KNS(P)–002–2026 추계학술발표회 프로그램

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2026 KNS Fall Conference

2026 추계학술발표회

KOREAN NUCLEAR SOCIETY

2026.10.28.(수) ~ 30.(금)

경주화백컨벤션센터



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사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

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경주화백컨벤션센터

사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

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학회장 인사말



최성민 학회장

2026년 한국원자력학회 추계학술발표회 참가자 여러분께,

안녕하십니까? 한국원자력학회를 대표하여 2026년도 추계학술발표회에 함께해 주신 여러분께 깊이 감사드리며, 진심으로 환영의 인사를 드립니다.

이번 추계학술발표회에서는 10월 28일 15건의 워크숍을 시작으로, 10월 29일과 30일 양일간 총 605편의 연구논문이 발표됩니다. 워크숍에서는 “한미 원자력 협력 확장의 새로운 기회와 도전”, “원자력안전규제 제도 및 심사현황”, “전력시스템 비용 분석 기반 국가 에너지모델 개발” 등을 비롯하여 원자력의 주요 학술 · 기술 현안과 정책을 폭넓게 다룰 예정입니다.

개회식에서는 구혁채 과학기술정보통신부 제1차관님과 장순흥 총장님을 기조강연자로 모셨습니다. 두 분의 강연을 통해 우리나라 원자력의 미래를 위한 과학기술 혁신과 연구개발 방향을 조망하고, 우리나라가 개발한 원전 APR1400의 미국 진출이 갖는 의미와 대한민국 원자력의 새로운 도약 가능성을 살펴볼 예정입니다. 원자력계, 특히 미래세대에게 비전과 희망을 전하는 뜻깊은 시간이 될 것으로 기대합니다.

산업계 세션에서는 최근 한미 원전 협력 확대에 따른 원자력계의 주요 현안과 준비 과제를 살펴보고, 우리 원전산업의 발전 방향을 함께 모색하고자 합니다. 만찬 행사에서는 이번에 새롭게 시작하는 학생 원자력 스피치 대회 결승전도 마련되어 있으니 회원 여러분의 많은 관심과 성원을 부탁드립니다.

10월 30일에는 특별회원사와 학회 임원들이 함께하는 조찬 간담회를 처음으로 개최합니다. 이번 간담회가 학회와 특별회원사 간의 소통을 강화하고, 상호 협력을 더욱 넓혀가는 뜻깊은 자리가 되기를 기대합니다.

이번 추계학술발표회가 학문적 성과를 공유하고 원자력의 미래를 함께 논의하는 소통과 협력의 장이 되기를 바랍니다. 이 자리에서 모인 지혜와 성과가 우리나라의 에너지 정책 발전과 산업 경쟁력 강화, 국민 복지 향상에 기여하고, 원자력에 대한 국민의 이해와 신뢰를 높이는 밑거름이 되기를 희망합니다.

모쪼록 아름다운 고도 경주에서 활발히 소통하고 교류하며 만남의 기쁨을 나누시고, 보람 있고 뜻깊은 시간을 보내시기를 기원합니다.

감사합니다.

한국원자력학회장 최 성 민 拜上

학술발표회 전체 일정

| 등 록 10.28.(수) 12:30~17:00 / 10.29.(목) 08:00~17:00 / 10.30.(금) 08:00~12:00

10.28.(수) Workshop

	프로그램	일정	참가비	회의장
A	차세대 원자로 시스템 및 AI 융합 기술 워크숍	14:00–18:00	–	300A
B	인공지능이 여는 원자로 해석의 새로운 패러다임	13:15–18:00	30,000	300B
C	한미 원자력 협력 확장의 새로운 기회와 도전– 우라늄 농축 및 사용후핵연료 재활용 무엇을 준비해야 하는가?	14:00–18:00	–	201
D	차세대 핵연료 자격화 기술 혁신: 경수형 고도화 및 비수냉형 실용화	13:30–18:00	60,000	102
E	SMR 기기/설비에 대한 혁신 설계 및 제작 기술	13:30–18:00	–	103
F	원자력 열수력 중장기 발전 전략	13:30–18:00	–	300C
G	동위원소 도전과 기회 VI – 의료용동위원소, 생산에서 임상까지	13:00–18:00	–	202
H	제8차 소형 중성자원 개발과 이용 워크숍	14:00–18:00	30,000	206
I	JAEA–KAERI Joint Workshop : Resilience of Nuclear Power Plants Considering External Hazards	14:00–18:00	–	101
J	Application of Risk–Informed, Performance–Based (RIPB) Approaches to Seismic and External Event Safety	10.27.(화) 14:00–18:00	50,000	105+106
K	전력시스템 비용 분석 기반 국가 에너지모델 개발: 국제공동연구 최종 성과 공유 워크숍	14:00–18:00	–	205
M	원자력안전규제 제도 및 심사현황	14:00–17:30	–	203
N	원자력시설 사이버보안 규제 변화, 이행 현황과 과제 – 디지털 I&C 시대, 대형원전에서 SMR · AR까지	14:00–18:00	50,000	204
O	극한환경 전력의 해법, 히트파이프 원자로 개발 현황	13:00–18:00	–	105
P	(원자력 인공지능 강습회) 가상 원자로를 위한 AI 기술	14:00–18:00	–	104
추계 스피치 콘테스트 (본선)		14:00–17:05	–	106

※ Workshop L(선진원자로 분류체계 반영 등을 통한 원안법개정사항 검토) : 기관 사정으로 취소

참가자 중식

일시	장소
10월 29일(목) 11:30 ~ 13:30	미디어센터 2층

산업계 세션

일시	장소
10월 29일(목) 09:30 ~ 11:00	300A (3F)

제105차 평의원회

일시	장소
10월 29일(목) 12:00 ~ 13:30	300B (3F)

제59회 정기총회 및 기조강연

일시	장소
10월 29일(목) 15:30 ~ 17:50	300C (3F)

참가자 만찬 및 스피치 콘테스트 결선

일시	장소
10월 29일(목) 18:00 ~ 19:30	미디어센터 2층

10.29.(목) ~ 30.(금) 구두발표

	세션명	발표장	발표일
1A	원자로시스템기술 1 (Reactor System Technology 1)	101	10.29.(목) 오전
1B	원자로시스템기술 2 (Reactor System Technology 2)	101	10.29.(목) 오후
2A	원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)	102	10.29.(목) 오전
2B	원자로물리 및 계산과학 2 (Reactor Physics and Computational Science 2)	102	10.29.(목) 오후
2C	원자로물리 및 계산과학 3 (Reactor Physics and Computational Science 3)	102	10.30.(금) 오전
2D	원자로물리 및 계산과학 4 (Reactor Physics and Computational Science 4)	103	10.30.(금) 오전
3A	후행핵연료주기 1 (Back-End Nuclear Fuel Cycle 1)	103	10.29.(목) 오전
3B	후행핵연료주기 2 (Back-End Nuclear Fuel Cycle 2)	103	10.29.(목) 오후
4A	핵연료 설계 및 제조 (Fuel Design and Fabrication)	104	10.29.(목) 오전
4B	핵연료 성능 (Nuclear Fuel Performance)	104	10.30.(금) 오전
4C	핵연료 시험 및 평가 (Nuclear Fuel Testing and Evaluation)	104	10.29.(목) 오후
4D	원자력재료 신뢰성 및 경년열화 (Nuclear Materials Integrity and Aging Mechanism)	105	10.30.(금) 오전
4E	원자력재료개발 및 건전성평가 (Nuclear Materials Development and Integrity Assessment)	300A	10.29.(목) 오후
5A	열수력 실험 1 (Thermal Hydaulics Experiment 1)	201	10.29.(목) 오전
5B	열수력 실험 2 (Thermal Hydaulics Experiment 2)	201	10.29.(목) 오후
5C	열수력 해석 1 (Thermal Hydraulic Analysis 1)	202	10.29.(목) 오전
5D	열수력 해석 2 (Thermal Hydraulic Analysis 2)	300A	10.30.(금) 오전
5E	안전해석 현안 1 (Safety Analysis Issues 1)	202	10.29.(목) 오후
5F	안전해석 현안 2 (Safety Analysis Issues 2)	300B	10.30.(금) 오전
5G	열수력 신기술 1 (Advanced Thermal Hydraulics 1)	203	10.29.(목) 오후
5H	열수력 신기술 2 (Advanced Thermal Hydraulics 2)	300C	10.30.(금) 오전
6A	원자력 안전 1 (Risk and Safety Assessment 1)	203	10.29.(목) 오전
6B	원자력 안전 2 (Severe Accident)	204	10.29.(목) 오전
6C	원자력 안전 3 (Coorperation Between SA & PSA	204	10.29.(목) 오후
6D	원자력 안전 4 (RIDM and Safety issures)	205	10.29.(목) 오후
6E	원자력 안전 5 (Risk and Safety Assessment 2)	204	10.30.(금) 오전
6F	원자력 안전 6 (Risk and Safety Assessment 3)	205	10.30.(금) 오전
8A	방사선 이용 및 기기 1 (Raidation Utilization and Instrumentation 1)	106	10.29.(목) 오전
8B	방사선 이용 및 기기 2 (Raidation Utilization and Instrumentation 2)	106	10.29.(목) 오전
9A	양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)	206	10.29.(목) 오후
10A	지진 및 외부재해 (Seismic and External Hazards)	105	10.29.(목) 오전
10B	부지 및 운영 (Site and Operation)	105	10.29.(목) 오후
10C	수화학 (Water Chemistry)	106	10.29.(목) 오후
10D	구조 및 설계 (Strucuture and Design)	106	10.30.(금) 오전
11A	원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)	206	10.29.(목) 오전
11B	원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)	206	10.30.(금) 오전
12A	계측제어 및 인간공학 · 자동원격 1 (Nuclear I&C, Human Factors and Automatic Remote Systems 1)	205	10.29.(목) 오전
12B	계측제어 및 인간공학 · 자동원격 2 (Nuclear I&C, Human Factors and Automatic Remote Systems 2)	201	10.30.(금) 오전
12C	계측제어 및 인간공학 · 자동원격 3 (Nuclear I&C, Human Factors and Automatic Remote Systems 3)	202	10.30.(금) 오전
12D	계측제어 및 인간공학 · 자동원격 4 (Nuclear I&C, Human Factors and Automatic Remote Systems 4)	203	10.30.(금) 오전

10.29.(목) ~ 30.(금) 포스터 게시 및 발표

포스터 게시기간	장소
10.29.(목) 13:00 ~ 18:00 **[저자 발표시간 13:00 ~ 14:00]** 10.30.(금) 09:00 ~ 12:00	3층 로비

특별회원 초청 조찬 간담회

일시	장소
10.30.(금) 08:00 ~ 09:30	힐튼경주 호텔 1층 파인룸

※ 힐튼경주호텔에서 개최(경주화백컨벤션센터에서 도보 5분 거리)

연구회 활동 결과 및 계획발표회

일시	장소
10.30.(금) 10:00 ~ 11:30	101

제38대 임원진

회장



최성민

수석부회장



문주현

부회장



심형진



조석진



설영실



최기용



황태석

감사



박석빈



최재돈

총무이사



강경호



이정익

학술이사



김종성



이현철

사업이사



박홍준



이지훈

편집이사



이덕중



이영일

재무이사



이정훈



홍승오

홍보이사



고문성



최성열

국제협력이사



김형대



조동건

대학·청년이사



성지현



이지민

기획이사



박현식



심재구

특임이사



노동석



정용훈

고급정책연구소



백 민 소장

원자력이슈위원회 위원

위원장



문주현

당연직 위원



김동진



김민규



박현식



박홍준



선광민



신창호



심재구



이덕중



임호곤



정경재



정병렬



지성훈



최기용



최종균

임명직 위원



김광표



김명섭



김유광



김택동



노동석



박태진



박홍준



손희동



윤종일



이성복



이우상



이재일



이지훈



이현철



정익

원자력소통위원회 위원

위원장



심형진

당연직 위원



고문성



최성열

임명직 위원



김종성



노동석



박홍준



이현철



정용훈



정재준



조건우

연구회장 및 차기연구회장 / 지부장 (Professional Divisions / Local Sections)

연구회장 / 차기 연구회장

원자로시스템기술


정병렬


이정익

방사선 방호


신창호

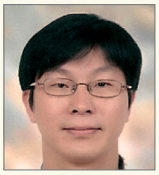

임종명

원자로물리 및 계산과학


이덕중


이현철

방사선 이용 및 기기


선광민


김기현

후행핵연료주기


지성훈


권장순

양자공학 및 핵융합기술


정경재


김석권

핵연료 및 원자력재료


김동진


류호진

원자력건설 및 운영기술


김민규


송규민

원자력열수력


최기용


이상원

원자력정책, 인력 및 협력


박홍준


정익

원자력 안전


임호곤


하광순

원자력계측제어, 인간공학 및 자동원격


최종균


이정훈

국내외 지부장


송종순
광주/전남/전북 지부


이상훈
대구/경북 지부


이덕중
부산/울산/경남 지부


최용준
미국 지부

청년지부


조재현 지부장

여성지부


정윤선 지부장

학생지부


김성우 지부장


조영범 지도교수

편집위원회 위원 (NET Editorial Board)

위원장



나만균

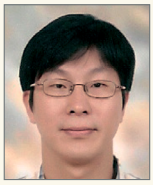
국내 부위원장



김용민



김응수



선광민



양재호



이덕중



이동원

국외 부위원장



Xu Cheng



Taishi Kobayashi

국내 위원



김만철



김용균



김인중



박호진



윤종일



이영일



임채영



장동찬



정만희



허남수

국외 위원



Akio Gofuku



Belle R. Upadhyaya



Elia Merzari



Jean Noirot



John C. Jin



Jinbiao Xiong



Haori Yang

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

위원장



조석진

사무총장



김현준

위원



김광표



김종성



노동석

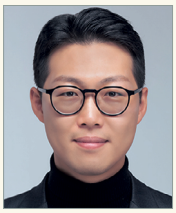


성지현

실장



민현정



송민섭



심재구



염화성



이덕중

팀장



송지현



이상준



이영일



이준엽



이지민

팀장



이연화



이지민



이지훈

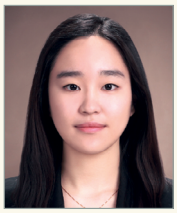


이현철



임채준

팀장



유진원



장근옥



조재선



최기용

제59회 정기총회 및 기조강연 일정

| 일 시 2026. 10. 29.(목) 15:30 ~ 17:50
| 장 소 경주화백컨벤션센터, 3층 300C

구 분	프로그램
개회사 축사	[사회 : 김종성 학술이사] 장내안내 및 국민의례 개회사 : 최성민 학회장
	축 사 : 주낙영 경주시장, 정우식 한국원자력연구원장
기조강연 I	구혁채 과학기술정보통신부 제1차관
기조강연 II	장순흥 총장, KAIST 명예교수 – K–NUCLEAR AMERICA 2035 AP1000 6기+APR1400 2기
정기총회	[각 업무별 보고안건] 심의의안1 : 2025년도 결산(안) 승인 건 심의의안2 : 2027년도 사업계획 및 예산(안) 승인 건 심의의안3 : 정관 개정(안) 승인 건
시상식	학술상 학회지우수논문상 학술발표회 우수논문상
	[특별상] 제18회 두산원자력기술상, 제14회 HANA기술상, 제13회 퀴리상, 제13회 원자력과 사회소통상, 제9회 박창규 PSA대학(원)생 논문상, 제7회 원자력리스크 및 중대사고 분야 우수연구자상, 제6회 열수력 우수연구상
	[장학증서] 두산에너빌리티 후원 장학생 NUCHI 장학생

만찬 및 원자력 스피치 콘테스트

| 일 시 2026. 10. 29.(목) 18:00 ~ 19:30
| 장 소 경주화백컨벤션센터, 미디어센터 2층

구 분	프로그램
만찬 및 원자력 스피치 콘테스트	[사회 : 이지민, 성지현 대학청년이사] 장내 안내말씀
	원자력 스피치 콘테스트
	2026 추계학술발표회 연구부회별 우수포스터 대상자 공개
	경품 추첨

산업계 세션

| 일 시 2026. 10. 29.(목) 09:30 ~ 11:00
| 장 소 경주화백컨벤션센터, 3층 300A

일 정	내 용
09:30~09:35	[사회 : 심재구 기획이사] [소개말 및 주요 참석자 소개] 심재구 기획이사 (한국원자력학회)
09:35~09:40	[인사말] 최성민 학회장 (한국원자력학회)
09:40~09:55	[발표1] 체코사업 추진 현황 장현승 체코사업단장(한국수력원자력㈜)
09:55~10:10	[발표2] 고준위 방폐물관리사업 추진 현황 이성복 고준위기획실장(한국원자력환경공단)
10:10~10:25	[발표3] 글로벌SMR 르네상스시대 산업계의 준비현황 서영빈 상무(두산에너빌리티㈜)
10:25~10:30	[장내정리]
10:30~11:00	[패널토론 및 질의응답] 좌장 : 심재구 기획이사, 박현식 기획이사 패널 : 장현승 단장, 이성복 실장, 서영빈 상무

Workshops

A

차세대 원자로 시스템 및 AI 융합 기술 워크숍

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 3층 300A
| 주최 한국원자력학회 원자로시스템기술연구회

일 정	내 용
14:00~14:05	개회사 (원자로시스템기술연구회장)
14:05~14:30	(AI 융합) AI 기반 가상원자로 플랫폼(V-SMR) 개발 및 차세대 원자로 적용 현황, 이재룡, 한국원자력연구원
14:30~14:55	뉴럴 렌더링 시각지능을 활용한 원전설비 원격 모니터링 기술, 최종성, 한국뉴욕주립대
14:55~15:20	신개념 대형원전 개발 현황 및 향후 로드맵, 권순국, 한국수력원자력 중앙연구원
15:20~15:45	i-SMR 혁신기술 인허가 추진현황 및 상용화 계획, 임상규, 혁신형 SMR 기술개발사업단
15:45~16:00	휴식
16:00~16:25	경수형 열공급 SMR 개발 사업소개, 안광현, 한국원자력연구원
16:25~16:50	국내 해양용 용융염원자로(MSR) 개발현황과 계획, 김치형, 한국원자력연구원
16:50~17:15	Application-driven design characteristics of Microreactors, 조항진, 포스텍
17:15~17:40	산업 공정열 공급용 고온가스로, 이정익, KAIST
17:40~17:50	폐회사 (원자로시스템기술연구회장)

| 기타사항 - 등록비 : 무료 / 석식 제공 없음
- 문의처 : 이근우 / 한국전력기술 / 054-421-8008 / kwyi@kepco-enc.com

B

인공지능이 여는 원자로 해석의 새로운 패러다임

A New Paradigm in Reactor Analysis Enabled by Artificial Intelligence

| 일시 · 장소 2026년 10월 28일 (수) 13:15~18:00 · 경주화백컨벤션센터, 3층 300B호
| 주최 한국원자력학회 원자로물리 및 계산과학 연구회
| 후원 한국수력원자력(주) 중앙연구원, 한전원자력연료(주)

일 정	내 용
13:15~13:30	개회사 이덕중 (울산과학기술원) Opening Deokjung Lee (UNIST) 환영사 한국수력원자력(주) 중앙연구원, 한전원자력연료(주) Welcoming KHNP-CRI, KNF
13:30~14:00	한수원 AI 활용현황 및 미래 적용방향 Current Status and Future Plans for KHNP AI Utilization 박진수 Jinsu Park (한국수력원자력 중앙연구원 KHNP-CRI)
14:00~14:30	자연어에서 원자로 해석까지: AI 기반 노물리 설계 워크플로우 From Natural Language to Reactor Analysis: AI-Enabled Automation of Reactor Physics Workflows for Core Design 김진선 Jinsun Kim (한전원자력연료 KNF)
14:30~15:00	GPU 한 장으로 나만의 연구원을 고용하라: 노물리 연구를 위한 Local LLM 에이전트 구축 Hire Your Own Researcher on a Single GPU: Building a Local LLM Agent for Reactor Physics 이대영 Dae-Young Lee (미래와도전 FNC)
15:00~15:30	한국원자력연구원 AI 활용 선진원자로 TFT 활동 성과 Outcomes of the KAERI AI Task Force for Advanced Reactor 장성동 Seongdong Jang (한국원자력연구원 KAERI)
15:30~15:50	휴식 Break
15:50~16:20	MSR 3D 다물리 실시간 시뮬레이터 바이브 코딩 구현 사례 Implementing a 3D Multi-Physics Real-Time Simulator via Vibe Coding 장성동 Seongdong Jang (한국원자력연구원 KAERI)
16:20~16:50	Vision Transformer를 이용한 원자로 노심 설계 인자의 예측 Prediction of Reactor Core Design Parameters Using Vision Transformer 이현철 Hyun Chul Lee (부산대학교 PNU)
16:50~17:20	수치해석 솔버를 넘어서: UNIST CORE 연구실의 원자로 시뮬레이션 코드를 위한 인공지능 기반 대리 모델 Beyond Numerical Solvers: AI-Driven Surrogate Models for Reactor Simulation Codes at UNIST CORE Laboratory Siarhei Dzianisau (울산과학기술원 UNIST)
17:20~17:50	인공신경망 (ANN) 기반 혁신적 원자로 감시 및 보호 시스템 연구 Study on Innovative Reactor Monitoring and Protection Systems Based on Artificial Neural Network 김용희 Yonghee Kim (한국과학기술원 KAIST)
17:50~18:00	총괄 질의 응답 및 토론 Q&A and Discussion

| 기타사항 - 등록비 : 30,000원 / 석식 제공
- 문의처 : 김경원 / 울산과학기술원 / 010-2662-7512 / kyeongwon@unist.ac.kr

C

한미 원자력 협력확장의 새로운 기회와 도전

우라늄 농축 및 사용후핵연료 재활용, 무엇을 준비해야 하는가?

