MSR Powered Ship
Sanghoon Bae, Taekkyu Kim, and Kyonghwoi Koo(KAERI)

P012E13 DEG Strategy for Development and Application of FPGA Based Safety Platform
DONGIL LEE, HYUNKI KIM, SUNGKON KANG, and HEETAEK LIM(KHNP)

P012E14 Total Ionizing Dose Effect on the Stability and Gain of Linear RF Power Amplifier
Muhammad Adeel Anwar and Min Sun Lee(KAERI), Inyong Kwon(Yonsei Univ.)

P012E15 Design of the Low Voltage Single Photon Avalanche Diode for Enabling Radiation Sensor Network System
Jinseok Oh(UST), Chanho Kim and Min Sun Lee(KAERI), Inyong Kwon(Yonsei Univ.)

P012E16 Study on the Automation Level and Configuration Plan for ISMR MMIS
Sung Kon Kang(KHNP)

P012E17 High Speed Active Quenching for Single-Photon Avalanche Diodes Using Digital Radiation Detection
Sundo Kim and Dongsuk Jeon(SNU), Jinseok Oh(UST), Inyong Kwon(Yonsei Univ.)

P012E18 A Study on PID Control System using a Neural Network for a Small Modular Reactor
Kun–Young Han, Myeong–Kyun Lee, and Gee–Yong Park(KAERI)

P012E19 A Study on Automation Strategies in Nuclear Power Plants through Minimizing Manual Operator Interventions
Kwang Il Jeong, Dae Il Lee, and Joon Ku Lee(KAERI)

P012E20 User Requirements for Technical Specifications Operator Support System
Nokyu Seong, Jaehee Lee, and Jongbeom Lee(KHNP)

P012E21 A Study on the Application of Control Room for SMR with Multiple Reactors
Chanho Sung, Kyungmin Kim, and Jungho Kim(KHNP)

P012E22 Configuration Management Model for Designing Construction Nuclear Power Plant considering Knowledge Management
Seungmin Lee(KAERI)

P012E23 Application of Configuration Management System in HANARO
Minwoo Lee, Kyungchul Kim, Young–San Choe, Changho Kim, Jeong Sik Hwang, and Sangjun Park(KAERI)

P012E24 Development Status of the Simulator for i-SMR
Kyung–min Kim, Joo–youl Lee, and Chan–ho Sung(KHNP)

P012E25 A Brief on Nuclear Safety History and Various Safety Concepts for Social Acceptance of Nuclear Power: A Behavioral Science Perspective
Yong Hee Lee(KAERI)

P012E26 Lifecycle Processes and Checklists for AI Data
Jang–Yeol Kim and Jong–Gyun Choi(KAERI)

P012E27 AI Model Performance Metrics for Application in Nuclear Power Plants
Kwang–young Sohn, Kweonwoo Sohn, and Changhwan Cho(MIRAEEN)

P012E28 Development of a Door Opening Device for Mobile Robots
Hocheol Shin, Sangryeong Seo, Hyewon Park, Dongjun Hyun, and Dongseok Ryu(KAERI)

PO12E29 Design and Simulation of Automated Accident Response Robot for Rapid Leak-Sealing with Self-traveling Capability
Ki Hong Im, Jongwon Park, Jinyi Lee, Dongseok Ryu, and Yun Jun Nam(KAERI)

PO12E30 Development of RCPs Predictive Diagnosis System
Songhae Ye and Jusik Kim(KHNP)

PO12E31 Multi-channel Signal Loss Restoration based on Autoencoder
Jaejun Lee, Hogeon Seo, and Yonggyun Yu(KAERI)

PO12E32 Development of MCR HVAC Simulator for Digital Twin
Seunghoon Kang, Daekyung Choi, Sungman Son, and Choengryul Choi(Elsoltec)

PO12E33 Development Study on Review Guidance for Cybersecurity Plan and Implementation Results of SMR in ROK
Hyunjoo Lee, Subong Lee, and Kookheui Kwon(KINAC)

PO12E34 An Overview of Nuclear Cyber Threat Assessment Framework and Analysis Cases
Subong Lee, Hyunjoo Lee, and Kookheui Kwon(KINAC)

PO12E35 Cyber Threat Scenario Development Process Reflecting DBT Attributes and CDA Characteristics
Seungmin Kim and Kookheui Kwon(KINAC), Gyunyoung Heo(KHU)

PO12E36 A Licensing Question-and-Answer Tracking Database Using Unsupervised Keyword Extraction
Hyeong Seok Eun, Dong Hee Kim, and Yoonhee Lee(KEPCO E&C), EunKyoung Jee(KAIST), Yoyngmi Kwon(Chungnam National Univ.)