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 2층 201호
| 주최 한국원자력학회 후행핵연료주기연구회 / 원자력 정책, 인력 및 협력 연구회

사회 : 지성훈 후행핵연료주기연구회장

일 정	내 용
14:00~14:05	개회사 (박홍준 정책연구회장)
14:05~14:10	환영사 (최성민 학회장)
기조 세션	
14:10~14:30	'한·미 원자력 협력 협정 개정 동향 및 우리의 새로운 미래' (김지훈, 외교부 한·미 원자력협력 TF 부대표)
14:30~14:50	'원자력발전의 세계적 확대와 연료주기 대응' (황주호, 前한국수력원자력 사장)
세션 1 : 기회 | 한미 원자력 협력 확장이 가져올 새로운 기회	
14:50~15:20	'원자력 R&D 추진 현황과 앞으로의 방향' (백민훈, 한국원자력연구원(KAERI) 후행원자력기술연구소 소장)
15:20~15:50	'핵연료 주기 산업의 새로운 기회와 과제' (이철호, 한전원자력연료(KNF) 신성장사업실 실장)
세션 2 : 도전 | 한미 원자력 협력 확장의 도전 과제	
15:50~16:20	'한·미 원자력협력 확대를 위한 한국의 핵비확산 조건: 현주소와 대응 방안' (전봉근, 한국핵정책학회 회장)
16:20~16:50	'한·미 원자력 협정 개정에 대비한 원자력 법제 정비 과제와 방향' (권순엽, 법무법인 광장 변호사)
16:50~17:00	휴식
세션 3 : 패널 토론 | 한미 원자력 협력 확장의 전략적 방향	
17:00~18:00	좌장 : 윤종일(KAIST 교수) 패널 : 문주현 단국대 교수, 김지훈 한미원자력협력TF 부대표, 황주호 前한국수력원자력 사장, 백민훈 KAERI 소장, 이철호 KNF 실장, 전봉근 한국핵정책학회 회장, 권순엽 법무법인 광장 변호사

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 임지환 / 한국원자력연구원 / 글로벌정책연구실 / 042-866-6140 / limjh@kaeri.re.kr

D

차세대 핵연료 자격화 기술 혁신: 경수형 고도화 및 비수냉형 실용화

Innovation in Advanced Fuel Qualification Technology : Advancement of LWR Fuels and Qualification of Fuels for Non-LWRs)

| 일시 · 장소 2026년 10월 28일 (수) 13:30~18:00 · 경주화백컨벤션센터 1층 102호
| 주최 한국원자력학회 핵연료 및 원자력재료 연구회

일 정	내 용
13:00~13:30	워크샵 등록 Registration
13:30~13:40	개회 및 안내, 김동진 (한국원자력연구원, 핵연료 및 원자력재료 연구회장) Opening Remarks, Dong-Jin Kim (KAERI)
13:40~13:50	축사, 정윤창 (한국수력원자력 연료실장) Congratulatory Remarks, Yun-Chang Jeong (KHNP)
13:50~14:15	원전의 안전성과 유연성 관점에서의 연료개발 방향 제언, 백승진 (한국수력원자력) Suggestions for the Fuel Development from the Perspective of Nuclear Power Plant Safety and Flexibility, Seungjin Baek (KHNP)
14:15~14:40	고연소도 핵연료 자격화 관점에서의 FFRD: 최신 연구 동향과 향후 과제, 김효찬 (한국원자력연구원) FFRD from the Perspective of High-Burnup Fuel Qualification: Recent Research Trends and Future Challenges, Hyochan Kim (KAERI)
14:40~15:05	핵연료 자격화 수요 급증 시대, K-Qualification 전략과 필요 기반시설, 이유호 (서울대학교) K-Qualification Strategy and Infrastructure Needs in an Era of Surging Nuclear Fuel Qualification Demand, Youho Lee (SNU)
15:05~15:30	차세대 경수로 핵연료 성능 실증 및 검증 가속화를 위한 프로그램 현황, 양재호 (한국원자력연구원) Accelerated Qualification Programs for Advanced LWR Fuels, Jae Ho Yang (KAERI)
15:30~15:50	휴식 Break
15:50~16:15	사고저항성핵연료 상용화 기술 개발, 임광영 (한전원자력연료) Development of Commercialization Technology for ATF, Kwang-Young Lim (KepcoNF)
16:15~16:40	소듐냉각고속로 금속연료의 자격화 확보 현황, 김준환 (한국원자력연구원) Qualification Status of SFR Metal Fuel, Jun-Hwan Kim (KAERI)
16:40~17:05	MSR 핵연료 제조 및 핵분열생성물 관리 기술 개발 현황, 윤달성 (한국원자력연구원) Recent Progress in MSR Fuel Fabrication and Fission Product Management Technologies, Dalsung Yoon (KAERI)
17:05~17:30	블록형 고온가스로 피복입자핵연료 기술 및 국내 자격화 방향, 김응선 (한국원자력연구원) TRISO Fuel Technology and Future Directions for Fuel Qualification in Korea's Block-Type HTGR Program, Eungseon Kim (KAERI)
17:30~18:00	종합 토의 및 폐회 Closure

| 기타사항 - 등록비 : 60,000원 / 석식제공
- 문의처 : 김동주 / KAERI / 042-868-2816 / djkim@kaeri.re.kr
장 훈 / KNF / 042-869-3174 / janghoon@knfc.co.kr
여승환 / KAERI / 042-866-6127 / syeo@kaeri.re.kr

E

SMR 기기/설비에 대한 혁신 설계 및 제작 기술

| 일시 · 장소 2026년 10월 28일 (수) 13:30~18:00 · 경주화백컨벤션센터, 1층 103호
| 주최 한국원자력학회 핵연료 및 원자력재료 연구회
| 후원 한수원㈜ 중앙연구원

사회 : 황진하 (부경대학교)

일 정	내 용
13:30~14:00	워크숍 등록
14:00~14:05	개회사, 김동진 (한국원자력학회, 핵연료 및 원자력재료 연구회장)
14:05~14:10	환영사, 김종성 (한국에너지기술평가원, PD)
14:10~14:35	혁신형SMR 개발동향 및 주기기 설계 현황, 남현석 (한수원㈜ 중앙연구원, 선임연구원)
14:35~15:00	SA508 Gr.3 Cl.2 고강도강 원자로용기 적용을 위한 조사취화 연구 현황, 홍석민 (한국원자력연구원, 책임연구원)
15:00~15:25	전자빔용접 특성에 따른 SMR 압력용기 건전성의 파괴역학 분석, 황진하 (부경대학교, 교수)
15:25~15:50	SMR 증기발생기 관리 프로그램 개발 방안, 김종인 (두산에너빌리티㈜, 팀장)
15:50~16:10	사진촬영 / Coffee Break
16:10~16:35	SMR에서 유도가열벤드의 필요성과 기술개발 현황, 성기호 (성일SIM)
16:35~17:00	SMR 부품 적용을 위한 금속 적층제조 기술 개발 현황, 박기태 (한국재료연구원, 선임연구원)
17:00~17:25	EBW (전자빔용접) & DLC (다이오드레이저 클래딩) 기술 개발 현황, 조성우 (두산에너빌리티㈜, 수석)
17:25~17:50	RIM 프로그램 관련 ASME Section XI 기술기준 개발 및 적용 동향, 정연기 (한국원자력안전기술원, 책임연구원)
17:50~18:00	Closing Remark

| 기타사항 - 등록비 : 무료 / 석식 제공
- 문의처 : 김진원 / 조선대학교 / 062-230-7109 / jwkim@chosun.ac.kr

F

원자력 열수력 중장기 발전 전략

Mid- to Long-Term Development Strategy for Nuclear Thermal Hydraulics

| 일시 · 장소 2026년 10월 28일 (수) 13:30~18:00 · 경주화백컨벤션센터, 3층 300C
| 주최 한국원자력학회 원자력열수력 연구회

일 정	내 용
13:30~13:40	개회사, 최기용(한국원자력연구원) Opening remark, Ki-Yong Choi (Korea Atomic Energy Research Institute)
13:40~14:10	소형모듈원자로(SMR) 규제 동향과 예상 안전해석 현안, 허병길(한국원자력안전기술원) Regulatory Trends and Safety Analysis Issues for Small Modular Reactors (SMRs), Byung Gil Huh (Korea Institute of Nuclear Safety)
14:10~14:40	노형개발 경험 및 추진 현황, 이상원(한국수력원자력(주) 중앙연구원) Lesson Learned and Current Status of NPP Development, Sang Won Lee (KHNP Central Research Institute)
14:40~15:10	원자력 열수력 연구의 발전 방향, 정재준(부산대학교) Future Directions of Nuclear Thermal-Hydraulics Research, Jae Jun Jeong (Pusan National University)
15:10~15:30	휴식 및 사진 촬영 Break & Group Photo
15:30~16:00	열수력중장기 TFT 경수형원자로분과 기술기획, 김석(한국원자력연구원) Thermal-Hydraulics Mid- to Long-Term Technology Planning: Light Water Reactor Subcommittee, Seok Kim (Korea Atomic Energy Research Institute)
16:00~16:30	열수력중장기 TFT 비경수형원자로분과 기술기획, 권혁(한국원자력연구원) Thermal-Hydraulics Mid- to Long-Term Technology Planning: Non-Light Water Reactor Subcommittee, Hyouk Kwon (Korea Atomic Energy Research Institute)
16:30~17:00	열수력중장기 TFT 공통분과 기술기획, 이정익(한국과학기술원) Thermal-Hydraulics Mid- to Long-Term Technology Planning: Cross-Cutting Subcommittee, Jeong Ik Lee (Korea Advanced Institute of Science and Technology)
17:00~17:50	패널토의, 정재준(부산대학교) Pannel Discussion, Jae Jun Jeong (Pusan National University)
17:50~18:00	폐회사, 최기용(한국원자력연구원) Closing remark, Ki-Yong Choi (Korea Atomic Energy Research Institute)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 김석 / 한국원자력연구원 / 042-868-4657 / seokim@kaeri.re.kr

G

동위원소 도전과 기회 VI – 의료용동위원소, 생산에서 임상까지

| 일시 · 장소 2026년 10월 28일 (수) 13:30~17:40 · 경주화백컨벤션센터, 2층 202호
| 주최 한국원자력학회 방사선이용 및 기기 연구회
| 주관 한국원자력연구원

일 정	내 용
13:30~13:40	개회, 사회자 환영사, 정영욱 소장 (한국원자력연구원 하나로양자과학연구소)
13:40~14:00	축사/정책발표『의료용 방사성동위원소 정책 동향과 발전 방향』, 심환보 사무관 (과학기술정보통신부 원자력연구개발과)
14:00~14:20	수출용신형연구로 생산기반 구축현황과 계획, 이기홍 부장 (한국원자력연구원 수출용신형연구로실증사업단)
14:20~14:40	월성 중수로 RI 생산기반 구축 현황, 최광식 처장 (한국수력원자력 기술정책처)
14:40~15:00	대전 HANARO 기반 의료용 방사성동위원소와 필수 방사성의약품 생산·공급 현황 및 계획, 조은하 센터장 (한국원자력연구원 방사성의약품지원센터)
15:00~15:20	기장 KJRR 기반 의료용 방사성동위원소 생산기술 개발 및 생산·공급체계 구축계획, 이승곤 박사 (한국원자력연구원 수출용신형연구로실증사업단)
15:20~15:40	악티늄-225 개발 현황 및 향후 계획, 김재홍 연구위원 (기초과학연구원 중이온가속기연구소)
15:40~16:00	단체 사진촬영 및 Coffee Break
16:00~16:20	동남권 방사성의약품 연구개발 추진 현황 및 전망, 천인국 주임과장 (동남권원자력의학원 핵의학과)
16:20~16:40	치료용 방사성의약품 신약개발, 길희섭 상무이사 (㈜퓨쳐켐)
16:40~17:00	진단·치료용 방사성의약품의 국내 임상 적용 현황과 의료현장 수요 및 향후 전망, 팽진철 교수 (서울대학교병원 핵의학과)
17:00~17:30	종합 토론 및 전문가 제언(가치사슬 연계 및 산업 활성화), 좌장 및 발표자
17:30~17:40	정리 및 폐회, 사회자

| 기타사항 - 등록비 : 무료 / 석식 제공 없음
- 문의처 : 이수승 / 한국원자력연구원 / 010-5035-1863 / ssl1863@kaeri.re.kr
오유진 / 한국원자력연구원 / 010-5606-8121 / oohhyoujin@kaeri.re.kr

H

제8차 소형 중성자원 개발과 이용 워크숍 (KCANS-8)

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 2층 206호
| 주최 한국원자력학회 양자공학 및 핵융합기술 연구회

일 정	내 용
14:00~14:10	인사말 (연구부회장 정경재) / 사회(이창희/이동원)
14:10~14:35	D-D/D-T 중성자발생장치 국산화 개발 및 활용 (허성렬/한국원자력연구원)
14:35~15:00	소형중성자원 활용 연구 현황 (이필수/한국원자력연구원)
15:00~15:25	D-D 중성자 발생장치 기반 산업적용 및 산업화 현황 (정봉기, 큐빔솔루션/한국원자력연구원)
15:25~15:50	중이온가속기 RAON 및 실험장치 운영 현황 (함철민, 기초과학연구원/중이온가속기연구소)
15:50~16:10	기념촬영 및 휴식
16:10~16:35	다원메닥스 가속기기반 중성자원 시설 활용 현황 및 계획 (배영순, 다원메닥스)
16:35~17:00	100 MeV 양성자가속기 기반 중성자원 구축 및 활용연구 (정명환, 한국원자력연구원)
17:00~17:25	UCANS-12 개최 결과 보고 및 국내 소형중성자원 현황 공유 (이동원, 한국원자력연구원)
17:25~18:00	UCANS charter에 따른 KCANS 운영 및 논의 (이동원, 한국원자력연구원)

| 기타사항 - 등록비 : 30,000원 / 석식제공 없음 (발표자간 비공식 교류회 예정)
- 문의처 : 이동원 / 한국원자력연구원 / 010-6403-0655 / dwlee@kaeri.re.kr
이기현 / 한국원자력연구원 / 010-5099-2084 / khlee08@kaeri.re.kr

JAEA–KAERI Joint Workshop

Resilience of Nuclear Power Plants Considering External Hazards

| 일시 · 장소 2026년 10월 28일 (수) 14:00～18:00 · 경주화백컨벤션센터, 1층 101호
| 주최 한국원자력학회 원자력 건설 및 운영기술 연구회

일 정	내 용
14:00～14:05	Opening & Introduction, Minkyu Kim (KAERI)
14:05～14:30	Investigation on Stress Wave Propagation and Distance Attenuation Characteristics in Reinforced Concrete Structures Subjected to Projectile Impact, Yukihiko Okuda (JAEA)
14:30～14:55	Tensile performance of deeply embedded cast-in-place anchors in cracked concrete: Implications for structural resilience, Gyeonghee An (KAERI)
14:55～15:20	Stress Classification Approach for Failure Modes of Piping Elbows Under Seismic Loads, Kiyotaka Takito (JAEA)
15:20～15:35	Coffee Break
15:35～16:00	Development of Safety Assessment Technology for Nuclear Facilities against Wind-Borne Missiles, Jae-Wook Jung (KAERI)
16:00～16:25	Toward Standardizing Probabilistic Risk Assessment Procedures for Combined External Hazards: A Focus on Screening Procedures, Byunghyun Choi (JAEA)
16:25～16:50	Risk-Based Resilience Assessment for Nuclear Power Plants under Seismic Events, Changuk Mun (KAERI)
16:50～18:00	Joint Discussion & Closing

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 안경희 / 한국원자력연구원 구조·지진안전연구부 / 042-866-6597, 010-3800-4150 / akh425@kaeri.re.kr

J

Application of Risk-Informed Performance-Based(RIPB) Approaches to Seismic and External Event Safety

| 일시 · 장소 2026년 10월 27일 (화) 14:00~18:00 · 경주화백컨벤션센터, 105+106호
| 주최 한국원자력학회 원자력 건설 및 운영기술 연구회

일 정	내 용
14:00~14:15	Opening & Workshop Objectives, Minkyu Kim (KAERI)
14:15~14:45	Risk-informed and Performance-based Approach to Design and Assessment againt External Events, Tsuyoshi Takada (JAEA)
14:45~15:15	Risk-Informed Performance-Based Approaches to Seismic Safety of Nuclear Power Plants: Practical Applications and Recent Advances, Tatsuya Itoi (University of Tokyo)
15:15~15:30	Coffee Break
15:30~16:00	Need for a RIPB Framework for External Hazards in Korean Nuclear Civil Engineering, Jung Han Kim (Pusan National University)
16:00~16:30	Bayesian Network-based External Hazard PSA : A Practical RIPB framework for External Hazards, Shin-Young Kwak (Hanbat National University)
16:30~17:00	Technical Considerations for Risk-informed Performance-based Seismic Design in Korea, Jeong-Gon Ha (KAERI)
17:00~17:30	Panel Discussion — Technical and Regulatory Challenges of RIPB Adoption
17:30~18:00	Wrap-up

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 안경희 / 한국원자력연구원 구조·지진안전연구부 / 042-866-6597, 010-3800-4150 / akh425@kaeri.re.kr

K

전력시스템 비용 분석 기반 국가 에너지모델 개발: 국제공동연구 최종 성과 공유 워크숍

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 2층 205호
| 주최 한국원자력학회 원자력 정책, 인력 및 협력 연구회

일 정	내 용
14:00~14:10	인사말 및 전력시스템 비용 연구 소개, 사회자
14:10~14:35	한국 전력시스템 비용 평가: Posy2 방법론과 주요 가정, Guillaume Krivtchik (OECD NEA)
14:35~14:45	전력시스템 연구를 위한 원전 핵연료 재장전 모델링, 가정 및 Posy2에서의 구현, 배유리 (한국에너지공과대학교)
14:45~15:10	전력시스템 비용 분석을 위한 계통표현: 한국 사례의 모델링 방법과 고려사항, 김태현 (한국전기연구원)
15:10~15:35	2050년 한국 전력시스템 시나리오 분석: 전원구성, 시스템 비용 및 시사점, 조재완 (한국원자력연구원)
15:35~16:00	자유토의, 발표자 및 참석자
16:00~16:20	휴식
16:20~16:45	급변하는 전력계통의 안정도 이슈와 대응 방향, 이재형 (국립목포대학교)
16:45~17:10	MESSAGE 기반 에너지시스템 분석: 2050년까지의 전환 경로, 주지은 (한국원자력연구원)
17:10~17:35	지역 독립계통의 무탄소 에너지시스템 시나리오 분석: SMR을 중심으로, 정진영 (에너지경제연구원)
17:35~17:55	자유토의, 발표자 및 참석자
17:55~18:00	주요 의견 정리 및 폐회, 사회자

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 조재완 / 한국원자력연구원 / 010-2440-4904 / jcho@kaeri.re.kr

M

원자력안전규제 제도 및 심사현황

| 일시 · 장소 2026년 10월 28일 (수) 14:00~17:30 · 경주화백컨벤션센터, 2층 203호
| 주최 한국원자력학회 원자력 정책, 인력 및 협력 연구회

일 정	내 용
14:00~14:05	환영사 (미정)
14:05~14:10	개회사 (미정)
세션 1 : 원자력 안전규제 제도 소개	
14:10~14:40	원자력안전규제 기술기준 규정체계 정비 (원자력안전위원회)
14:40~15:00	고리 2호기 계속운전 사례를 통한 시사점 (원자력안전위원회)
15:00~15:20	정기검사 개편 관련 제도 소개 (원자력안전위원회)
15:20~15:40	원자력안전 R&D 추진방향 (원자력안전위원회)
15:40~15:50	휴식
세션 2 : 원자력 안전심사 현황	
15:50~16:10	한국원자력안전기술원(KINS) 원자력심사단 심사현황 및 미래 안전심사 (KINS)
16:10~16:30	계속운전 심사를 통해 본 원전의 경년열화관리 (KINS)
16:30~16:50	중대사고 법제화에 따른 사고관리계획서 소개 및 심사현황 (KINS)
16:50~17:10	AI를 활용한 원자력 안전규제방안 연구 (KINS)
세션 3 : 총괄 질의 응답 및 토론	
17:10~17:30	총괄 질의응답 및 토론 (Q&A and Discussion)

※상기 구성, 일정 및 내용은 미정으로 향후 사정에 따라 변경될 수 있음

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 정재욱 / 원자력안전위원회 / 010-8963-9478 / jjw1208@korea.kr
한찬규 / 원자력안전기술원 / 010-9389-6676 / k732hcg@kins.re.kr

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원자력시설 사이버보안 규제 변화, 이행 현황과 과제 – 디지털 I&C 시대, 대형원전에서 SMR·AR까지

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 2층 204호
| 주최 한국원자력학회 원자력계측제어, 인간공학 및 자동원격 연구회

일 정	내 용
14:00~14:05	개회사, 최종균 (한국원자력연구원) Opening, Jong-Gyun Choi (KAERI)
14:05~14:30	원자력시설 사이버보안 동향과 이슈, 송재구 (한국원자력연구원) Nuclear Cybersecurity: Trends and Issues, Jae-Gu Song (KAERI)
14:30~14:55	방사능방재법 개정에 따른 인·허가단계별 보안규제안 및 i-SMR 사이버보안 심사방향, 권국희 (한국원자력통제기술원) Amended Act on Physical Protection and Radiological Emergency: Proposed Security Regulations by Licensing Stage and Cybersecurity Review Approach for i-SMR, Kookheui Kwon (KINAC)
14:55~15:20	국가 원자력시설 대상 생애주기별 보안내재화 지침 및 해설서 소개, 정만현 (국가보안기술연구소) Introduction to the Lifecycle-Based Security-by-Design Guidelines and Commentary for National Nuclear Facilities, Manhyun Chung (NSR)
15:20~15:45	원전 사이버보안 심층방호: 기술기준 분석 및 적용 방안, 이정권(한국전력기술) Nuclear Power Plant Cybersecurity Defense-in-Depth: Technical Standards Analysis and Implementation, Jeong-Kweon Lee(KEPCO E&C)
15:45~16:05	휴식 Break
16:05~16:30	MSR 추진선박 개발 현황과 사이버보안 연계 이슈, 김종원 (삼성중공업) Development of MSR Powered Ship and Related Cybersecurity Issues, Jong-Won Kim (Samsung Heavy Industries)
16:30~16:55	국가 핵심 인프라 보안 모니터링 시스템 강화 및 이행 현황, 김진철 (한전KDN) Enhancement and Implementation Status of Security Monitoring Systems for National Critical Infrastructure, Jin-Chul Kim (KEPCO KDN)
16:55~17:20	원전 사이버보안 관제를 위한 제어기 수준의 보안 모니터링 기술 연구 현황, 손광섭 (한국원자력연구원) Research Status of Controller-Level Security Monitoring Technology for Cybersecurity Operations in Nuclear Power Plants, Kwang-Seop Son (KAERI)
17:20~17:30	종합토의 및 폐회 Discussion and Closing

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 송재구 / 한국원자력연구원 / 010-8410-7374 / jgsong@kaeri.re.kr

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극한환경 전력의 해법, 히트파이프 원자로 개발 현황

| 일시 · 장소 2026년 10월 28일 (수) 13:10~17:50 · 경주화백컨벤션센터, 105호
| 주최 한국원자력학회
| 후원 차세대원자력정책센터

사회 : 김찬수(한국원자력연구원 부장)

일 정	내 용
13:00~13:10	등록
13:10~13:15	환영사 : 최성민(한국원자력학회장)
13:15~13:20	인사말 : 이석규 사무관(과학기술정보통신부)
13:20~13:25	워크숍 개최 배경 설명 : 김학노(前, 한국원자력학회장)
13:25~13:50	한미 달기지구축 협력 추진현황 : 박승수 사무관(우주항공청)
13:50~14:10	초소형원자로의 안보적 함의 : 움직이는 원자로와 전략적 회복 탄력성 : 조은정(국가안보전략연구원 지정학센터장)
14:10~14:35	초소형원자로와 민간 수요 : 김형대(경희대학교 교수)
14:35~14:45	휴식
14:45~15:10	히트파이프 원자로 개념 및 설계기술 : 이성남(한국원자력연구원 책임연구원)
15:10~15:35	히트파이프 제조/설계 및 전력변환계통 연계 : 박병하(한국원자력연구원 실장)
15:35~15:55	UO_2기반 초소형원자로 핵연료 및 금속수소화물 : 홍종대(한국원자력연구원 책임연구원)
15:55~16:15	피복입자핵연료와 흑연 : 김응선(한국원자력연구원 책임연구원)
16:15~16:25	휴식
16:25~16:50	초소형원자로와 스털링엔진 : 고준석(한국기계연구원 연구실장)
16:50~17:15	초소형원자로와 초임계이산화탄소 브레이튼사이클 : 박호열(한화파워 프로)
17:15~17:40	eVINCI급 초장축 히트파이프 제작 및 시험 : 방인철(UNIST 교수)
17:40~17:50	결언 및 폐회 : 김찬수(한국원자력연구원 부장)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 민현정 실장 / 한국원자력학회 / 042-826-2677 / kns2613@kns.org
이연화 팀장 / 한국원자력학회 / 042-826-2613 / news@kns.org

P

원자력 인공지능 강습회: 가상 원자로를 위한 AI 기술

AI in Nuclear Engineering Course: AI for Virtual Reactors

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 경주화백컨벤션센터, 1층 104호
| 주최 한국원자력학회
| 후원 POSTECH 첨단원자력공학부

일 정	내 용
14:00~14:05	개회사, 엄우용 (POSTECH) Opening Address, Wooyong-Um (POSTECH)
14:05~15:00	기초 (1) 가상 원자로를 위한 차원 축소, 전준구(POSTECH) Dimensionality Reduction, Joongoo Jeon (POSTECH)
15:00~16:00	기초 (2) 가상 원자로를 위한 신경 연산자, 채영호 (KAERI) Neural Operators, Young Ho Chae (KAERI)
16:00~16:30	응용 (1) 한국형 가상원자로 플랫폼(V-SMR) 개발 현황 및 계획, 조윤제 (KAERI) Development Status and Future Plans for the Korean Virtual Reactor Platform (V-SMR), Yun Je Cho (KAERI)
16:30~17:00	응용 (2) 고신뢰도 해석 및 다물리 연계 기술 개발 현황, 조윤제 (KAERI) Development Status of High-Fidelity Simulation and Multiphysics Coupling Technologies, Yun Je Cho (KAERI)
17:00~17:30	응용 (3) 원자로 AI 시뮬레이터 개발, 전준구 (POSTECH) AI-Based Reactor Simulator, Joongoo Jeon (POSTECH)
17:30~18:00	응용 (4) SMR의 자동화수준, 김재민 (KAERI) Level of Automation for SMR, Jae Min Kim (KAERI)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 전준구 / POSTECH / 010-3238-0577 / jgjeon41@postech.ac.kr

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PSAR 기반 원자력 안전규제 심사 워크숍

| 일시 · 장소 2026년 10월 26일 (화) 10:00~18:00 / 2026년 10월 27일 (수) 9:00~12:00 · 경주화백컨벤션센터
| 주최 경희대학교
| 주관 한국원자력학회

■ 1일차(10.27.(화) 10:00–18:00)

일 정	내 용
09:30~10:00	참가자 등록, 교재 배포 및 조 편성, MCG
10:00~10:30	개회사 및 환영사, 경희대
	교육 목표 및 오리엔테이션 전체 프로그램/Mock Review 진행방식 소개, MCG
10:30~11:15	**(강의 1) 국내 원자력 안전규제 및 규제체계** 규제기관과 사업자의 역할, 관련 법령 및 규제체계, KINS
11:15~11:30	휴식
11:30~12:15	**(강의 2) 국내 원자력 인허가 절차와 PSAR의 역할** 건설허가 · 운영허가 절차, PSAR · FSAR의 관계, KINS
12:15~13:30	점심
13:30~14:15	**(강의 3) PSAR의 구성과 주요 규제심사 분야** 주요 Chapter, 부지·계통·구조·사고해석·방사선방호, KINS
14:15~15:00	**(강의 4) PSAR Review Methodology** 심사 절차, 규제기준, 적합성 판단 및 추가정보요청, KINS
15:00~15:30	휴식
15:30~16:15	**(사례연구) 사업자의 역할과 PSAR 작성 사례** PSAR 작성 과정, 심사 대응, 추가정보요청 대응 사례, KHNP
16:15~16:30	**(조별실습) 오리엔테이션** 사례자료 · 심사기준 · 조별 과업 및 결과양식 설명, MCG
16:30~17:30	**(조별실습) PSAR 사례 1차 분석** 안전성 주장, 근거자료 및 주요 심사 쟁점 파악, MCG
17:30~18:00	조별 검토사항 정리, MCG

■ 2일차(10.28.(수) 09:00–12:00)

일 정	내 용
09:00~09:15	**Day 1 정리 및 실습 안내** 주요 학습내용 환기 및 조별 과업 확인, MCG
09:15~10:00	**(조별실습) PSAR 심사 결과 도출** 적용기준 검토, 추가정보 요청사항 및 잠정 심사 결론 작성, KINS·KHNP
10:00~11:15	휴식
10:15~11:00	**(조별실습) 모의규제심사(Mock Regulatory Review)** 조별 심사 결과 발표, 사업자 답변, 전문가 질의, KINS·KHNP
11:00~11:30	**KINS · KHNP 전문가 피드백** 조별 심사 결과 평가, 실제 심사와의 차이 및 개선점, KINS · KHNP
11:30~11:45	**종합토론** 규제기관과 사업자의 관점 비교, 질의응답, KINS
11:45~12:00	**수료 및 폐회** 교육성과 정리 및 단체사진, MCG

| 기타사항 - 문의처 : 행사 실무 담당
정난희 /㈔한국핵물질관리학회, ㈜미래전략컨설팅 / 010-4057-4660 / knmm@knmm.org

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2026년도 가동원전 안전성 향상 핵심기술개발사업 정보교류회

| 일시 · 장소 2026년 10월 28일 (수) 10:00~16:00 · 더케이호텔 경주 신관 3층 화랑 A,B,C
| 주최 기후에너지환경부, 과학기술정보통신부
| 주관 한국에너지기술평가원, 한국연구재단, 한국원자력학회

■ 예측분야_화랑 A홀

일 정	내 용
10:00~10:10(10분)	정보교류회 추진 방향 설명
10:10~10:40(30분)	(1-1-1) 원전환경 이상상태 스마트 센싱 기술 개발
10:40~11:10(30분)	(1-1-2) 회전설비 인공지능형 진동 감시 시스템 개발
11:10~11:40(30분)	(1-2-1) 설비 이상/고장 빅데이터 생산 및 고장진단 지능화 기술 개발
11:40~13:00(80분)	점심시간
13:00~13:30(30분)	(1-2-2) 엣지컴퓨팅 기반 원격진단 기술 개발
13:30~14:00(30분)	(1-2-3) 원자로제어계통 및 디지털 I&C 손상진단 기술 개발
14:00~14:30(30분)	(1-2-4) 원전 사이버위협 탐지 및 대처 기술 개발
14:30~15:00(30분)	(1-2-5) AI 기반 인적오류 방지기술 고도화
15:00~16:00(60분)	종합토론

■ 예방분야_화랑 B홀

일 정	내 용
10:00~10:10(10분)	정보교류회 추진 방향 설명
10:10~10:40(30분)	(2-1-1) 사고저항성 향상 혁신 핵연료 소재 부품 개발 및 상용화
10:40~11:10(30분)	(2-2-1) 노심구조부품 손상예방 크러드 저감기술 개발
11:10~11:40(30분)	(2-3-2) 계통영향 정보 기반 원전 화재 사고 저항성 강화 기술
11:40~13:00(80분)	점심시간
13:00~13:30(30분)	(2-3-1) 다중고장사고 예방 원자로 계통 안전강화 기술개발
13:30~14:00(30분)	(2-4-1) 극한/복합 자연재해 대비 원전 구조물/기기 안전성 향상기술 개발
14:00~14:30(30분)	(2-4-2) 설계초과 강진 대비 기기 안전성 향상기술 개발
14:30~15:00(30분)	(2-4-3) 사고진행 다변성 반영 다수기사고 확대 방지기술
15:00~16:00(60분)	종합토론

■ 대응분야_화랑 C홀

일 정	내 용
10:00~10:10(10분)	정보교류회 추진 방향 설명
10:10~10:40(30분)	(3-1-1) 중대사고 시 격납건물 내 방사선원 계측기술 개발
10:40~11:10(30분)	(3-1-2) 격납건물 구조건전성 평가 기술 개발
11:10~11:40(30분)	(3-1-3) 사고대응 관리를 위한 방사선 피폭선량 평가 기술 개발
11:40~13:00(80분)	점심시간
13:00~13:30(30분)	(3-2-1) 격납건물 내 부유 방사성물질 저감설비 개발
13:30~14:00(30분)	(3-2-2) 사고 비상작업 무인지원기술 개발
14:00~14:30(30분)	(3-2-3) 사고시 소외방사선 실시간 계측 및 대응 기술 개발
14:30~15:30(60분)	종합토론

| 기타사항 - 등록비 : 무료 / 중식, 석식 제공없음
- 문의처 : 조정홍 / 한국에너지기술평가원 원전산업실 / 02-3469-8388 / jhj2@ketep.re.kr
송영진 / 한국연구재단 원자력단 / 042-869-7812 / youngjinsong@nrf.re.kr

S

SMR 제작지원-시험검사센터 기반구축사업 발표회

| 일시 · 장소 2026년 10월 28일 (수) 14:00~18:00 · 힐튼호텔 경주 체리룸 A(B1층)
| 주최 기후환경에너지부, 한국에너지기술평가원
| 주관 한국원자력학회, 한국기계연구원, 경남테크노파크, 한국재료연구원

일 정	내 용
14:00~14:10	개회사 및 내빈 소개(한국기계연구원)
14:10~14:40	SMR보조기기제작지원센터 구축사업 소개(한국기계연구원)
14:40~15:10	SMR로봇활용제작지원센터 구축사업 소개(경남테크노파크)
15:10~15:40	SMR3D프린팅제작지원센터 구축사업 소개(한국재료연구원)
15:40~16:10	SMR제조부품시험검사센터 구축사업 소개(한국기계연구원)
16:10~17:00	질의 응답 및 토론

| 기타사항 - 문의처 : 한국기계연구원
김가희 / 한국기계연구원 동남본부 레이저기술실용화연구실 / 010-2125-2707 / rkgml831@kimm.re.kr

추계 스피치 콘테스트

| 일시 · 장소 2026년 10월 28일 (수) 14:00~17:05 · 경주화백컨벤션센터 1층 106호
| 주최 한국원자력학회 청년이사, 학생지부. 청년지부, 여성지부

■ 발표자별 10분 (발표 3분 + 심사평 5분 + 다음 발표 준비 2분)

일 정	내 용
14:00~14:05	Opening remarks, 조영범 교수 (경희대학교)
14:05~14:10	축사, 최성민 학회장님 (KAIST)
14:10~14:20	반도체와 원자로, 그 사이에 중성자, 김민지
14:20~14:30	이미 알고 있는 것으로, 새로운 원자로를, 김설희
14:30~14:40	0.6%가 만든 시간: 핵분열을 통제하는 작은 늦음, 김예은
14:40~14:50	작은 원자로, 작지 않은 약속, 김태오
14:50~15:00	사람들의 일상을 지키는 힘, 원자력, 박규빈
15:00~15:10	지구온난화: 80억명 팀플, 원자력의 몫, 박효성
15:10~15:30	Coffee Break
15:30~15:40	두 개의 안전이 만나는 곳: 움직이는 원자로의 새로운 안전, 신민제
15:40~15:50	자연어에서 원자로 설계 · 해석까지: 통합 AI 프레임워크 GENESYS™, 이승윤
15:50~16:00	3분의 경계에서 배운 원자력의 안전과 신뢰, 이정석
16:00~16:10	우리는 모두 원자력의 초진 환자입니다, 이재영
16:10~16:20	선진원자로 실현을 위한 핵연료 자격화와 경제성 확보, 이지수
16:20~16:30	설명이 아니라, 체감 : 방폐장은 왜 설득되지 않았는가, 이현빈
16:30~17:00	Award Ceremony
17:00~17:05	Closing remarks, 성지현 교수 (KAIST)

| 기타사항 - 등록비 : 무료 / 석식제공 (학생지부 · 청년지부 · 여성지부 공동 주최)
성지현 / KAIST / sjhyunmit@kaist.ac.kr
조영범 / 경희대학교 / youngbeom.jo@khu.ac.kr

분과별 논문 발표
(Technical Sessions)

제1분과

원자로시스템기술 (Reactor System Technology)

1A 10.29.(목) 원자로시스템기술 1 (Reactor System Technology 1)

| 좌장 김태우(Kim, Taewoo), 손성민(Son, Seongmin) | 101

09:00 Screening of Latent and Sensible Heat Storage Media for a Packed Bed Passive Containment Condenser
Hyochan Kim and Jeong Ik Lee(KAIST)

09:20 System-Level Design Closure and Verification Framework for a 450 MWth / 140 MWe Natural-Circulation SMR with BeO-Centered Fuel and Integrated Radioactive Waste Management
SE YUP LEE(KONEC)

09:40 Assessment of an SMR–Renewable Energy Hybrid System for Stable Power Supply to the Saemangeum Industrial Complex
Kyoung Jin Park, Keung Koo Kim, and Hak–kyu Lim(KINGS)

10:00 Effect of i-SMR Load-Following Operation on Energy Storage System Requirements under High Renewable Penetration Scenarios in the Korean Power System
Chaemun Lee, Keung Koo Kim, and Hakkyu Lim(KINGS)

10:20 Rodded Depletion Analysis of Soluble Boron-Free SMR Using Axially-shielded Burnable Absorber (ABA) in the Equilibrium Cycle
Yunseok Jeong, Jaehyun Ryu, and Yonghee Kim(KAIST)

10:40 Coffee Break

11:00 Thermo-Mechanical Responses of Zircaloy-4 Cladding in a Fuel Rod Loaded with Axially-Shielded Burnable Absorber
Yongse Kim, Yunseok Jeong, and Yonghee Kim(KAIST)

11:20 Development and Preliminary Analysis of a MATLAB/Simulink-Based System-Scale Model of a Coupled High-Temperature Gas-Cooled Reactor–Solid Oxide Electrolysis Cell System
Jiwon Ahn and Hyoung Kyu Cho(SNU)

11:40 Climate Resilience of a Large PWR versus an Integral SMR at a Tropical Marine Site: The Role of Regulatory Discharge-Limit Form
Rachman Bagus Sujiatmoko and Hak–kyu Lim(KINGS)

12:00 A Robust Framework for Small Modular Reactor Technology Selection: Application to Nigeria
Muhammad Mashi Hassan and Juyoul Kim(KINGS)

1B 10.29.(목) 원자로시스템기술 2 (Reactor System Technology 2)

| 좌장 한훈식(Han, Hun Sik), 오승환(Oh, Seunghwan) | 101

13:00 A Life-Cycle Regulatory Inspection Framework for Light-Water Small Modular Reactors
Manwoong Kim(DANE. POSTECH), DongYuk Kim(KINS), Sukho Lee(NSI)

13:20 Assessment of Heat-only SMR Deployment Capacity for District Heating Based on Heat Demand Profiles and LCOH
Tae Woo Kim and Jeong Ik Lee(KAIST)

13:40 Economic Assessment of Power to Liquid Using SMR with Direct Air Capture
Tae Yang Lee, Chang Min Yoon, and Jeong Ik Lee(KAIST)

14:00 Coffee Break

14:20 Degradation-Informed Functional Reliability Assessment of Natural Circulation in an SMR Primary Coolant System
Herman Ofori Antwi and Hakkyu Lim(KINGS)

14:40 Preliminary Assessment of Accident Source Terms for a Heat Pipe-Cooled Microreactor
Nam–il Tak, Sung Nam Lee, Yeon–Sang Jung, Seunghwan Oh, and Chan Soo Kim(KAERI)

15:00 Necessity and Satisfaction Conditions of the Maximum Fuel Temperature Design Limit in Research Reactors with Plate-Type Fuel
KIWON SONG(KAERI)

1C 원자로시스템기술 (Reactor System Technology) – POSTER

10.29.(목) – 30.(금)

| 좌장 박수기(Park, Suki), 임성원(Lim, Sung Won) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO1C01 System Code Analysis of Radiative and Convective Heat Transfer in the STELLA-2 Reactor Vessel Cooling System Using MARS-LMR and GAMMA+
Geunyoung Byeon, Seungjoon Baik, YongHoon Shin, In Sub Jun, Jung Yoon, Ji–Woong Han, ByeongYeon Kim, and Jewhan Lee(KAERI)

PO1C02 Design Review of the Primary System and Reactor Vessel of the Molten-Salt Reactor Experiment from a Thermal-Hydraulic Perspective
Hyungi Yoon(KAERI), Timothy Ruscoe(Saltfoss Technologies)

PO1C03 Development of Preliminary Material Balance Evaluation Methods for the Core and Off-Gas Systems During Molten Salt Reactor Operation
JuHo Lee, ChangHwa Lee, SeokMin Hong, and Yonghee Ryu(KAERI)

PO1C04 POD-Based Reduced-Order Prediction of Pressure Drop in 217 Wire-Wrapped Pin Bundles
Jongtae Kim, Dehee Kim, Jonggan Hong, and Jewhan Lee(KAERI)

PO1C05 Review of Reactor Core Flow Distribution Research and Perspectives for APR1400
Jae Yong Oh, Yun Seok Choi, and Donghwan Park(KHNP)

PO1C06 Calculation Methodology for the Degree of Non-equilibrium after Two-Phase Expansion of Air through a Nozzle in a PWR-Integrated Liquid Air Energy Storage System
Yong Jae Chae and Jeong Ik Lee(KAIST)

PO1C07 A Preliminary Concept of Periodic Steady-State Xenon Reactivity Estimation in Load-Following Operation
Hyeonho Byun, Seunghun Yoo, and Joosuk Lee(KINS)

PO1C08 Magnetic-Jack Type CRDM Coil and Pressure Housing Design
JaeSeon Lee, HanBum Surh, and KwangHyun Ahn(KAERI)

PO1C09 Tightly Coupling of Thermochemistry Code to OpenMC for Modeling Noble Gas Stripping Effect in Chloride-based Molten Salt Reactor
Ju Ho Lee, Chang Hwa Lee, and Sang Ji Kim(KAERI)

PO1C10 Sensitivity Analysis of Radial Nodalization on Reactor Natural Circulation in an Integral PWR-type SMR Using MARS-KS
Sunbok Jin, Nakjun Choi, and HangJin Jo(DANE. POSTECH)

PO1C11 Dynamic System Modeling and Hydrogen Co-generation Analysis of Nuclear Integrated Energy System for Saemangeum Energy Cluster
Hyung–Seok Lim and Ji Yong Kim(JBNU), Joo Hyung Seo(UNIST)

PO1C12 Practical Application of NUCIRC Methodology for CANDU 6 PHTS Core Flow Estimation
Jae Yong Oh, Yun Seok Choi, and Young Ae Kim(KHNP)

PO1C13 Preliminary Evaluation of Operation Condition in SFR Integrated with TES
Ji–Woong Han, Dehee Kim, Huee–Youl Ye, and Jewhan Lee(KAERI)

PO1C14 Preliminary Techno-Economic Assessment of High Temperature Modular Reactor (HTMR-100) Deployment for South African Mining Applications
Zondi Nongcebo Nosipho Nontshumayelo and Juyoul Kim(KINGS)

PO1C15 Shielding and Transportability Assessment for Determining the Maximum Thermal Power of a Mobile HTGR
Wooseok Choi and Jeongik Lee(KAIST)

PO1C16 Effects of Storage Pressure and Temperature on the Volume and Mass of a Two-Tank Inventory System for Marine sCO_2 Brayton Cycles
Jeong Min Baek and Jeong Ik Lee(KAIST)

PO1C17 Full-Core DEM Simulation of an AVR Pebble Bed: Spatial Characterization of Packing Structure and Spatial Localization of Pebble Wear
Jihwan Lim, Seongmin Hong, and Minseop Song(HYU)

PO1C18 Hydraulic Design Methodology of Safety Depressurization System for HTGR
SungDeok Hong, YoHan Jung, Hyeonil Kim, and ChanSoo Kim(KAERI)

PO1C19 Integrated Cycle and Turbomachinery Design of an Intercooled Helium Brayton Cycle for HTGR
Byungchul Kim and Jeongik Lee(KAIST)

PO1C20 Feasibility of Feedwater-Flow PI Control for OTSG Steam-Temperature Regulation under Feedwater-Heating Loss in a Process-Heat HTGR
Nayoung Kim and Jeong Ik Lee(KAIST)

PO1C21 Control Feasibility Assessment of an sCO_2 Recompression Cycle for Rapid Load Following
Sungwook Choi, Jeong Min Baek, and Jeong Ik Lee(KAIST)

PO1C22 CFD Analysis of Flow Distribution in the Lower Reflector Region of a High-Temperature Gas-Cooled Reactor
Moon Hyeok Kang and Jeong Ik Lee(KAIST), Yo Han Jung(KAERI)

PO1C23 Structural Integrity Evaluation of PCHE Based on ASME Code
Yunbum Park(KAERI), Jaekwang Kim(Hongik Univ.)