지부 활동결과 및 계획발표회

| 일 시 2024. 5. 10(Fri) 10:00 ~ 11:00
| 장 소 제주국제컨벤션센터, 401B(4F)

시간계획	내 용	
		[사회 : 설광원 부회장]
10:00 ~ 10:05	**인사말**	정범진 학회장
10:05~10:45	**[지부 활동결과 및 계획 발표]**	
	광주 · 전남 · 전북 지부	송종순 지부장
	대구 · 경북 지부	이상훈 지부장
	여성지부	전은주 지부장
	청년지부	손성준 지부장
	학생지부	조용흠 학생지부 지도교수
10:45 ~ 10:55	종합토의	
10:55 ~ 11:00	마무리	

학술발표회 회의장 배치도 (Floor Plan)

2F

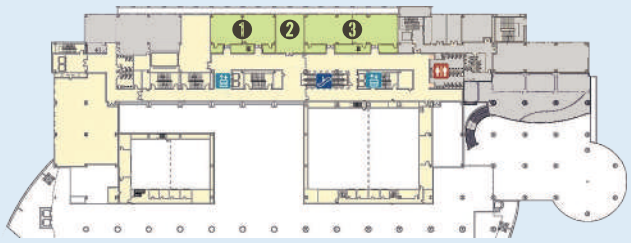
① 201 A, B
② 202 A, B
③ 203

3F

① 301 ② 302 ③ 300
④ 303 A, B ⑤ 304 ⑥ 삼다홀(Samda Hall) A,B
⑦ 한라홀(Halla Hall) A,B ⑧ 델리지아(Delizia)
⑨ 델리뷰(Deli View)

4F

① 401 A, B
② 400
③ 402 A, B



5F

① 탐라홀(Tamna Hall)
② 오션뷰(Ocean view)

전시 (Exhibition)

위 치	기 업 명
1	DEWESoft measurement innovation
2	Metariver Technology
3	UIT
4	유엔이 Unique & Experience

위 치	기 업 명
5	KEIA 한국에너지정보문화재단 Korea Energy Information Culture Agency
6	KoFONS 한국원자력안전재단
7	DASSAULT SYSTEMES
8	RCA

교통편 (Transportation)

| 제주 국제컨벤션센터 | 제주특별자치도 서귀포시 중문관광로 224(중문동) Tel. 064-735-1000

공항리무진 버스안내 (600번 제주공항 ↔ 중문관광단지)

운행표	공항 → 한라병원 → 동광환승정류장 → 중문관광단지입구 → 호텔(그랜드조선제주, 파르나스호텔, 신라호텔, 스위트호텔, 블룸호텔, 롯데호텔, 켄싱턴리조트,씨에스호텔) → 제주국제컨벤션센터(ICC JEJU) → 제주월드컵경기장 → 파라다이스호텔 → 서귀포칼호텔
제주국제공항 출발 (06:00 ~ 21:25)	공항정문 1층 5번 게이트 왼쪽 리무진 버스 승차장 (삼영교통 600번)
ICC JEJU	리무진 버스 안내멘트에 따라 컨벤션센터 로터리 정류장에 하차 (600번 제주공항 ↔ 서귀포)
이용요금	공항에서 ICC JEJU까지 편도(성인) 4,500원 매 16~40분 간격 ICCJEJU까지 소요시간 약 1시간

택시안내 (제주공항 ↔ 중문)

거 리	소요시간
약 42㎞	약 50분

렌터카 이용시 (제주공항 → ICC JEJU)

경로	소요시간	이용노선
1코스 (1135번 도로 평화로)	차량 50분 소요 리무진 60분 소요	공항 → 신제주 → 제주경마장 → 평화로 → 중문관광단지 → ICC JEJU
2코스 (1139번 도로 1100도로)	차량 45분 소요 (초행길, 눈길, 안개조심)	공항 → 신제주 → 한라수목원 → 신비의 도로 → 어리목 → 탐라대학교 → ICC JEJU
3코스 (1131번 도로 516도로)	차량 1시간 10분 소요 (초행길, 눈길, 안개조심)	공항 → 삼성혈 → 제주대학교 → 성판악 → 돈내코유원지 → 16번도로 → 중문관광단지 → ICC JEJU

Ⓟ 주차 유료화 안내

- **최초 입차후 1시간 이내 :** 무료
- **1시간 이후 ~ 매 30분마다 :** 1,000원씩 과금
- **1일 1회 최대 요금 :** 5,000원 (일반차량 기준, 대형 제외) / 재입차시 신규차량으로 간주되어 과금됨
- **주차정산 :** 센터내 사전정산기 이용 결제 혹은 출차시 무인 정산(카드 결제)
- **주차권 구입처 :** 하이파킹 김성훈 소장 070-7119-2036 (제주국제컨벤션센터 2층)

한국원자력학회 특별회원 (Special Members)

한국수력원자력(주)	DOOSAN	KAERI 한국원자력연구원 Korea Atomic Energy Research Institute	한국전력공사 KOREA ELECTRIC POWER CORPORATION	KEPCO E&C
한국원자력안전기술원 KINS KOREA INSTITUTE OF NUCLEAR SAFETY	한전원자력연료	현대건설	DAEWOO E&C	SAMSUNG 삼성물산 건설부문
한전KPS주식회사 KEPCO PLANT SERVICE & ENGINEERING CO., LTD	Westinghouse	KFE 한국핵융합에너지연구원 KOREA INSTITUTE OF FUSION ENERGY	DL E&C	(주)삼영유니텍
HYOSUNG HEAVY INDUSTRIES	KORAD 한국원자력환경공단	한국원자력의학원	한국원자력통제기술원 KINAC	GS 건설
LS전선	SK 에코플랜트	orano Giving nuclear energy its full value	AECL	GE
나우	SEABORG	SOOSAN 수산인더스트리	엔스코(주)	ILJINPower
SOOSAN ENS	한일원자력(주) HANIL NUCLEAR CO.,LTD	iKONF 사용후핵연료관리핵심기술개발사업단	HYUNDAI ELECTRIC	株式會社 三信 Samshin Limited
MOASOFT	옵티멀에너지서비스(주)	상지상사	SAEAN 세안기술주식회사 SAE-AN ENGINEERING CORPORATION	이성씨엔아이(주)
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