PO1C24 Establishment of Postulated Initiating Events for the High-Performance Research Reactor
Suki Park, Dongwook Jang, Donghyun Kim, Woosek Jo, Cheol Park, and Jongpil Park Park(KAERI)

PO1C25 Durability Tests of Ball Screw Assembly for the CEDM
Myoung–Hwan Choi, Young–Eun Jang, Jungpyo Kong, and Jihoon Lee(KAERI)

PO1C26 Trade-off Assessment of Load-Following Performance and Operational Burden with Reactor Unit Granularity for a 100 MWe AI Data Center
Taejun Park and Jeongik Lee(KAIST)

PO1C27 Preliminary Assessment of sCO_2 Radial Compressor Design on the N_s-D_s Diagram Using the KAIST-TMD Code
Seungkyu Lee and Jeong Ik Lee(KAIST)

PO1C28 Safety Assessment of Reactivity Insertion Accidents for a Conceptual Upward-Flow Research Reactor
Donghyun Kim and Suki Park(KAERI)

PO1C29 Regulatory Considerations for Floating Nuclear Power Plants: Implications for Indonesia
Utomo Kevin Erianto and Juyoul Kim(KINGS)

PO1C30 Review of Transportable Nuclear Reactor Development and Establishment of Preliminary Design Requirements
Taewoo Kim and Sang Ji Kim(KAERI)

제2분과 원자로물리 및 계산과학 (Reactor Physics and Computational Science)

2A 원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)

10.29.(목) | 좌장 유환열(Yu, HwanYeal), 장성동(Jang, Seongdong) | 102

09:00 Development of a Semi-Analytic Nodal Method with Edge-Segmented for Two-Dimensional Triangular Geometry
Junwoo Lee and Yonghee Kim(KAIST)

09:20 A Reflector Diffusion Coefficient Correction Method for Pin-wise Diffusion Calculation of PWR Cores
Woo Jin Lee, Sung Hyun Cho, and Ser Gi Hong(HYU), Jooil Yoon(KINGS)

09:40 ENDF/B-VIII.1-Based DeCART2D Multi-Group Cross-Section Library Generation with Proposed Correction Order Selection Procedure
Jeongkyu Cho and Ho Jin Park(KHU)

10:00 Convergence and Robustness of Unpreconditioned Krylov Solvers for the Hybrid Finite Element Saddle-Point Form of Neutron Transport
Kyung Min Kim(KAERI), Han Gyu Lee(University of Michigan)

10:20 Development Status of a GPU-based Monte Carlo Code GRAMS for Nuclear Reactor Analysis
Ao Zhang, Ser Gi Hong, and Xiangzhou Cai(HYU)

10:40 Coffee Break

11:00 Evaluating Source Convergence by Shannon Entropy in Monte Carlo Inactive Cycles with pCMFD or pFMFD Acceleration
Sunjoo Yoon, Jaehyeong Jang, and Yonghee Kim(KAIST)

11:20 Multiphysics Analysis of CABRI Power Transients through APOLLO3®–CATHARE3 Coupling via the C3PO Platform
Heesang Yoo, Jonathan Debove, Claire Vaglio–Gaudard and Jean–Marc Labit(CEA)

11:40 Feasibility Study on a Hybrid Singular Value Decomposition–Gaussian Process Regression Approach for Reactor 3D Power Reconstruction
Minhyeok Bang, Junwoo Lee, and Yonghee Kim(KAIST)

12:00 New Spectral History and Rod History Correction Method using Indicator Isotopes
Sung Hyun Cho, Woo Jin Lee, and Ser Gi Hong(HYU), Jooil Yoon(KINGS)

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

10.29.(목) | 좌장 박호진(Park, Ho Jin), 윤주일(Yoon, Jooil) | 102

13:30 Xenon Oscillation Analysis for Various Operation Conditions of APR1400
Vojtech Votipka and Chang Joo Hah(KINGS)

13:50 Comparative Analysis Between UO_2 and MOX Cores for APR-1400
Mirmakhsum Yakhyoev and Chang–joo Hah(KINGS)

14:10 Design Implications for a 19×19 PWR Fuel Assembly Based on Reactor Physics and Full-Core Fuel Performance Analyses
Hyeongtak Kang and Youho Lee(SNU)

14:30 Coffee Break

14:50 Homogeneous $(Th,U)O_2$ Fuel for a Long Single-Batch Cycle in a NuScale-like SMR Core
Rafal Dziedzic and Joo il Yoon(KINGS)

15:10 Neutronic Calculations of the AP1000 Reactor Core with PRAGMA/SPHINCS Code System
Michal Ryszard Kobierski and Jooil Yoon(KINGS)

15:30 Simulation of the Efficiency of Black and Gray Absorbers and their Effect on Criticality in VVER-1000 Fuel Assemblies
Pavel Maca, Peter Mician, Lukas Hamrik, Jitka Vojackova, and Karel Katovsky(BUT), Jan Hruskovic(FNC Tech.), Tomas Peltan(CVR)

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

10.30.(금) | 좌장 정은(Jeong, Eun), 조유권(Jo, YuGwon) | 102

09:00 Neural Network Surrogates for Predicting Core Characteristics throughout the Equilibrium Cycle
Min Seo Cho and Ser Gi Hong(HYU)

09:20 Development of a Unified Loading Pattern Evaluation Model using a Vision Transformer
Seongjin Jeong and Hyun Chul Lee(PNU)

09:40 Optimizing Equilibrium Cycle Loading Patterns to Meet Utility Energy Requirements Using Genetic Algorithms
Chang Joo Hah and Bartosz Swakowski(KINGS)

10:00 Comparative Study of Scalarization and Pareto-Based Search for iSMR Core Loading Pattern Optimization
Byeong-hyeok Ha, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)

10:20 A Two-Stage Adaptive Control Rod Overlap Strategy for Load-Following Operation of a Soluble Boron-Free SMR
Chanwoo Kim and Deokjung Lee(UNIST)

10:40 Coffee Break

11:00 Functional Requirements of SMR Digital-Twin Framework
Sung Won Lim(KAERI)

11:20 Rodded Daily Load-Follow Operation without Soluble Boron Adjustment in APR1400 Using Additional Part-Strength Control Element Assemblies
Dongju Choi and Yonghee Kim(KAIST)

11:40 Development of a Radionuclide Inventory Evaluation Framework for a Soluble-Boron-Free SMR
Seungnam Lee, Woo Jin Lee, and Ser Gi Hong(HYU)

12:00 Fuel Burnup Improvement in a HIGA-Based Soluble-Boron-Free i-SMR Core through an Alternating Fuel Loading Scheme
Hanseung Song and Yonghee Kim(KAIST)

2D
10.30.(금)

원자로물리 및 계산과학 4 (Reactor Physics and Computational Science 4)

| 좌장 박진수(Park, Jinsu), 조윤기(Jo, Yunki) | 103

09:00 Flow Sensitivity of Reactivity Loss Caused by Delayed-Neutron Precursor Drift in a Molten Salt Critical Experiment
Jongwoo Lee, Seungyop Paek, and Jihwan Kim(HDEC)

09:20 Online Quantification of Delayed Neutron Precursor Drift Reactivity in Molten Salt Reactor Flow and Power Transients with a Shadow-Precursor Observer
Jaejin Lee(KHU), SeungYop Paek(HDEC)

09:40 Similarity Analysis between the MARINA(Molten Salt Reactor) and a Critical Experiment Facility Using Neutron Spectrum-Based Indices and the Sensitivity Uncertainty Method
Inwon Cho(HDEC)

10:00 Application of the CYNUS Code for Multigroup MSR Problem Calculation
Michal Kurowski, Joo Il Yoon, and Muhammad Wazif Mohd Sallehhudin(KINGS)

10:20 Development and Verification of a Three-Dimensional Multigroup Hybrid Finite Element Diffusion Solver in Cylindrical Geometry for Molten Salt Fast Reactor Analysis
John Caesar KATABARWA and Jooil Yoon(KINGS), Yeon Sang Jung(KAERI)

10:40 Coffee Break

11:00 Neutronic Design and Assessment of SSCR Core Compared with a Conventional PWR
Youngrok Lee and Hyun Chul Lee(PNU)

11:20 Geometric Optimization of Micro-sized Stationary Pebble Bed Reactor
Luqman Hasan Nahari, Youngjune Lee, and Yonghee Kim(KAIST)

11:40 Preliminary Design and Similarity Analysis of a Critical Assembly for HTGR
somyung Park and Hyun Chul Lee(PNU)

12:00 Feasibility Study on the Use of Slag Aggregates in Bio-Shielding Concrete Based on McCARD Radiation Shielding and Activation Analyses
Ikje Noh and Hyung Jin Shim(SNU), JinSu Kang, SangHyeon Cheong, WooJae Kim(POSCO ENC)

2E
10.29.(목) – 30.(금)

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

| 좌장 한범석(Han, Beomseok), 한태영(Han, Tae Young) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

P02E01 Effect of Transport Correction on the Multiplication Factor and Power Distribution in the OECD/NEA MHTGR-350 Benchmark using McCARD
Eunhyun Ryu, Seungsu Yuk, and Chansoo Kim(KAERI)

P02E02 Preliminary Neutronic and Economic Assessment of Reusing HALEU Fuel Salt from a Long-Life Marine MSR
Jongwoo Lee, Seung–yup Peak, and Jihwan Kim(HDEC)

P02E03 Development of the Molten Salt Reactor Core Analysis Code CA-FMSR and Its Verification Against the CNRS Multiphysics Benchmark
Seungsu Yuk, Tae Young Han, and Sang Ji Kim(KAERI)

PO2E04 Development of GeoNEX: A Bidirectional CAD Geometry Interface for Reactor Physics and Multiphysics Applications
Hyosung Kim, Hyeonseok Lim, Youngki Lee, Seongho Lee, Jeonghyun Kim, and Chang Je Park(Sejong Univ.)

PO2E05 Preliminary Accuracy and Performance Assessment of Depletion Analysis in the GPU-Optimized Monte Carlo Code GREAPMC Using MCS
Ian Nam, Murat Serdar Aygul, Kyeongwon Kim, and Deokjung Lee(UNIST)

PO2E06 Equilibrium Core Design of a U-TRU-Zr Fueled SFR for TRU Loading Maximization within Design Limits
Jiwon Choe, Jong—Hyuck Won, and Cheol Min Lee(KAERI)

PO2E07 Performance of a Vision Transformer Surrogate in SA-Based APR-1400 Loading Pattern Search
Hyungjoon Baek, Dongmin Yun, and Deokjung Lee(UNIST)

PO2E08 Data-driven Reduced Order Models for Power Reconstruction During Load-follow Operation
Dongmin Yun and Deokjung Lee(UNIST)

PO2E09 Effect of Consideration of Axial Fuel and Coolant Temperature Distribution in the Homogenized Assembly Cross Section Generation for Boron-Free SMR Core
Hyo Yun Lee, Sung Hyun Cho, Woo Jin Lee, and Ser Gi Hong(HYU)

PO2E10 Verification of STREAM/RAST-K for a Soluble Boron-Free Small Modular Reactor Core Using MCS
Ian Nam, Kyeongwon Kim, Hyungwoo Sohn, and Deokjung Lee(UNIST), Sungju Kwon and Hyunsik Hong(KEPCO NF)

PO2E11 Preliminary Evaluation of the Effective Diven Factor and Comparison with IPEN/MB-01 Measurement
YuGwon Jo, Jaeuk Im, Yunki Jo, and Sung Hoon Choi(KAERI)

PO2E12 Assembly Depletion and Equilibrium-Cycle Core Verification of the Soluble-Boron-Free SMR PRATIC benchmark Using STREAM/RAST-K
Jihyeon Lee, Yeongseok Kang, and Deokjung Lee(UNIST)

PO2E13 Development of an Application Program for Candidate Analysis and Fine-Tuning of Optimized Loading Patterns
Byeongmun Ahn, Tongkyu Park, and Sung—Kyun Zee(FNC Tech.)

PO2E14 Gaussian Process Regression with Component Splitting for MCNP-Based Neutron Flux Reconstruction in OPR-1000 Baffle
Nak Woong Yang, Seok Jun Hong, and Chang Je Park(Sejong Univ.)

PO2E15 Error Analysis of Single-Pass Depletion Calculations for a Physics-Constrained Loss in AI-Based Core Surrogate Models
Jungseok Kwon, Tongkyu Park, and Sung—kyun Zee(FNC Tech.)

PO2E16 Automated Constructive Solid Geometry Based McCARD Input Generation Using Representative Large Language Models
Tae Min Kim and Ho Jin Park(KHU)

PO2E17 Positive Angular Representations of Multigroup Scattering Kernels from MC2-3 Libraries
Minjae Lee, Jong—Hyuck Won, and Yeonsang Jung(KAERI)

PO2E18 A Comparative Performance Study of Deep Learning-Based Surrogate Models for APR1400 Core Design: Prediction of Boron Concentration and Power Peaking Factor (Fq)
Yongrae Kim, Jinsun Kim, Gonghoon Bae, Changhee Lee, Seongho Park, Jonghoon Kim, and Junggyu Lee(KEPCO NF)

PO2E19 Comparison of Uncertainty According to Covariance Group Structure for VHTR
Tae Young Han, Seungsu Yuk, and Chan Su Kim(KAERI)

PO2E20 Neutronic Performance and Economic Feasibility of RBSC Reflectors in LEU+ SMRs for Spent Nuclear Fuel Reduction
Yeongseok Kang, Jihyeon Lee, and Deokjung Lee(UNIST)

P02E21 Analysis of Differences from Nuclear Data Library in NaCl-KCl-UCl3 MSR Core Design: ENDF/B-VII.1 versus JENDL-5
Yubin Go, SeongJun Yoon, JaeUk Seo, Sung–Kyun Zee, and Tongkyu Park(FNC Tech.)

P02E22 Spatial and Transient Characteristics of Reflector Temperature Feedback in a BeO-Reflected Fast-Spectrum Molten Salt Reactor
Seong Jun Yoon, Yubin GO, Sung–Kyun Zee, Tongkyu Park, and Jae Uk Seo(FNC Tech.)

P02E23 Feasibility Study on Long-Term Reactivity Management of a Molten Salt Reactor for Marine Propulsion Using Rotatable Hybrid Reflector Drums
Hyunjun Chung, Jinho Song, Joon Eon Yang, and Sung Joong Kim(HYU)

P02E24 Monte Carlo Depletion Analysis of BWR Fuel Assembly with Gadolinia Rods using MCS against LAGER Project
Jinsu Park and Hwansoo Lee(KHNP), Yeongseok Kang(UNIST)

제3분과 후행핵연료주기 (Back-End Nuclear Fuel Cycle)

3A 10.29.(목) 후행핵연료주기 1 (Back-End Nuclear Fuel Cycle 1)

| 좌장 차완식(Cha, Wansik), 지성훈(Ji, Sung-Hoon) | 103

09:00 Amidoxime-Engineered MOF for High-Performance Uranium Extraction from Seawater
Muhammad Asim and Wooyong Um(POSTECH)

09:20 In-situ Immobilization of Cesium-Contaminated Montmorillonite using Phosphoric Acid Geopolymer
Donghun Choi, Bhupendra Kumar Singh, and Wooyong Um(POSTECH)

09:40 Process Simulation of Batch Thermochemical Treatment and Off-Gas Control System for Spent Activated Carbon
SooHwan Kim and Jun-Hyung Ryu(Doungguk Univ.)

10:00 Coffee Break

10:20 Sorption Behavior of Uranium at the Copper Canister–Bentonite Interface under Deep Geological Repository Conditions
Ajeong Kim, Seokju Hong, and Wooyong Um(POSTECH)

10:40 Integration of Thermal-Hydraulic Two-phase Flow Analysis to Evaluate Corrosion Behavior of Copper Canisters in Deep Geological Repository: HADESNU 1.1
Pilhyeon Ju, Kwanil Chae, Ji Eon Kim, Richard I. Foster, and Sungyeol Choi(SNU),
Nakkyu Chae and Samuel Park(KAERI)

11:00 Acceleration-Based Screening of Sliding and Rocking Potential for a Freestanding Disposal Canister Subjected to Floor Motions in a Repackaging Facility
Heekun Ju and Sungyeol Choi(SNU), Hyungoo Kang and Tae Chul Moon(KORAD)

3B 10.29.(목) 후행핵연료주기 2 (Back-End Nuclear Fuel Cycle 2)

| 좌장 이준엽(Lee, Jun-Yeop), 임상호(Lim, Sang Ho) | 103

13:30 Worth and Flux Decomposition of Rod-Type Neutron Absorbers in LEU+ Spent Fuel Pool
Yujin Yang and Hwasung Yeom(POSTECH)

13:50 Is Korea's Spent Fuel Policy Ready for the AI Era? A System Dynamics Assessment under Surging Electricity Demand and Reactor Policy Scenarios
Jongjin Kim, Chaerin Lim, and Sungyeol Choi(SNU)

14:10 Decay Heat and Source Term Analysis of i-SMR spent LEU+ Fuel
Musangatuze Candide Diane and Yongdeog Kim(KINGS)

14:30 Coffee Break

14:50 Dataset Expansion and Normalization Refinement for GAF-CNN-Based Metal-Ion Concentration Prediction in Molten Salt
Suhyun Kim, Hyunjin Boo, Tae Hee Kim, and Byung Gi Park(SCHU)

15:10 Electrochemical Behavior of OH^- in Molten Chloride Salts
Jihun Kim, Jinwon Lee, Minjae Hur, and Sungyeol Choi(SNU)

15:30 A DFT Study on Thorium Complexation with Benzoic Acid in Aqueous Solution
Seonggyu Choi and Sang–Ho Lee(KAERI)

3C 후행핵연료주기 (Back–End Nuclear Fuel Cycle) – POSTER

10.29.(목) – 30.(금)

| 좌장 윤석(Yoon, Seok), 한지훈(Han, Ji Hoon) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO3C01 Demonstration of Plasma Torch Melting for the Treatment of Paraffin-Solidified Radioactive Waste Forms Using Surrogates
Sangdoo Park and Jeongsu Jeong(KHNP)

PO3C02 Comparison of Conventional Scaling Factor Methods and Random Forest for Radionuclide Inventory Evaluation of Activated Metal Waste
Yeeun Choi, Jeongbeen Lee, Donggyu Lee, and Hongjun Park(Doungguk Univ.)
Jong–Yun Kim, Tae–Hyeong Kim, Jeongmook Lee, and Sang Ho Lim(KAERI),
Nak–Woong Yang and Chang–Je Park(Sejong Univ.)

PO3C03 A Comparative Review of International Safety Case Development for High-Level Radioactive Waste Disposal
Hyeongjin Kim, Jisoo Jung, and Jong–Il Yun(KAIST), Manwoong Kim(POSTECH)

PO3C04 Kinetics of Cs(I), Sr(II), and Re(VII) Sorption on Metakaolin-based Alkali-activated Material and Gyeongju LILW Repository Concrete
Hyeonjin Eun, Sajid Iqbal, Jisoo Jung, and Jong–Il Yun(KAIST)

PO3C05 Comparing Nonparametric Regressors against Scaling Factors for Difficult-to-Measure Radionuclides
Young Ho Roh and Yong Kyun Kim(HYU)

PO3C06 R&D Status and Advanced Strategies for Nuclear Power Plant Decommissioning Decontamination Technologies
Suk Bon Yoon, Minseong Kim, Sukwon Jung, Hyu–Chang Choi, and Jin–Won Son(KHNP)

PO3C07 Policy Directions for Eco-friendly Nuclear Power Plant Decommissioning through Case Comparisons
Taek–Soo Kim, Lim Lee, and Kwang–Hoon Ko(KAERI)

PO3C08 A Review of Applicability of the Specific Clearance Concept to the Decommissioning Radioactive Waste
Gangwoo Ryu, Kwangho Jo, Youngil Na, Hyungwoo Seo, and Minseong Kim(KHNP)

PO3C09 Final Status Survey Design for Application of MARSSIM in Nuclear Power Plant Decommissioning
Hee Won Lee, Gang Woo Ryu, Young Il Na, and Hyung Woo Seo(KHNP)

PO3C10 Multi-array Electrode Module for Uranium Electrorefining Applying Automation Concept
Eunsoo Lee, Sangkwon Lee, Jungho Hur, Chang Hwa Lee, and Jae Soo Ryu(KAERI)

PO3C11 Decay-Heat, Criticality, and Pool-to-Dry Transfer Assessment for Spent Fuel from a 140 MWe SMR with Bare-BeO-Centered Annular Fuel
SE YUP LEE(KONEC)

PO3C12 Fabrication of Large-Scale UO_2 Blocks via Slip Casting to Improve Interim Storage Efficiency
Daeuk Kang(UST), Yunmock Jung, Kweonho Kang, and Eun–Young Choi(KAERI)

PO3C13 Alumina-Forming Coating on Metal Baskets for U-Recovery in Pyroprocessing
Joonha Park(UST), Eunsoo Lee and Eun–Young Choi(KAERI)

PO3C14 Development of Electrochemical Hydrogen Peroxide Sensor for In situ Real-time Monitoring of Radiolysis Products in Aqueous Solutions
Wansik Cha(KAERI)

제4분과

핵연료 및 원자력재료 (Nuclear Fuel and Materials)

4A 10.29.(목) 핵연료 설계 및 제조 (Fuel Design and Fabrication)

| 좌장 염화성(Yeom, Hwasung), 양성우(Yang, Seongwoo) | 104

09:00 Thermal, Fuel-Cycle, and Qualification Assessment of a Bare-BeO-Centered Annular UO_2 Fuel Rod with Cladding-Contacting Round Zr-Nb Spokes for a 140 MWe SMR
SE YUP LEE(KONEC)

09:20 Assessment of Thermal Conductivity for UO_2 Pellets with Enhanced Conductivity
Yeonsoo Na, Sungwoo Ha, Chaerin Kim, Minjae Ju, Kwangyoung Lim, Yoonho Kim, and Joonkyoo Park(KEPCO NF)

09:40 Preparation of LEU+ UO_2 and ATF Fuel pellets for Irradiation Tests
Dong Seok Kim, Yeon-Song Jung, Ji-Hwan Lee, Hyung-Jin Kim, Jae Ho Yang, Ji-Hae Yoon, and Dong-Joo Kim(KAERI)

10:00 Mechanical Strength and Thermal Shock Resistance of LAS-Doped UO_2 Pellets for Accident Tolerant Fuel
Chaerin Kim, Sung-Woo Ha, Yeon-Soo Na, Min-Jae Ju, and Kwang-Young Lim(KEPCO NF)

10:20 Manufacturing Optimization of Mo-microcell UO_2 fuel for Commercial-scale Fabrication
Yunsong Jung, Dong Seok Kim, Ji Hwan Lee, Jae Ho Yang, Dong-Joo Kim, Ji-Hae Yoon, and Hyeon Jin Kim(KAERI), Kwang-Young Lim and Yeon-Soo Na(KEPCO NF)

10:40 Coffee Break

11:00 Development of a Perforated Multilayer Pellet Approaching the Theoretical Upper Bound of Composite Thermal Conductivity
Hyeong Jin Kim, Dong Seok Kim, Jae Ho Yang, Ji-Hae Yoon, Ji Hwan Lee, and Yunsong Jung(KAERI)

11:20 Fabrication and Thermophysical Characterization of High Gd_2O_3 UO_2 Nuclear Fuel
Ji Hwan Lee, Dong Seok Kim, Dong-Joo Kim, Jae Ho Yang, Ji-Hae Yoon, Yeon Song Jeong, and Hyung Jin Kim(KAERI)

11:40 From Maximum Moderation to Engineering Selection: Multi-Physics Screening of YH_x and BeO in a Skewer-Type Fuel for a 140 MWe Soluble-Boron-Free SMR
SE YUP LEE(KONEC)

12:00 Effect of Stabilizer Composition on the Behavior of Rare Earth Oxide Based ATCR Absorbers under Coolant and High Temperature Steam Condition
Sungwoo Ha, Yeonsoo Na, Kwang-Young Lim, Minjae Ju, and Chaerin Kim(KEPCO NF)

4B 10.30.(금) 핵연료 성능 (Nuclear Fuel Performance)

| 좌장 윤학규(Yoon, Hak-kyu), 여승환(Yeo, Sunghwan) | 104

09:00 Power Ramp Test Preparation of HANA-6 Cladding
Ji-hoon Jeun, Hak-kyu Yoon, Gyeong-ha Choi, Jae-myung Choi, Yun-seog Nam, Ye-eun Kwon, and Hun Jang(KEPCO NF), Daniele Minghetti, Mi Wang, Joakim Karlsson, and Johan Stjarnsater(Studsvik Nuclear AB)

09:20 Development of a PCI-Mandrel Test System for I-SCC Evaluation at the KAERI Post-Irradiation Examination Facility
Myungchul Park, Jaehan Kim, Yongsik Yang, and Hyoungmun Kwon(KAERI)

09:40 Verification Analysis of the MERCURY Code for Contact and Friction Models
Dong–Hwa Lee, Sung Uk Lee, and Hyo Chan Kim(KAERI)

10:00 Quantitative Assessment of Zircaloy-4 Pre-Rupture Deformation and Rupture Timing Predicted by MERCURY Using Published DIMAT Strain Histories
Tracy Achola Okot and Yong–deog Kim(KINGS), D. H Lee and H. C Kim(KAERI)

10:20 Hoop Deformation and Fracture Behavior of Zircaloy-4 Cladding with Different Hydrogen Contents under EDC Tests
Jungju Lee and Byoungjae Kim(Chungnam National Univ.), Sung–Uk Lee and Hyochan Kim(KAERI)

10:40 Coffee Break

11:00 Preliminary Development of a Reload Cycle BOC Hoop Stress Table for PCI Evaluation in an SMR
Sunguk Lee, Hyochan Kim, Youngin Kim, and Dong–Joo Kim(KAERI), Jae–Seung Song(KINGS)

11:20 Effect of Phase Constitution on Depth-Dependent Irradiation Damage in Ce-Doped Gadolinia by Raman Spectroscopy
Hakjun Lee and Hojin Ryu(KAIST), Hyeongjin KIM and Seunghyeon Lee(KAERI)

11:40 Post-Irradiation Tensile Properties of HT9 and FC92 Cladding Irradiated in BOR-60 up to 54.3 dpa and Comparison with Machine Learning Predictions
Sunghwan Yeo, Hongin Kim, Wooksang Jeon, and Jun Hwan Kim(KAERI)

4C 10.29.(목) 핵연료 시험 및 평가 (Nuclear Fuel Testing and Evaluation)

| 좌장 박광헌(Park, Kwangheon), 정태식(Jung, Tae-sik) | 104

13:30 Estimation of Neutron Detection Rates from Spent Nuclear Fuel
Kwangheon Park and Jinhyun Sung(KHU), Hyemin Park and Yangsoo Song(OrionEnC), Moonoh Kim(KONES)

13:50 Implementation of Cr-Coated ATF Cladding Models in the Steady-State Fuel Performance Code FRAPCON
Hyoungmun Kwon, Changhwan Shin, and Yongsik Yang(KAERI), Juyeop Park(KINS)

14:10 Prediction of Composition Evolution and Material Properties of Ag-In-Cd Absorbers for Flexible Operation of PWRs
Hyeong Jin Kim, Dong Seok Kim, and Junho Moon(KAERI)

14:30 Coffee Break

14:50 Development of High-Fidelity Analysis System for the Evaluation of Fuel Irradiation Tests in HANARO
Seongwoo Yang, Sung–Jae Park, Junesic Park, and Ye–Eun Na(KAERI)

15:10 Analysis of the Oxidation State Change of High-Gd_2O_3-Content UO_2 Pellets in Simulated Fuel Rod Leakage Conditions
Tae–sik Jung, Seong–woo Ha, Chae–rin Kim, Yeon–soo Na, Min–jae Ju, and Kwang–young Lim(KEPCO NF)

4D
10.30.(금)

원자력재료 신뢰성 및 경년열화 (Nuclear Materials Integrity and Aging Mechanism)

| 좌장 신찬선(Shin, Chansun), 강석훈(Kang, Suk Hoon) | 105

09:00 A Review of Magnetite-Accelerated Corrosion of Secondary Side Materials in PWRs
Do Haeng Hur and Soon–Hyeok Jeon(KAERI), Yeong Ho Son and Geon Dong Song(FNC Tech.), Jeoh Han(KHNP)

09:20 Superhydrophilic Nanoporous Oxide Surface on Zr Alloy for CRUD Mitigation
Jun Heo, Sieun Baek, and Hee–Sang Shim(KAERI)

09:40 Microstructural Evolution of Electrodeposited Cr Barrier Layers and Carbide Induced Interface Degradation of HT9 Cladding during Long Term Thermal Aging at 650 ˚C
Hyeongwoo Min and Young Soo Yoon(Gachon Univ.),Sunghwan Yeo, Jun Hwan Kim, and Jeong Mok Oh(KAERI)

10:00 High-Temperature Oxidation of XM19 Stainless Steel in Air and Steam-Air: Grain Size Effect and Comparison with SS304H Stainless Steel
Seungyoon Baik, Taeyun Kwon, Woohyun Lim, and Chansun Shin(Myongji Univ.), Hyung–Ha Jin(KAERI)

10:20 Investigation of Thermal Creep Behavior and Microstructural Degradation in modified 9Cr-2W Steel
Dong–Ha Kim, Sunghwan Yeo, JunHwan Kim, and Jeong Mok Oh(KAERI)

10:40 Coffee Break

11:00 Rehydration of Molten Chloride Salts and Its Impact on SS316H Corrosion for Molten Salt Reactor Applications
Seol Kim, Joonha Park, and Seok Min Yoon(UST|KAERI), Hyeonwoo Kim and Sangtae Kim(HYU),
Dokyu Kang, Taeho Kim, Chang Hwa Lee, and Eun–Young Choi(KAERI)

11:20 Electrochemical Impedance Spectroscopy and Polarization Resistance for In-Situ Corrosion Monitoring of SS316H and Hastelloy N in Molten NaCl-KCl
Byeongmin Kong, Taehoon Park, Jihun Kim, and Sungyeol Choi(SNU)

11:40 Improving Hydration Resistance of Gd_2O_3 by HfO_2 Doping
Anissa Isnaini and Ho Jin Ryu(KAIST)

4E
10.29.(목)

원자력재료개발 및 건전성평가 (Nuclear Materials Development and Integrity Assessment)

| 좌장 김지현(Kim, Ji Hyun), 박선영(Park, Sun-Young) | 300A

13:30 Development of a Machine Learning Potential and Evaluation of Diffusion behavior in UO_2 Using Molecular Dynamics Simulations
Jiwoo Kim and Ho Jin Ryu(KAIST)

13:50 Influence of Atmospheric Environments on Spark Plasma Sintering Kinetics, and Microstructural Evolution in Inconel 718 and 316 Stainless Steel Alloys
Seong Gyu Chung and Hwasung Yeom(DANE. POSTECH),
Evan Willing and Noah Anderson and Kumar Sridharan(UW Madison),
Omer Cakmak, Guichuan Li, and Jung Wook Cho(GIFT)

14:10 A Structural Analysis Methodology for Reactor Vessel Internals under Flow-Induced Vibration Considering Spatial Partial Correlation
Chiwoong Ra, No–cheol Park, and Youngjin Park(Yonsei Univ.)

14:30 A Strain-Rate-Based Reassessment of the Equivalent Free-Fall Drop Height
SeokHyun Yun, SeokWoo Kim, and JongSung Kim(Sejong Univ.)

4F

10.29.(목) – 30.(금)

핵연료 (Nuclear Fuels) – POSTER

| 좌장 김동석(Kim, Dong Seok), 전지훈(Jeun, Ji-Hoon) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO4F01 Contingency Planning for Korea's Single-Source Nuclear Fuel Supply Chain
Hyeonsu Seo and Eric Yee(KINGS)

PO4F02 Development of a Gravity Casting System for Fabrication of Annular Metallic Fuel Slugs
Jungsu Ahn, Sang-Gyu Park, and Jong-Dae Hong(KAERI)

PO4F03 Carbothermic Reduction and Sintering of UCO Kernels
Minseok Lee, Injin Sa, Eun-seon Kim, and Jae Ho Yang(KAERI)

PO4F04 CO Gas Generation in a Layered UCO Kernel of an HTR Coated Fuel Particle
Young Min Kim, Jae Joon Kim, and Eung Seon Kim(KAERI)

PO4F05 Applicability Evaluation of Burnable Absorber Rods for the i-SMR
JangSoo Oh and YongSik Yang(KAERI)

PO4F06 Blister-threshold Temperature of U-7Mo/Al-5Si Dispersion Fuel Irradiated in HAMP-3 Test
Gwan Yoon Jeong, Young-Wook Tahk, and Heemoon Kim(KAERI)

PO4F07 Development of a Thermal Conductivity Model for Irradiated High-Gadolinia $(U,Gd)O_2$
Hyeongju Bae and Ho Jin Ryu(KAIST)

PO4F08 Development and IAEA IWGFR Benchmarking of an Abaqus-Based Core Bowing Analysis System for SFR Fuel Assemblies
Heung Soo Lee, June-Hyung Kim, Cheol Min Lee, Juseong Kim, Jin-Sik Cheon, Byoung Oon Lee, and Chan Bock Lee(KAERI)

PO4F09 AI-assisted Inverse Analysis of Fabrication-Dependent Creep Parameters for ATF Cr Coatings using MERCURY
Ganghyeon Bae and Hwasung Yeom(DANE, POSTECH)

PO4F10 Structural Evaluation of Fission Molybdenum Target at Drop Accident
Dong-Hyun Kim, Hyun-Jung Kim, and Young-Wook Tahk(KAERI)

PO4F11 Preliminary Design and Thermal-Burnup Analysis of HANARO Irradiation Test for UCO TRISO Fuel
Seongwoo Yang and Eung-Seon Kim(KAERI)

PO4F12 Analysis of the U.S. SFR Metallic Fuel Qualification Basis and Applicability Assessment of Korean BOR-60 Irradiation Data
Boyeon Kweon and Youho Lee(SNU)

4G

10.29.(목) – 30.(금)

원자력재료 (Nuclear Materials) – POSTER

| 좌장 김태호(Kim, Taeho), 김채원(Kim, Chaewon) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO4G01 Comparison of Primary Damage to Reactor Internal Materials in Kori Unit 1 and Hanbit Unit 3
Junhyun Kwon, Gyeong–Geun Lee, and Dong Hyun Ahn(KAERI)

PO4G02 Nondestructive Evaluation of Cold-Rolling Reduction in SUS304 Austenitic Stainless Steel Using Eddy Current Impedance Signals
Soonwoo Han, Kyung–Mo Kim, and Dong–Hyun Ahn(KAERI)

PO4G03 Accelerating Laser-Induced Phased Array Ultrasonic Inspection via Multimode TFM and Sparse Transmit-Receive Aperture
Soonwoo Han, To Kang, and Sungwoo Kim(KAERI)

PO4G04 Design and Operation Plan of a Pumped Molten Chloride Salt Loop for Testing Long-Term Durability and Stability
Seo Seungjin, Lee YunDong, Kim Jong Woo, and Kim Ji–whan(HDEC)

PO4G05 Oxide Characterization of Fe-Cr-Si Alloys Formed in High-Temperature Water
Trung Kien Le, Jaheon Kim, and Chi Bum Bahn(PNU)

PO4G06 Rate Theory Modeling of Helium-Induced Swelling in Fe-Cr-Ni Austenitic Model Alloy
Yeongju Kwon and Kunok Chang(KHU)

PO4G07 Corrosion Behavior and Mass Transport of SS316L in a NaCl-KCl-MgCl2 Molten Salt Natural Circulation Micro Loop
Taeho Kim, Eun–Young Choi, and Chang Hwa Lee(KAERI), Seok Min Yoon, Seol Kim, and Suhyeon Lee(UST)

PO4G08 Artificial Neural Network Modeling of Thermal and Irradiation Creep Behavior of HT9 Steel
Hongin Kim and Young–Kook Lee(Yonsei Univ.), Sunghwan Yeo, Jun–Hwan Kim, and Hyun Woo Seong(KAERI)

PO4G09 Crystallographic Investigation of Orientation-Dependent Defect Evolution in Irradiated MgO
Dongyeong Heo and Hwasung Yeom(DANE. POSTECH)

PO4G10 Design and Thermal Evaluation of Material Irradiation Capsule (25M-02K)
Jong Woo Kim, Ye Eun Na, Ki Nam Choo, Junsic Park, Sung Jae Park, and Seong Woo Yang(KAERI)

PO4G11 Development of a Density Measurement System for Specimens with Open Porosity in a Hot Cell
Young Jun Kim, Heemoon Kim, Jae Ho Yang, and Dong Seok Kim(KAERI)

PO4G12 Effects of Underwater Laser Peening on Microstructure and PWSCC Initiation of Alloy 182
Baosheng Bai and Chi Bum Bahn(PNU), Wongeun Yi(DOOSAN), Eunsub Yun(KHNP)

PO4G13 High Temperature Post-Necking Ductility of Ni-W-Cr-Mo Model Alloy for Molten Salt Reactor Application
JI–HYUN YOON, SANG–YEOB LIM, CHAEWON KIM, and DAEJONG KIM(KAERI),
JAESEONG AN(Chungnam National Univ.), JUNG–MIN KIM(UST)

PO4G14 Thermal Analysis of 6-Hole Intrumented Capsules for Irradiation Tests in the HANARO OR Hole
Ye–eun Na, Seong Woo Yang, Kee–Nam Choo, Jong–woo Kim, Junesic Park, and Sung–Jae Park(KAERI)

PO4G15 Finite Element Analysis of Wall Thinning in Induction Bending Based on a Coupled Electromagnetic-Thermal-Mechanical Model
Yong–Jae Kim, Jun–Young Jeon, Chang–Young Oh, and Sang–Woo Song(KIMS), Gi–Ho Sung(SUNG IL),

PO4G16 Thermal-Structural Analysis of a Heat Pipe Reactor Core Monolith: A 2D Finite Element Study
Hye–In Lee and Jong–Sung Kim(Sejong Univ.)

PO4G17 A Study on Convergence Using the Probabilistic Fracture Mechanics Code xLPR
SangHyuk Park and JongSung Kim(Sejong Univ.), SeokJun Yoon and NamSu Huh(SEOULTECH)

제5분과 원자력 열수력 (Nuclear Thermal Hydraulics)

5A 열수력 실험 1 (Thermal Hydaulics Experiment 1)

10.29.(목) | 좌장 배병언(Bae, Byoung-Uhn), 김형대(Kim, Hyungdae) | 201

09:00 Pressure Effects on Bubble-Base Growth and Microlayer Formation in Saturated Pool Boiling
Jonghwi Choi(KAIST), Hyungdae Kim(KHU)

09:20 Preliminary Study of High-Speed Visualization of Bubble Behavior in Subcooled Flow Boiling at High Pressure
Chanmin Jeong, Ahyeong Cho, Inyeop Kang, Jonghwi Choi, Banseok Bae, and Hyungdae Kim(KHU)

09:40 Experimental Investigation of Geyser Boiling Onset Based on Initial Liquid Pool Formation
Jisung Oh and In Cheol Bang(UNIST)

10:00 Experimental Investigation of CRUD Effects on Transient Heat Transfer and Quenching Characteristics under Bottom Reflood Conditions
Ju Hun Jung and In Cheol Bang(UNIST)

10:20 Evaluation of Temperature Non-Uniformity in CRUD-Mimicking Layers of Varying Thickness Using a Fiber-Optic Sensor
SeHyeon Park, UngJin Na, Jihun Kim, and HangJin Jo(POSTECH), Euijae Kim(KEPCO NF), Sungjin Kwon(KFE)

10:40 Coffee Break

11:00 Effect of Groove Configuration on the Thermal and Pressure Responses of Embedded Optical Fiber Sensors in Heater Rods
Jihun Kim, SeHyeon Park, and HangJin Jo(POSTECH), Euijae Kim(KEPCO NF),
Yeongyu Lee and Donghwi Lee(JBNU), Sungjin Kwon(KFE)

11:20 Preliminary Study on Capillary-Driven Cooling Using Micro-Metal 3D-Printed Porous Micro-Channels
Chan–hee Kim and Jong–hyun Kim(Kyemyung Univ.), Jongrok Kim(KAERI)

11:40 Manufacturing and Experiments of Large-Scale Sodium Heat Pipe for Microreactor
Faruk Celik, Jisung Oh, and In Cheol Bang(UNIST)

12:00 Preliminary Analysis of an MMPS Charging-Line Break in the i-STEP Integral Effect Test Facility
Jin–Hwa Yang, Byoung–Uhn Bae, Hwang Bae, and Kyoung–Ho Kang(KAERI),
Sang Gyun Nam, Heerim Choi, and Seong–Su Jeon(FNC Tech.)

5B 열수력 실험 2 (Thermal Hydaulics Experiment 2)

10.29.(목) | 좌장 양진화(Yang, Jin-Hwa), 박일웅(Park, Il Woong) | 201

13:30 Uncertainty Quantification of MIR-PIV Measurements for Pebble-Bed Gap Flow Based on the ISO-GUM Framework
Seongmin Hong, Jihwan Lim, Sangoh Shin, Hyukjoon Lee, and Minseop Song(HYU)

13:50 Biased Sweeping Cross-flow in Helical Cruciform Metallic Fuel Subchannels Measured by Magnetic Resonance Velocimetry
Hyeongi Moon, Hangfei Dong, Sejin Oh, Minseop Song, and Simon Song(HYU)

14:10 MRV Analysis of Secondary Flow Structures and Flow Development in a Gyroid TPMS Channel for SMR Heat-Transfer Applications
Jinsu Kim, Sangoh Shin, Hangfei Dong, Simon Song, and Minseop Song(HYU)

14:30 Coffee Break

14:50 Depth-resolved Viscous Entropy Generation in a Semi-Circular Zigzag PCHE Measured by Refractive-Index-Matched PIV
Hyukjoon Lee, Sijun Kim, Sangoh Shin, and Minseop Song(HYU)

15:10 Quality-Weighted Thermophysical Property Database and Uncertainty Quantification for Molten Salts
Haneul Park, Chaehyun Kim, Dongwoo Lee, Woosung Joo, Chanyeong Choi, Yejun Han, Junsu Bang, and Yong Hoon Jeong(KAIST)

15:30 Filter Pressure-Drop Behavior and Salt-Derived Aerosol Characteristics during Argon Bubbling in the MSTCL Off-Gas System
Hyunjin Boo, Suhyun Kim, Tae Hee Kim, and Byung Gi Park(SCHU),
Hwa Pyoung Kim, Yuntae Kim, Woo Seok Choi, and Jong Won Kang(Century)

5C 열수력 해석 1 (Thermal Hydraulic Analysis 1)

10.29.(목) | 좌장 이정훈(Lee, Jeong Hun), 배성원(Bae, Sung Won) | 202

09:00 Preliminary Assessment of Nuclear Propulsion Load Variation under Wave-Induced Partial Propeller Emergence
SANGBUM SON, SEONGON KIM, and JAEHO JEONG(CAU)

09:20 Multiphysics Simulations of MSFR in Marine Conditions
Hyunkyu Lee, Guillaume Gesmier, and Jee Hyun Seong(KAIST)

09:40 Effect of Ship Motion on the Opening Time of the MSRE Freeze Valve Using OpenFOAM
Dowon Lee, Juhyeong Lee, Seungmin Lee, Joon-Eon Yang, and Sung Joong Kim(HYU)

10:00 Numerical Analysis of Molten Salt Spreading and Solidification under Leakage Conditions
Hyeoun Seok Jang and Il Seouk Park(Kyungpook National Univ.), Jun Ho Bae(KAERI)

10:20 Physics-Informed LSTM-Based Heat Pipe Temperature Estimation for Microreactor
Ik Jae Jin and In Cheol Bang(UNIST)

10:40 Coffee Break

11:00 Development of Safety Analysis Code for High Temperature Gas-cooled Reactor using AI
Deyeong Lee, Nihat Erdem Berber, Hwiseong Oh, In-sik Ra, Giyoung Tak, and Hae-yong Jeong(Sejong Univ.)

11:20 Preliminary Development of a Multidimensional Thermal Network Analysis Code for the rHPMR Core under Steady-State Conditions
Hyoungjin Na, Chaewook Kim, and Yeon-Gun Lee(Sejong Univ.), Hyoung Kyu Cho(SNU)

11:40 Ourovoros: An Integrated Framework for Forward and Inverse Uncertainty Quantification of Thermal-Hydraulic System Code
Byung-Hyun You(KAERI)

12:00 Dimensionally Constrained Symbolic Regression over Thermal-Hydraulic Dimensionless Groups
Byung-Hyun You(KAERI)

5D
10.30.(금)

열수력 해석 2 (Thermal Hydraulic Analysis 2)

| 좌장 유병현(You, Byung Hyun), 이승준(Lee, Seung-Jun) | 300A

09:00 Preliminary Evaluation of Heat Exchanger in Hot Region inside Free-Piston Stirling Engine using Radioisotope Source
Jong Hui Lee, Da–Hye Kim, Jungho Chae, Kilyoung Ko, Jin–Joo Kim, and Jintae Hong(KAERI)

09:20 Preliminary Evaluation of Air- and Water-cooled Heat Sinks for Free-Piston Stirling Engine using Radioisotope Source
Jong Hui Lee, Da–Hye Kim, Hyungwoo Kwon, Yundeok Ro, Kilyoung Ko, Jin–Joo Kim, and Jintae Hong(KAERI)

09:40 Influence of Similitude Model Selection on the Performance Prediction of the sCO_2 Power Cycle
Gihyeon Kim, Jeong Min Baek, and Jeong Ik Lee(KAIST)

10:00 Porous Media-Based Thermal Design Methodology for TPMS Heat Exchangers with Genetic Algorithm Optimization: A Preliminary Study
Yelyn Ahn and Eung Soo Kim(SNU)

10:20 Thermal Sizing of Multi-Module PCSG for a Light-Water SMR
Taeil Kim, Nakjun Choi, UngJin Na, Jeyeong Cheon, and HangJin Jo(POSTECH), Sungkun Chung(KAERI), Sungjin Kwon(KFE)

10:40 Coffee Break

11:00 Numerical Investigation of Transient Steam Condensation in a Steam-Hydrogen-Air Mixture under Thermosolutal Convection
Sana Ur Rehman and Il Seouk Park(Kyungpook National Univ.), Jun Ho Bae(KAERI)

11:20 Evaluation of Thermal Conductivity of TRISO Fuel using CFD Code
Jeonghyun Kim, Seongho Lee, Chunghyun Park, Doyeong Lee, Giyoung Tak, In–sik Ra, and Hae–yong Jeong(Sejong Univ.)

11:40 Numerical Investigation on Hydrodynamic Load Redistribution and Localized Clogging Characteristics of Seawater Intake Drum Screens
SeongMin Park(KHNP), TaeGang Lee and JaeJun Jung(PNU)

12:00 Toward Real-Time GPU-Accelerated Lattice Boltzmann LES for Molten Salt Reactor Thermal Hydraulics: Benchmark Validation and Demonstration
Suhyeon Kim, Jiho Kim, and Eung Soo Kim(SNU)

5E
10.29.(목)

안전해석 현안 1 (Safety Analysis Issues 1)

| 좌장 이연건(Lee, Yeon-Gun), 이재진(Lee, Jaejin) | 202

13:30 Preliminary Modification of the SPACE Code Condensation Model for Superheated Steam Condensation in the i-SMR Containment Vessel
Chang Won Lee and Jong–Hyuk Lee(KAERI)

13:50 Application and Validation of External Condensation Models for Horizontal Tubes in MARS-KS
Taeyeon Min, Yeongjae Cho, and Jeong Ik Lee(KAIST)

14:10 CFD Analysis of Two-Phase Flow Instability in a Passive Containment Cooling System
Yong Kab Lee(SIMEX), Jong Chull Jo(TIUM solutions)

14:30 Coffee Break

14:50 Preliminary Study on a Simplified Two-Phase-Flow Model for the Dynamic Response of Passive Emergency Core Cooling System Valves
Jeong–won Han, Young Seok Bang, and Youngjae Park(FNC Tech.)

15:10 A Scheme to Predict Discharge Coefficient of Long Multi-hole Orifices Perforated in PECCS Valves
Young Seok Bang, JeongWon Han, Youngjae Park, Seong–Su Jeon, and Soon–Joon Hong(FNC Tech.)

15:30 Uncertainty Quantification on Critical Flow for an IBLOCA Application
Hyun–Sik Park, Chiwoong Choi, and Seung–Wook Lee(KAERI)

5F 10.30.(금) 안전해석 현안 2 (Safety Analysis Issues 2)

| 좌장 유동인(Yu, Dong In), 조영범(Jo, Young Beom) | 300B

09:00 Assessment of Existing CHF Correlations for the Operating Conditions and Design Region of the i-SMR
Seojun Park and Kyung Mo Kim(KENTECH)

09:20 Improvement of CHF Prediction under Non-Uniform Axial Power Profiles through AI-Based Memory-Effect Correction
Hyunjun Jang and Kyung Mo Kim(KENTECH)

09:40 Improvement of Drift-flux Correlations in MARS-KS for Inclined two-phase Flow: Model Implementation and Validation against Air-water Tests
Eunji Lee and Hyoung Kyu Cho(SNU)

10:00 Assessment of Pressure Drop Predictability of MARS-KS in Helically Coiled Tubes
Yunseok Lee and Taewan Kim(Incheon National Univ.)

10:20 Preliminary Study of a Thermal-Hydraulic Model for Helically Coiled Once-Through Steam Generator Design Analysis
Nhan Hien Hoang, Jinwook Choi, Sera Jeon, and Seong–Su Jeon(FNC Tech.)

10:40 Coffee Break

11:00 Thermal-Hydraulic Closure and Maintainability of a Natural-Circulation OTSG with an Integral Pressurizer and Removable ECT Cartridge for a 140 MWe SMR
SE YUP LEE(KONEC)

11:20 Evaluation of Off-Design Safety Margins for the Nuclear Power Plant ESW-CCW Cooling System under Rising Seawater Temperatures Using Flowmaster
Joohyung Jung, Taejun Song, and Seongmin Son(Kyungpook National Univ.)

11:40 Preliminary Study of Xe-135 Reactivity Transient Analysis in a Natural-Circulation Molten Salt Reactor Using a GAMMA+ Coupled Mass Transport Model
WonJun Choi and SungJoong Kim(HYU), Lin–wen Hu(MIT)

12:00 Development of Nusselt Number and Darcy Friction Factor Correlations for a NACA 0020 Airfoil PCHE Using $MgCl_2$-KCl Molten Salt
Dogyun Kim, Taewoo Kim, and Sang Ji Kim(KAERI)

5G
10.29.(목)

열수력 신기술 1 (Advanced Thermal Hydraulics 1)

| 좌장 송문원(Song, Moon Won), 송민섭(Song, Min Seop) | 203

13:30 Transient Drainage Performance of a Marine Molten Salt Reactor under Rolling Motion
Hyeon Ji Kim and In Cheol Bang(UNIST)

13:50 Preliminary Numerical Analysis of Freeze Valve Opening Time with Consideration of Salt Plug Solidification in a Molten Salt Reactor
Joo Hyung Seo and In Cheol Bang(UNIST)

14:10 Feasibility Test of Hydrodynamic-driven Salt Drain System for Cartridge-Type Molten Salt Reactor
Seolhui Kim, Ik Jae Jin, and In Cheol Bang(UNIST), Doyeong Lim(CSU), Ji Yong Kim(JBNU)

14:30 Coffee Break

14:50 GPU-Accelerated 3D Simulation of Molten Salt Spreading Using Moving Particle Method
Wiktor Gronek and Han–Young Yoon(KINGS)

15:10 Development of a Size-Resolved Noble Metal Transport Code for a Passive Molten Salt Fast Reactor and Its Coupling with Serpent Depletion Calculations
Yun Sik Cho and Sung Joong Kim(HYU), Inyup Kim and Yonghee Kim(KAIST)

15:30 Analysis of Six-Degree-of-Freedom Motion Effects on Sodium Pool Behavior in a Marine SFR Reactor Vessel Using AMESim
SEONGON KIM, SANGBUM SON, and JAE–HO JEONG(CAU)

5H
10.30.(금)

열수력 신기술 2 (Advanced Thermal Hydraulics 2)

| 좌장 전준구(Jeon, Joongoo), 김태석(Kim, Taeseok) | 300C

09:00 Development of OpenFOAM VOF Solver with Interfacial Mass-Transfer and Variable Properties for Heat Pipe CFD Simulations
Almanzo Arjuna and In Cheol Bang(UNIST)

09:20 A Coupled OpenFOAM–DEM Framework for Solid–Fluid Multiphase Flow Simulation
Jeong Woo Choi, Eun Sung Kim, and Young Beom Jo(KHU)

09:40 Transient VOF Simulation of Air-Water Two-Phase Flow in Helically Coiled Tubes under Various Flow Regimes
Sangoh Shin, Janghun Han, and Minseop Song(HYU), Yujeong Ko, Byeongil You, and Hyoungkyu Cho(SNU)

10:00 Single-Phase Flow and Heat Transfer Analysis of a Helical Coil Tube Using CUPID
Michal Henryk Wroblewski and Han–young Yoon(KINGS)

10:20 A Methodology for Deriving a Heat Trasfer Correlation for a Supercritical CO_2, Precooler Using a Segment-Based Model and Trust-Region Reflective Optimization
JuWon Jung, JaeEun Cha, and Gibbeum Lee(KAERI)

10:40 Coffee Break

11:00 Effect of Main Compressor Design on the Off-Desgin Operation Range of sCO_2 Recompression Cycle
Chanyong Park and Jeong Ik Lee(KAIST)

11:20 Comparative Economic Assessment of an Open-Air Brayton Cycle-Based Direct Air Capture System Considering the Heat Source Characteristics of Different Reactor Types
Taejun Song, Joohyung Jung, and Seongmin Son(Kyungpook National Univ.)

11:40 Benchmarking Reduced-Order Models of CFD Flow Fields for SMR Digital Twins
Seongmin Oh(JBNU), Minseo Lee and Joongoo Jeon(POSTECH)

12:00 Preliminary Assessment of Indicator-Based Hybrid CFD-GNN Acceleration for T-Junction Thermal Mixing
Juho Lee and Dongjin Kim(KAERI), Hogeon Seo(UST|KAERI)

5I 열수력 실험 (Thermal Hydaulics Experiment) – POSTER

10.29.(목) – 30.(금)

| 좌장 이창원(Lee, Chang Won), 김설하(Kim, Seol Ha) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

P05I01 Preliminary Assessment of Parallel-Tube Modeling for a PCCS Heat Exchanger Using MARS-KS
Jan Hruskovic, SangGyun Nam, Youngjae Park, and Seong–Su Jeon(FNC Tech.)

P05I02 Sensitivity Analysis of SPACE Code Parameters for the NEPTUN Boil-Off Tests
Sang–Ki Moon, Byung Hyun You, and Seung–Wook Lee(KAERI)

P05I03 Preliminary Evaluation of Time-Dependent Required Flow Rate for a PAFS of an Integral SMR
YU JUNG CHOI, HYEON–GYEONG CHOI, and HYUK JIN SONG(KHNP)

P05I04 Assessment of Steam Condensation Heat Transfer on Horizontal Tube Using MARS-KS and SPACE
Yeongjae Cho, Taeyeon Min, and Jeong Ik Lee(KAIST)

P05I05 Preliminary Design and Feasibility Assessment of a PCM-Based Passive Condenser for LOCA Mitigation in APR1400
Se Young Ro and Jeong Ik Lee(KAIST)

P05I06 A Review of Two-Phase Flow Boiling Instabilities in a Vertical Upward Annular Channel
Teakseok Kim and Dongbin Yun(Jeju National Univ.)

P05I07 Effect of Non-condensable Gas in Nearly Pure Steam Condensation Experiments and the Need for Its Quantification
Chang Won Lee and Jong–Hyuk Lee(KAERI)

P05I08 Experimental Calibration of PyCalphad-Based Liquidus Predictions for the NaCl–$MgCl_2$ Binary Molten Salt System
Sunghyun Yoo and Jeong Ik Lee(KAIST)

P05I09 Assessment of Thermal-Hydraulic Similarity between the i-SMR and Ideally Scaled-Down Model under an IOEDV Transient
Heerim Choi, Seong–Su Jeon, SangGyun Nam, and Youngjae Park(FNC Tech.)

P05I10 MARS-KS Assessment of the OECD/NEA ATLAS C4.2 Shutdown-Cooling LOCA Test and the Effect of the PAFS Configuration
Jae Bong Lee, Byoung–Uhn Bae, Yu–Sun Park, and Kyoung–Ho Kang(KAERI)

P05I11 Experimental Investigation of Air-Water Bubbly Flow Characteristics under Motion Conditions Using Synchronized Wire-Mesh Sensor and High-Speed Camera
Jaehyun Kim, Hyukjae Ko, and Hyoung Kyu Cho(SNU)

P05I12 Study on Loss Coefficient Correlations for Bidirectional Flow Using CAP for the Improved Prediction of Chimney Effect
Minseok Choi, Kum–Ho Han, Bub–Dong Chung, Soon–Joon Hong, Young Seok Bang, and Jehee Lee(FNC Tech.)

5J
10.29.(목) – 30.(금)

열수력해석 (Thermal Hydraulic Analysis) – POSTER

| 좌장 김건우(Kim, Geon-Woo), 윤석종(Yoon, Seok Jong) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

P05J01 Preliminary Evaluation of a Water-Cooled RCCS in NSTF Facilities
Ji Su Jun, Sung Nam Lee, and Chan Soo Kim(KAERI)

P05J02 Assessment of MARS-KS Condensation and Pool Modeling Options for the i-SMR Passive Auxiliary Feedwater System Using PASCAL Test Data
NIHAT ERDEM BERBER, JAE–YONG LEE, and HAE–YONG JEONG(Sejong Univ.)

P05J03 Numerical Analysis of Packed-Bed Cold Thermal Energy Storage Performance in Liquid Air Energy Storage Operation
Seokjun Oh and Jeongik Lee(KAIST)

P05J04 Effects of TTD and DCA on Cycle Efficiency and Heat-Transfer Requirements of PWR-Type SMR Power Cycle
Takhyun Chun, Gyudong Kim, and Jeong Ik Lee(KAIST)

P05J05 Development of a DLL-Based MARS-KS/MATLAB Coupling Framework for Integrated Load-Following Analysis of a PWR Small Modular Reactor
Gyudong Kim, Takhyun Chun, and Jeong Ik Lee(KAIST)

P05J06 Development and Verification of a Representative-Channel Thermal-Hydraulic Analysis Code Using Three-Dimensional Core Power Distribution
Taeho Roh, Minhyeok Bang, and Jeong Ik Lee(KAIST)

P05J07 Thermodynamic Analysis of S-CO_2 Brayton Coupled to an HTGR
ByeongMin Kang and JeongIk Lee(KAIST)

P05J08 Sensitivity Analysis of Thermal Margin of Water-Cooled Integrated SMR Fuel Assembly as Axial Power Peaking and Thermal-Hydraulic Conditions
Seokmin Kang, Seungsu Han, and Hyungdae Kim(KHU), Changhwan Shin(KAERI)

P05J09 Comparison of Density Wave Oscillation Onset under Uniform and Representative HSG Heat-Flux Profiles using MARS-KS
Jun Ha Hwang and Jeong Ik Lee(KAIST)

P05J10 Preliminary Development and Verification of Multi-Module Integration for the SAFARI Severe Accident Analysis Framework
KumHo Han, JeHee Lee, and Yeon Jun Choo(FNC Tech.)

P05J11 LES Analysis of a 1/5-Scale i-SMR CVAP Model for Pressure PSD Generation
Dae Kyung Choi, Young Min Byun, and Choengryul Choi(Elsoltec), Woo–Shik Kim and Tae–Soon Kwon(KAERI), Kyu–Hyung Kim and Do–Young Ko(KHNP)

P05J12 Modification of the Heat Transfer Model of a Helically Coiled Tube in the SPACE Code
Tae Wook Ha and Jong–Hyuk Lee(KAERI)

P05J13 CFD Analysis of the Hydraulic Characteristics of a Gate Valve
Gong Hee Lee(KINS)

P05J14 Preliminary Screening of Thermal-Hydraulic Phenomena for HECTAR at Rated-Power Operation Based on Existing HTGR PIRTs
Sera Jeon, Jinwook Choi, Hyeon–Min Seo, and Seong–Su Jeon(FNC Tech.)

5K

10.29.(목) – 30.(금)

안전해석 현안 (Safety Analysis Issues) – POSTER

| 좌장 성지현(Seong, Jee Hyun), 이제희(Lee, Jehee) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO5K01 Validation of a Condensation Heat Transfer Model for SMR PCCS Analysis
HYUKJIN SONG, YUJUNG CHOI, and HYEON–GYEONG CHOI(KHNP)

PO5K02 Integration Strategy of the Domestic CAP Code for CANDU Reactor Building Analysis
Bong–Jin Ko, Dong–Sik Jin, Kang–Moon Lee, Eun–Bin Mo, Sook–Kwan Kim, Young–Chan Park, and Jun–Hyun Park(STDTE)

PO5K03 Development of a Pre-operational Thermal-Hydraulic Performance Test Scenario for SMART100 PRHRS Using System Analysis and Robustness Assessment Methodology
Jehee Lee and Seong–Su Jeon(FNC Tech.), Ju–Yeop Park(KINS)

PO5K04 Analysis of a TLOFW Accident with PAFS Failure in the i-SMR Using MARS-KS
Hyeonjo Kim, Changyong Jung, and Yeon–Gun Lee(Sejong Univ.)

PO5K05 Assessment of MARS-KS Predictive Capability for Post-CHF Wall Heat Transfer Coefficients Using Quasi-Steady-State IAFB/ISFB Experimental Data
Mijin Jang and Kyung Mo Kim(KENTECH)

PO5K06 Evaluation of External Wall Heat Transfer Capability Based on Containment Vessel Modelling in i-SMR
Yerim Park and Dong–Hyuk Lee(KHNP)

PO5K07 Evaluation of Safety Margin for LOCA Using SPACE–CAP Analyses with Conservative and Realistic Input Conditions
Dong–Young Lee, Kum–Ho Han, and Soon–Joon Hong(FNC Tech.)

PO5K08 Two-Phase Flow Instability in Helical-Coiled Steam Generators of an Integral PWR: A Regulatory Gap Analysis for i-SMR Licensing
Soobean Han, Jaeboong Choi, and Kyunghoon Kim(Sungkyunkwan Univ.), Taeyoung Ryu and Younghwan Choi(BEES)

PO5K09 Sensitivity Analysis of MARS-KS against the ATLAS Natural Circulation Test (NC-03R)
Minki Cho, Geon–woo Kim, Changyeon Yoo, Jegon Kim, and Joonsoo Park(KINS)

PO5K10 Sensitivity Analysis of PECCS Success Criteria and Operator Manual Depressurization Time Windows for i-SMR MMPS LOCA Using MARS-KS
Jiwoo Choi, Yunseok Lee, and Taewan Kim(Incheon National Univ.)

PO5K11 A Study on the Mass Release Mechanism and Its Implications for Energy Release according to Break Size during Main Steam Line Break Accident of APR1000
HYUN JI KIM, JI SU KIM, SEONG HO JEE, and UNGSOO KIM(KEPCO E&C)

PO5K12 Numerical Assessment of Turbulent Heat-Transfer Modeling in ANSYS Fluent for High-Rayleigh-Number Internally Heated Natural Convection
Jaemin Han, Ye Hwan Chun, JinHo Song, and Sung Joong Kim(HYU)

PO5K13 Analysis of Wall Heat Transfer in the Pre-CHF Region of Becker Post-Dryout Tests Using the SPACE Code
In Sub Jun, Chi Woong Choi, and Seung Wook Lee(KAERI)

PO5K14 Selection of Becker Post-Dryout Experiments for IUQ and Validation of the SPACE Code
In Sub Jun, Chiwoong Choi, and Seung Wook Lee(KAERI)

5L

10.29.(목) – 30.(금)

열수력 신기술 (Advanced Thermal Hydraulics) – POSTER

| 좌장 박해균(Park, Haekyun), 김경모(Kim, Kyung Mo) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO5L01 Validation of CUPID-RV Subchannel-Scale Analysis against OECD/NEA RBHT Phase I Benchmark Reflood Test Matrix
Gihoon Bae, Seung–Jun Lee, and Jae Ryong Lee(KAERI)

PO5L02 Metaball-Trained 3D Bubble Reconstruction CNN: Cross-Validation via a Physics-Based Dataset (BubbleSH) and Encoder Structure Comparison
Ilhwan Jang, Sangoh Shin, and Minseop Song(HYU)

PO5L03 Preliminary Simulation of a Small-Scale Pool Experiment Using ANSYS FLUENT for Application to Large Pools of Passive Safety Systems
Jinwook Choi, Minseok Choi, and Seong–Su Jeon(FNC Tech.)

PO5L04 Review of 1.5-Dimensional Thermal-Hydraulic and POWER System Analysis Methodologies for Nuclear Thermal Propulsion
Hyeonseung Yeom and Taeseok Kim(Jeju National Univ.)

PO5L05 Design of a CO_2 Makeup System for a Nuclear sCO_2 Brayton Cycle on Mars and Analysis of Its Impact on Net Power Output
Gwanwoo Park and Seongmin Son(Kyungpook National Univ.)

PO5L06 Review of Regulatory Issues on Passive Containment Heat Removal System
Youngjae Park, Jeong–won Han, Heerim Choi, Sera Jeon, and Seong–Su Jeon(FNC Tech.)

PO5L07 Thermal Stratification Analysis of the ECT in i-SMR Using the SPACE Code
HYEONGYEONG CHOI, YUJUNG CHOI, and HYUKJIN SONG(KHNP)

PO5L08 Comparative Assessment of Discrete Element Approaches for Non-Spherical Fuel Debris in Nuclear Severe Accidents
Jae–Hwi Cho, Seong–Woo Kim, and Young–Beom Jo(KHU)

PO5L09 Numerical Simulation of Natural Circulation in a Closed-Loop System Using the Moving Particle Semi-implicit Method
Sanghyeok Kim, Juhyeong Lee, and Sung Joong Kim(HYU)

PO5L10 Limitations of Equivalent Sand-Grain Roughness Modeling for Additively Manufactured Gyroid TPMS Heat Exchangers
Mingyeong Kim, Jinsu Kim, and Minseop Song(HYU)

PO5L11 Preliminary Thermal Analysis of Heat Pipe Cooled Reactor Core Using MARS-KS
Myeonghun Yeo, Hanseung Choi, Myung Jin Jeong, Ye Sung Kim, and Hyoung Kyu Cho(SNU)

제6분과

원자력 안전 (Nuclear Safety)

6A 원자력 안전 1 (Risk and Safety Assessment 1)

10.29.(목) | 좌장 정용훈(Jung, Yong Hun), 이재호(Lee, Jaiho) | 203

09:00 Practical Challenges in Implementing Semi-Detailed Fire Scenarios within Existing Fire Probabilistic Safety Assessment Software Tools
Kyungho Jin, Yong Hun Jung, and Dae Il Kang(KAERI)

09:20 FLINT: A Spatial Information Platform for Supporting External Event PSA
Eun Sin Lee, Jang Youn Lee, Jin Kyu Han, and Jun Sik Lee(PNE), Sang Hyun Kim(KEPCO E&C)

09:40 Risk Achievement-Based Screening of Human Failure Event Combinations for Fire HRA Dependency Analysis
Sun Yeong Choi and Yong Hun Jung(KAERI)

10:00 Quantitative Evaluation of Cable Protection Performance under Fire Scenarios in Safety Shutdown Cable Routing Areas Using Fire Dynamics Simulator (FDS)
Yongjae Lee, Hakkyu Lim, and Kyungseok Park(KINGS)

10:20 Suggestions on the Application of NBCC in Fire Hazard Analysis of CANDU NPPs
Jaehwan Kim and Jaehyung Ryu(ANAS)

10:40 Coffee Break

11:00 A Method for Analyzing Multiple Spurious Operations in Nuclear Power Plant Fires Using Fault Tree Analysis
Young Suk Jung, Min Byung Chae, Ji Ho Sohn, Sung Jin Kim, and Jun Hyun Park(STDTE)

11:20 An Uncertainty-Informed Machine Learning Framework for Predicting Fire Damage to Cables and Cabinets in Switchgear Rooms
Van Tuan Ho and Weon Gyu Shin(Chungnam National Univ.), Saerin Lim and Seoung Bum Kim(Korea Univ.)

11:40 An Automated Cable Route Analysis Method for Fire Safe Shutdown Analysis Using Object Recognition in Cable Drawings
Ji Ho Sohn, Young Suk Jung, Min Byung Chae, and Jun Hyun Park(STDTE)

6B 원자력 안전 2 (Severe Accident)

10.29.(목) | 좌장 신상우(Shin, Sangwoo), 정재훈(Jung, Jaehoon) | 204

09:00 MELCOR and ASTEC Double-Blind Benchmark Calculations for the TH-37 Recommissioning Test
Seongnyeon Lee, Kukhee Lim, and Eunho Kim(KINS), Jiyeon Choi and Hyungdae Kim(KHU)

09:20 Upper-Bound Assessment of Corium Droplet Formation and Airborne Transport Potential Following Jet Impingement on the Concrete Floor of a Dry Reactor Cavity
Byung Jo Kim and Hoon Goo Oh(KEPCO E&C)

09:40 Implementation of Melt Eruption and Water Ingression Models in CINEMA for Molten Corium-Concrete Interaction Analysis
Chanyong Lee, Seokwon Whang, Suwon Lee, Soonho Park, and JinYong Lee(FNC Tech.)

10:00 Development of an Integrated RPV Lower Head Failure Assessment Module and Its Application to a Domestic 900 MWe-class PWR Station Blackout Scenario
Jangmin Park(Yeungnam Univ.), Kukhee Lim and Eunho Kim(KINS)

10:20 Validation of MELCOR 2.2 Condensation Models for i-SMR Passive Safety Systems
Hanbang Yoo, Yejung Jo, and Yeon–Gun Lee(Sejong Univ.)

10:40 Coffee Break

11:00 Qualification-Gated IVR-First Severe-Accident Mitigation for a 140 MWe SMR Using an Upward Absorber/Dilution Rod and Thermally Bridged Flat-Bottom Catcher
SE YUP LEE(KONEC)

11:20 Assessment of an Extended HERACLES-TDB against Experimental Data for Fission Product Chemistry under SIC- and B_4C-Related Conditions
Dowoong Hwang and Yoonhee LEE(KENTECH)

11:40 Validation of an I-COSTA code Using the ABCOVE AB5 and AB6 Experiments
Miran Park and Yoonhee LEE(KENTECH)

12:00 Development and Verification of the Coupled AnCheBi&I-COSTA Framework for Iodine Chemistry and Aerosol Dynamics
Miran Park and Yoonhee LEE(KENTECH)

6C 원자력 안전 3 (Coorperation Between SA & PSA)

10.29.(목) | 좌장 신태영(Shin, Taeyoung), 김병조(Kim, Byung Jo) | 204

13:30 Steam and Hydrogen Release Characteristics by SDS Depressurization Location During OPR1000 SBO
Jongtae Kim(KAERI)

13:50 Sensitivity Analysis of Branch Probabilities in Level 2 PSA
Kyungmin Kim, Minseop Song, and Moosung Jae(HYU)

14:10 Preliminary Analysis on Impact of Control-Rod Absorber Material Modeling on Severe Accident Progression and Fission-Product Release
Jungbin Yoon and Yoonhee LEE(KENTECH)

14:30 Coffee Break

14:50 Air Oxidation Behavior of Nuclear Fuel Cladding under Severe Accident Conditions in Spent Fuel Pools
Sun–Ki Kim and Seok Kim(KAERI)

15:10 Development of Level 2 PSA Model for Severe Accident Risk Evaluation of i-SMR
Sein Hong and Jaehyun Cho(CAU), Jin Hee Park and Sung Min Shin(KAERI)

15:30 Combinatorial Reduction of Multi-Unit Source Terms Using Clustering Technique
Seunghyeon Hwang and Jaehyun Cho(CAU)

6D 원자력 안전 4 (RIDM and Safety issures)

10.29.(목) | 좌장 최종수(Choi, Jongsoo), 한상훈(Han, Sang Hoon) | 205

13:30 Mortality-Based Reference Values for the NRC QHOs and Implications for Applying NEI 18-04 in the Republic of Korea
Eungjae Kim, Jae Young Choi, and Kilyoo Kim(BEES)

13:50 Graded Approach-Based Regulatory Framework for Implementing PSA in Research Reactor Licensing
Gayeon Im and Jaehyun Cho(CAU)

14:10 Three Structural Barriers to Risk-Informed Regulation in Korea: A Comparative Legal–Technical Review
Hak Kyu Lim(KINGS)

14:30 Coffee Break

14:50 Analysis of the Components within Frequency-Consequence Curve and Implementation for Probabilistic Safety Assessment
Jia Hao Tang(SNRSI|KAERI|UST), Sung–yeop Kim(KAERI|UST)

15:10 Techno-Economic Assessment of Nuclear Power Integration into Uganda's Power Grid
Gloria Akampa, Hak–Kyu Lim, and Gloria Akampa(KINGS)

15:30 Implications of Low-Wind Directional Variability on Sector-Based Emergency Preparedness and Response at the Proposed Uyombo Nuclear Power Plant Site, Kenya
CAVIN MARAGANGA OMBOGO and Hak–Kyu Lim(KINGS)

6E 원자력 안전 5 (Risk and Safety Assessment 2)

10.30.(금) | 좌장 황석원(Hwang, Seokwon), 김만철(Kim, Man Cheol) | 204

09:00 GPU-Accelerated Point-Kernel Dose Mapping from CFD Lagrangian Particle Data
Jemo Ryu and Jaehyun Cho(CAU)

09:20 Development and Application of Component, System, and Train Importance Evaluation Tool, SSIA based on SAREX
Dong Kyu Kim(KEPCO E&C), Seong Kyu Park(NESS)

09:40 Assessment of Radionuclide Inventory Effects on Atmospheric Dispersion
Jaehoon Kim, Jiyeong Seo, and Jaehyun Cho(CAU), Sangho Kim(KAERI)

10:00 Seismic Core Damage Frequency Quantification Using Multivariate Probability Integration Considering Correlated Seismic Fragility
SEUNGHYUN JANG and MINKYU KIM(KAERI)

10:20 Human Reliability Analysis of the Pre-deployment Strategy for Portable Equipment and Evaluation of Its Effectiveness
Gyun Seob Song, Jaewhan Kim, and Seong Woo Kang(KAERI)

10:40 Coffee Break

11:00 Analysis of Feedwater Line Break Accident to Improve the Diagnositc Actions in Emergency Operating Guidelines for APR1400
MYOUNG HUN CHEON, JAE MIN PARK, and UNG SOO KIM(KEPCO E&C)

11:20 Sensitivity Analysis on Turbine Bypass Valve Capacity for NSSS Response Following a Turbine Trip in APR1400
Doil Kim, JiHong Min, and UngSoo Kim(KEPCO E&C)

11:40 Emergency Response Modeling under Seismic Conditions in Level 3 PSA
Dakyoung Lee and Eung Soo Kim(SNU), Sung–yeop Kim(KAERI)

12:00 LLM-Supervised Framework for Determining Operator Available Time
Donghee Choi and Man Cheol Kim(CAU)

6F 10.30.(금) 원자력 안전 6 (Risk and Safety Assessment 3)

| 좌장 조재현(Cho, Jaehyun), 김동산(Kim, Dong-San) | 205

09:00 Development of a Probabilistic Safety Assessment Framework for Marine Molten Salt Reactors Considering Ocean Motion
Seungmin Lee, Dowon Lee, Juhyeong Lee, Joon-Eon Yang, and Sung Joong Kim(HYU)

09:20 Thermal-Hydraulic Analysis-Based Reliability Assessment of Passive Safety Systems for i-SMR
Inseo Nam, Gangmin Kim, and Jaehyun Cho(CAU), Jinhee Park and Sungmin Shin(KAERI)

09:40 Sensitivity and Uncertainty Quantification of the Fuel Salt Temperature during an Uncontrolled Control Rod Withdrawal Accident in the MSRE Using Modelica/TRANSFORM and RAVEN
Inhan Kang, Jinsu Kim, and Minseop Song(HYU)

10:00 Development of a Time-Window Importance Measure in Dynamic PSA for Recovery Prioritization
Kyeongseo Kim and Seung Jun Lee(UNIST)

10:20 Inter-Module Dependency Analysis for the Innovative SMR: Loss of Offsite Power Initiating Event
Kibeom Son, Jin Hee Park, and Sung-Min Shin(KAERI)

10:40 Coffee Break

11:00 HCLPF Assessment of an OPR 1000 Nuclear Power Plant for a High Wind-Induced Loss of Offsite Power Event
YeonWoo Choi and Seunghyun Eem(Kyungpook National Univ.), Shinyoung Kwag(Hanbat National Univ.)

11:20 Extracting Interpretable Accident Conditions from Large Simulation Datasets via Time-Series Clustering and Rule Induction
Junyong Bae and Hyeonmin Kim(KAERI)

11:40 Threat Level-Based Quantitative Evaluation of Cyber Incident Response Capabilities in Nuclear Facility Exercises
DongJun Choi and Jung Taek Seo(Gachon Univ.)

12:00 A Traceable Integrated Assessment Framework for Achievable Target Set Determination
Seong Hyeon Jeon, Dong Jun Choi, Cheol Kwon Lee, and Jung Taek Seo(Gachon Univ.)

6G
10.29.(목) – 30.(금)

리스크/안전성평가/안전현안/재해해석 (Risk/Safety Assessment/Safety Issue/Disaster Analysis) – POSTER

| 좌장 김성엽(Kim, Sung-yeop), 류정현(Ryu, Junghyun) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO6G01 Radiological Characterization and Management Priority Assessment of Radiation-Use Facilities Based on Weekly Monitoring Data
Jinnyeong Choi, Insu Chang, Ikgi Mun, and Suyeong Jo(KAERI)

PO6G02 Evaluations of Explosions Postulated to Occur at Hydrogen Production Facilities near NPP
Young-Hun Shin, Sang-Jin Son, In-Chul Ryu, and Kyung-Tae Kim(KEPCO E&C)

PO6G03 Development of a Procedure for Evaluating the High Energy Arcing Fault Zone of Influence in Nuclear Power Plants
Dae Il Kang, Kyungho Jin, and Yong Hun Jung(KAERI), Young-Seob Moon(KINS)

PO6G04 Derivation of Safety-related Structure, System, and Components (SSCs) for UCl_3 Fabrication Processes in a Preliminary-Conceptual Design Phase
Seokjun Seo, Chaehun Lee, and Jonghui Han(KAERI)

PO6G05 Integrated Uncertainty Analysis of Consequence Combining Severe Accident Progression and Atmospheric Dispersion
Jinpyo Kim and Jaehyun Cho(CAU)

PO6G06 Optimization of Groundwater Protection Initiatives(GPI) for Nuclear Power Plant Decommissioning
Young-Il Na and Suk-Bon Yoon(KHNP)

PO6G07 Development of a Flow-Aware CNN-AE Surrogate Model for OPR1000 Total Loss of Feedwater Accident Analysis
KyuByung LEE(KINS), Taewan KIM(Incheon National Univ.), Eungsoo KIM(SNU)

PO6G08 Need for Human Reliability Data Collection for Extending the EMBRACE Method to the i-SMR Integrated Control Room
Jaewhan Kim and Yochan Kim(KAERI)

PO6G09 Evaluation of Emergency Response Organizations for Coping with Multi-unit Accidents assuming Staffing Availability
Jaewhan Kim, Seong Woo Kang, Yochan Kim, Jinkyun Park, and Ho-Gon Lim(KAERI)

PO6G10 Safeguards by Design Approach for a Sealed-Core Microreactor: Design Elements for Sealing and Remote Monitoring
Jiyoon Won and Seung Min Woo(KHU)

PO6G11 An Introduction to Uncertainty Analysis for the Probability of the Basemat Melt-Through in Level 2 PSA
Changhwan Lim, Inchul Ryu, Baehyeuk Kwon, Wonjik Kim, Yeop Kim, and Duksung Han(KEPCO E&C)

PO6G12 Pre-deployment Radiological Disaster Assessment of Atmospheric Radionuclide Dispersion under Typhoon Conditions in the Philippines
Joelle Ivane and Juyoul Kim(KINGS)

6H
10.29.(목) – 30.(금)

중대사고 (Severe Accident) – POSTER

| 좌장 서미로(Seo, Mi Ro), 하광순(Ha, Kwang Soon) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO6H01 Spatiotemporal Graph Neural Network for Hydrogen Concentration Prediction in Containment during Severe Accidents
Semin Joo, Seok Ho Song, and Jeong Ik Lee(KAIST), Miro Seo(KHNP)

PO6H02 Analysis on IVR through ERVC for Integrity Maintenance of Reactor Vessel in i-SMR using CINEMA
Rae–Joon Park, Seokgyu Jeong, Jaehyun Ham, Donggun Son, and Sang Ho Kim(KAERI)

PO6H03 Effect of Spill Out Condition on Spreading Behavior of Molten Salt using ANSYS-Fluent
Rae–Joon Park, Sang Mo An, and Sungll Kim(KAERI)

PO6H04 Preliminary Test of Spatial Aerosol Removal for SMR Fission Production Mitigation System
Jaehoon Jung and Jeongyun Oh(KAERI)

PO6H05 Improving Data Efficiency for Severe Accident Surrogate Training with Active Learning
Seok Ho Song and Jeong Ik Lee(KAIST), Seunghyeok Yang(FNC Tech.), Taewoo Kim and Mi Ro Seo(KHNP)

PO6H06 Effect of In-Vessel Coolant Injection Timing on APR1400 Vessel Penetration Failure Using Coupled MAAP–ABAQUS Analysis
Jun–Won Park, Hwang–Young Choi, and Yun–Jae Kim(Korea Univ.), Miro Seo and Sangwoo Shin(KHNP), Soo–Hyun Kim and Ji–Ho Kim(SNU)

PO6H07 Implementation of Booth Models for Fission Product Release in SIRIUS Code
Jaehyun Ham, Kwang–Soon Ha, and Donggun Son(KAERI)

PO6H08 Preliminary Analysis of Severe Accidents in a 1400 MWe-Class Generic PWR Using CINEMA
Seokgyu Jeong, Jun–young Kang, and Donggun Son(KAERI)

PO6H09 Analysis of Model Parameter Uncertainty in MAAP5 Predictions of Reactor Vessel Failure for APR1400 In-Vessel Retention Assessment
Jiho Kim, Suhyeon Kim, and Hyun Sun Park(SNU), Sangwoo Shin and Miro Seo(KHNP), Yun–Jae Kim(Korea Univ.)

PO6H10 Preliminary Applicability Assessment of MELTSPREAD to SAEUL Units 3&4
Joon Young Bae, HeeHong Chae, and CheolSoo Kim(KEPCO E&C)

PO6H11 Severe Accident Analysis of C-SGTR and S-SGTR for APR1400 Using CINEMA Code
Jun–young Kang, Donggun Son, Seokgyu Jeong, and Jae Hyun Ham(KAERI)

PO6H12 Comparative Analysis of Scenario-Dependent Uncertainty in In-Vessel Severe Accident Phenomena Using the CINEMA Code
Okhyeon Lee, JinHo Song, Joon–Eon Yang, and Sung Joong Kim(HYU)

제8분과 방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A 방사선 이용 및 기기 1 (Raidation Utilization and Instrumentation 1)

10.29.(목) | 좌장 박병건(Park, Byung-Gun), 이재기(Lee, Jaegi) | 106

09:00 AI model-Based Signal Restoration for X-Ray Communication
Jae Yeon Park(KAERI(ARTI))

09:20 Radon-222 in Groundwater from Dodoma City: Concentrations and Dose Assessment
Aloyce Paulo Kinemelo(KAIST), Jinmo Ahn(KINS)

09:40 MCNP Simulation Analysis of the Lunar Environment Under Varying H_2O Conditions
Dahye Ahn, Insoo Jun, and Sung-Joon Ye (SNU),
Uk-won Nam, Won-Kee Park, Jongdae Sohn, Chae Kyung Sim, and Young-Jun Choi(KASI),
Sunghwan Kim(Cheongju Univ.), Bobae Kim(ANL), Hongjoo Kim and Hwanbae Park(Kyungpook National Univ.)

10:00 Assessment of Th-227 Production from Ra-226 Targets in a Commercial PHWR Neutron Field
Hongmin Jeon, Saehyun Choi, Taehoon Park, Pilhyeon Ju, and Sungyeol Choi(SNU)

8B 방사선 이용 및 기기 2 (Raidation Utilization and Instrumentation 2)

10.29.(목) | 좌장 정성문(Jung, Seongmoon), 김준혁(Kim, Junhyeok) | 106

10:40 Gram-Scale Yb/Lu Separation via Ion-Exchange Chromatography for No-Carrier-Added 177Lu Production
Kangmin Lee, Euntae Kim, and Kanghyuk Choi(KAERI)

11:00 Instruction to the RI Utilization Research Center and Current Research Status
kanghyuk Choi, Junsuk Kim, and kangmin Lee(KAERI)

11:20 Investigation of Proton-Irradiation-Induced Free-Volume Changes in Cyanate Ester Resin
Youngsu Jeong and Jaegi Lee(KAERI), Hyeong Min Jin(Chungnam National Univ.), Youngho Eom(HYU),
Ki-Ho Nam and Hyeonuk Yeo(Kyungpook National Univ.), Min Wook Lee and Wonjin Na(KIST)

11:40 Radiation Field Assessment of an Electron Beam Irradiation Facility under Beam Misalignment Conditions Using PHITS
Banyapha Ubonsa-ard and Juyoul Kim(KINGS)

12:00 GPU Acceleration of an Extended Local Effect Model for Efficacy Estimation in Radionuclide Therapy
Taewan Kim, Jeong Hoon Park, and Min Goo Hur(KAERI(ARTI)), Sung-Joon Ye(SNU)

8C

10.29.(목) – 30.(금)

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

| 좌장 박준식(Park, Junesic), 김태윤(Kim, Taeyun) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO8C01 Five-Year Environmental Radioactivity Monitoring around the Wolsong Nuclear Facilities Using Complementary Radiation Measurement Systems
Yoon–Seok Jung, Eun–Ji Lee, and Hyun–Jae Lee(WSNESC)

PO8C02 Dynamic Cleanup and Safety-Isolation Design of Selective Ion-Exchange Beds for a Soluble-Boron-Free 140 MWe SMR
SE YUP LEE(KONEC)

PO8C03 Performance-Based Solidification Architecture, Waste-Generation Screening, and Source-Term Traceability for Spent Ion-Exchange Resin and Radioactive Sludge from a 140 MWe SMR
SE YUP LEE(KONEC)

PO8C04 Characterization of Low-Level Tritium Measurement Performance of the HIDEX 300SLL Liquid Scintillation Counter
HYUNJAE LEE(WSNESC)

PO8C05 Fabrication and Electrical Characterization of SiC Schottky Barrier Diodes
Su Jin Kim, Jang Ho Ha, Hyun Bin Kim, Young Soo Kim, and Han Soo Kim(KAERI(ARTI))

PO8C06 Design and Monte Carlo Optimization of an Extended-Range Long Counter for Neutron-Yield Verification
Junehyung Bernaski, Gyu Hyun Sim, and Yong Kyun Kim(HYU)

PO8C07 Effects of Polyethylene Configuration and Mass Fraction on the Neutron Shielding Performance of a Self-Shielded Medical Cyclotron
Woo Yeol Baek, Seung Beom Goh, Minki Kim, Chang Ho Shin, and Yong Kyun Kim(HYU)

PO8C08 Feasibility Evaluation of a CZT-Based In-Situ Screening System for Metallic Activated Waste from a Medical Cyclotron
Seung Beom Goh, Minki Kim, Young Ho Roh, Chang Ho Shin, and Yong Kyun Kim(HYU)

PO8C09 Effect of Wavelength-Shifter Concentration on the Emission Characteristics of DLP 3D-Printed Plastic Scintillators
Min Gyu Lee, Han Cheol Yang, Hyeong Gu Kang, and Yong Kyun Kim(HYU)

PO8C10 Effect of Detailed Geometric Modeling on Activation and Dose Assessment of a Transportable Micro Reactor
Hyuk Han, Beom–Kyu Kim, Suk–Hoon Kim, and Jae–Seon Jo(FNC Tech.)

PO8C11 Development and Evaluation of an External Standard Method for k_0-Based Neutron Activation Analysis of Ancient Pottery
Seoeun Jang, Seongpyo Hong, and GwangMin Sun(KAERI), Kishore Babu Dasari(JBNU),
GyuHo Kim(Kyungpook National Univ.)

PO8C12 Development and Evaluation of a Portable Gamma-ray Imaging Device Based on Compton Imaging Algorithm
Kyung Min OH, Han Soo KIM, Jang Ho HA, Moon Sik CHAE, Jin Hyung PARK, Jae Yeon PARK,
and Jae Hyeon KIM(KAERI(ARTI))

PO8C13 Spectroscopic Performance of a $LaBr_3$:Ce Detector with Liquid Light-guide Configurations up to 10 m
Jae Hyung Park, Sangjun Lee, Seunghyeon Kim, and Bongsoo Lee(CAU)

PO8C14 Monte Carlo-Based Prediction of Internal Dose Distribution for Radiation Conservation Treatment of Cultural Heritage
Juyeon Choi, Young Rang Uhm, Hae–Jun Park, and Jaegi Lee(KAERI), Jung Il Song(NRICH)

PO8C15 Development of a Radiation- and High-Temperature-Tolerant LVDT-Thermocouple Integrated Instrumentation System for In-Pile Irradiation Testing at HANARO
Jaegi Lee, Sung–Ho Ahn, Junesic Park, Jinyu Kim, Seong Woo Yang, Sungjae Park, Kee–Nam Choo,
Ye–eun Na, Jong Woo Kim, Jinhwan Kim, Junhyeok Kim, and Bo–Young Han(KAERI)

PO8C16 Kelvin-Sensed AC Wheatstone Bridge Front End with Coherent Complex Ratiometric Readout for FLASH Radiotherapy Graphite Calorimetry
Jaegi Lee, Junhyeok Kim, Byung–Gun Park, Cheolhong Im, and Wanseok Oh(KAERI)

PO8C17 Transformation State of Archaeological Iron Oxides by Mössbauer Spectroscopy
Young Rang Uhm(KAERI)

PO8C18 Conceptual Design of a HANARO-Based High-Intensity Slow Positron Beam Facility: A Positronium Research Platform for Antimatter Gravity, QED Spectroscopy, and Bose-Einstein Condensation
Jaegi Lee, Duck–Hee Kwon, Yonghee Kim, Bo–Young Han, and Gwang–Min Sun(KAERI),
Yong–il Shin(SNU), Jee Woo Park(POSTECH), Jongseok Lim(ICL), Hoon Yu(AFA),
Jaehong Kim and Sung Jong Park(IBS), Sungkyun Park(PNU), Hong Joo Kim(Kyungpook National Univ.)

PO8C19 Feasibility of Neutron Transmutation Doping at HANARO for Vanadium-Pinned Semi-Insulating 4H-SiC Substrates
Jaegi Lee, Gwang–Min Sun, Byung–Gun Park, Jinhwan Kim, Junhyeok Kim, Hun Young Kim, Junesic Park,
and Dong Hyuk Lee(KAERI)

PO8C20 Nuclear Power Plant Liquid Radioactive Waste Management and Overseas Practices
Hyungjin Kim and Jin–Won Son(KHNP CRI)

PO8C21 Dose Point Kernels and Cellular S-values of Radionuclides for Positron Emission Tomography using a Monte Carlo Method
Sangho Lee and Gyuseong Cho(KAIST), Kondapa Naidu Bobba(UT), Robert R. Flavell and Youngho Seo(UCSF)

PO8C22 Experimental Determination of Thermal Neutron Capture Cross Sections of Zirconium and Zinc using Neutron Source at the HANARO Research Reactor
K.B. Dasari and J.H. Park(JBNU), S.P. Hong, H. Choi, G.M. Sun, and J.H. Moon(KAERI), H. Cho(KRISS)

PO8C23 Influence of Temperature on Precipitates and Mo Uptake in Alkaline Fission ^{99}Mo Dissolution
Minkyeong Hwang, Bogyeong Park, Malgobalgaebitnala Yoo, Seungkon Lee, and Jinhee Kim(KAERI)

PO8C24 Evaluation of the Radiochemical Stability of 90Y-DOTA-TATE with Antioxidant Stabilizers
Kangmin Lee, Euntae Kim, Soyoung Lee, and Kanghyuk Choi(KAERI)

PO8C25 Design and Functional Requirements of Fission Mo-99 Production Hot Cells for KJRR
Kyungseok Woo, Seung–Kon Lee, Suseung Lee, JunSig Lee, Jin–Hee Kim, Na–La Yoo, and Euntae Kim(KAERI)

PO8C26 Neutron Fluence Evaluation of the 22F-01U Irradiation Capsule at HANARO Using Activation Wire Monitors
Junesic Park, Seong Woo Yang, Soengpyo Hong, Jong Woo Kim, and Ye Eun Na(KAERI)

PO8C27 Baseline Evaluation of CNO Composition Analysis Using Detector-Specific Pure-Element Gamma Signatures under 14 MeV Neutron Irradiation
Yong Min Kim, Joo Hyung Kim, June hyung Bernaski, and Yong Kyun Kim(HYU)

PO8C28 Determination of the Optimal Duty Cycle of a Pulsed Neutron Generator Based on Decay Time Analysis of DDA Signals
Gyu Hyeon Sim, Junehyung Lee Bernaski, Young Ho Roh, and Yong Kyun Kim(HYU)

PO8C29 Extended Energy and Absolute Efficiency Calibration of HPGe Detector Using Neutron Activation ^{72}Ga and ^{56}Mn Radionuclides
Seongpyo Hong, Sung Hyo Lee, Bo–young Han, Gwang–Min Sun, Hyunkyung Choi, and Jong–Hwa Moon(KAERI),
Kishore B. Dasari(JBNU), Hana Choi(KRISS)

PO8C30 Thermal-Neutron PGNAA-Based Elemental and Quantitative Composition Analysis of NCM Cathode Materials Using a High-Resolution LaBr3(Ce) Scintillation Detector
Jinhyung Park, Han Soo Kim, Jae Hyeon Kim, and Kyung Min Oh(KAERI(ARTI)),
Kiyoon Lee and Cheolha Baek(Kyungpook National Univ.), Junghyeon Eo(3I Solution Inc)

PO8C31 Physics-informed Deep Learning-based Monte Carlo dose Prediction for BNCT
Yoonho Na, Chang–Min Lee, Kyuri Kim, and Sung–Joon Ye(SNU)

PO8C32 Effects of Cu Substitution and ^{60}Co Gamma Irradiation on the Magnetic Response of Co-Cu Nanoferrites
Hyunkyung Choi, Seong Pyo Hong, and Gwang–Min Sun(KAERI)

PO8C33 Field Demonstration of a Prototype Hand-held-type Gamma Imaging Device at a Customs Site
Jae Hyeon Kim, Kyung Min Oh, Jin Hyung Park, Jang Ho Ha, and Han Soo Kim(KAERI(ARTI)),
Junyoung Lee, Goeun Lee, and Chan Hyeong Kim(HYU)

제9분과 양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

9A 양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

10.29.(목)

| 좌장 김한성(000), 김석권(000) | 206

초청발표

14:00 ITER Knowledge and Technology Transfer: Achievements and Future Strategy
YoungHwa An(KFE)

14:30 Current Status of ITER Neutron Activation System Measurement Uncertainty Characterization
Jungmin Jo, Jiwon Seo, YoungHwa An, Jeongwon Yoo, and MunSeong Cheon(KFE)

14:50 GeV Grade Energy Upgrade Option of the KOMAC Linac
Hyeok-Jung Kwon, Seunghyun Lee, Han-Sung Kim, Young-Gi Song, Sang-Pil Yun, and Jae-Sang Lee(KAERI)

15:20 Experimental and Multi-physics Analysis on Drift Tube for Separated Drift Tube Linac
Sungbin Park, Seunghyun Lee, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI)

9B 양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion) – POSTER

10.29.(목) – 30.(금)

| 좌장 안영화(An, YoungHwa), 000(000) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO9B01 HPRF System for Injector Section of RAON SCL3
Kyungtae Seol, Kitaek Son, Sangyoon Bae, and Hyungjin Kim(IRIS)

PO9B02 Progress Toward 200-MeV Upgrade of KOMAC
Han-Sung Kim, Seunghyun Lee, SeokHo Moon, Sungbin Park, Hae-Seong Jeong, and Hyeok-Jung Kwon(KAERI)

PO9B03 Development of an MTCA-Based Timing System for Replacement of Obsolete VME Equipment and Future Accelerator Expansion at KOMAC
Young-Gi Song, Jae-Ha Kim, Sung-Yun Cho, and Hyeok-Jung Kwon(KAERI)

PO9B04 Preliminary Study on BLM-based RF Stabilization Technique for KOMAC DTL Tanks
Gyuhaeng Jo, Sang-Pil Yun, Jae-Ha Kim, Young-Gi Song, HanSung Kim, and Hyeok-Jung Kwon(KAERI)

PO9B05 Development of an RFSoC-Based Direct-Sampling RF Signal Acquisition System for Beam Diagnostics at KOMAC
Jae-Ha Kim, Young-Gi Song, Sung-yun Cho, Hae-Seong Jung, and Hyeok-Jung Kwon(KAERI)

PO9B06 Development of an Electron Gun for Nanosecond Electron Beam Generation
Moonsik Chae, Jungho Moon, Kyungmin Oh, Jaehyun Kim, Hoje Kwon, Jinhyung Park, and Hansoo Kim(KAERI)

PO9B07 Development of a 10 MeV Electron Beam Diagnostics Beamline
Moonsik Chae, Jungho Moon, Kyungmin Oh, Jaehyun Kim, Hoje Kwon, and Jinhyung Park(KAERI)

PO9B08 First 20 MeV Proton Beam Transport to TR102 for Space Applications and Associated Diagnostic Challenges at KOMAC
Seunghyun Lee, Seok Ho Moon, Sang-Pil Yun, Young-Gi Song, Gye-Ryung Kim, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI)

PO9B09 Structural Design Basis Review of the HCCP TBM-set Attachment
SeongDae Park, Suk–Kwon Kim, Dong Won Lee, and Jae–Sung Yoon(KAERI), Hyoseong Gwon(KFE)

PO9B10 In-Vessel LOCA Analysis for the PD Stage of HCCP 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)

PO9B11 Recent Progress in Experimental Evaluation of a Helium Circulator for the Test Blanket System
Changwook Shin, Suk–Kwon Kim, Dae–Sik Chang, and Dong Won Lee(KAERI), Myungho Kim and Mu–Young Ahn(KFE)

PO9B12 Effect of Blocking Capacitance on RF Voltage Coupling in a 40 MHz Capacitively Coupled Plasma
Kyujin Jang, Junbeom Park, and Kyoung–Jae Chung(SNU)

PO9B13 Structural Analysis of the Progressive Die Bending Process for a High-Temperature Superconductor Stacked in Conduit Conductor
Jongseo Lee, Kyung Mo Kim, and Byungsu Lim(KENTECH)

PO9B14 Quantitative Assessment of Be-9 Photonuclear Contributions to TBM Shutdown Dose Rate
Sunghwan Yun, Seong Dae Park, Dong Won Lee, Hyung Gon Jin, Chang Wook Shin, Suk–Kwon Kim, and Jae Sung Yoon(KAERI), Do Hyun Kim(KFE)

PO9B15 Short Pulse Optimization of High Heat Flux Testing for Plasma Facing Components in the Fusion Devices
Suk–Kwon Kim, Chang Wook Shin, Seong Dae Park, Hyung Gon Jin, Sunghwan Yun, Dae–Sik Chang, Jae–Sung Yoon, and Dong Won Lee(KAERI)

PO9B16 Development and Numerical Verification of a High-Order Unstructured Finite-Volume Framework for Tokamak Plasma Transport
Jinsu Kim, Beomsu Kim, and Yong–Su Na(SNU), Jaegon Lee(ITER)

PO9B17 Design and Fabrication Procedures of the HCCP TBM Shield and Its Small-Scale Mock-up
Jae Sung Yoon, Seong Dae Park, Suk–Kwon Kim, and Dong Won Lee(KAERI), Hyoseong Gwon(KFE)

PO9B18 A Systematic Framework for Molten Salt Selection in Fusion Reactor Breeding Blanket Applications
Byung Gi Park, Hyunjin Boo, Tae Hee Kim, and Suhyun Kim(SCHU), Chang–Shuk Kim and Woong Chae Kim(KFE)

PO9B19 Multi-Step D1S: Restoring the Delayed Gammas Emitted Below the First Decay Step of an Open-Source D1S Implementation
Sunghwan Yun and Jae Hoon Song(KAERI)

PO9B20 Preliminary Phase Diagram Calculations of FLiBe and LiCl–$PbCl_2$ Molten Salts for Fusion Blanket Applications
Juyeon Lee, Pilseong Kwon, Jihoon Kim, and Sungyeol Choi(SNU)

PO9B21 Deep Learning-Based Neutron Emission Profile Reconstructionfor Real Time Diagnostics in K-DEMO
Gyeongjin Choi, Beomkyu Kwon, and Kyoung–Jae Chung(SNU)

제10분과 원자력 건설 및 운영 기술 (Nuclear Power Plant Construction and Operation Technology for Nuclear Facility)

10A 지진 및 외부재해 (Seismic and External Hazards)

10.29.(목) | 좌장 김정한(Kim, Jung Han), 이세현(Lee, Sei-Hyun) | 105

초청발표

09:00 Revision of IAEA Site Evaluation Standards: Key Changes in SSR-1 and SSG-18
Minkyu Kim(KAERI)

09:40 Compound Flood Design Conditions at a Nuclear Power Plant Site Based on Joint Exceedance Probability and Comparison with the Conventional Event Combination
Jaehwan Yoo and Byunghyun Kim(Kyungpook National Univ.)

10:00 Bayesian Network-based Systematic Risk Evaluation for NPPs Subjected to Mainshock-Aftershock Sequences
Changuk Mun, Daegi Hahm, and Min Kyu Kim(KAERI), Shinyoung Kwag(HBNU)

10:20 Experimental Evaluation of Tensile Capacity and Ductility in Cast-in-Place Anchors with Anchor Reinforcement
Jin-Young Park, Gyeonghee An, and Junhee Park(KAERI)

10:40 Coffee Break

11:00 An Experimental Study on the Tensile Concrete Breakout Capacity of Deeply Embedded Cast-in-Place Anchors for Equipment in Nuclear Power Plant
Gyeonghee An, Jin-Young Park, Junhee Park, and Minkyu Kim(KAERI)

11:20 Effect of In-Structure Response Spectra on the Inelastic Energy Absorption Factor in Seismic Fragility Assessment
Seung Jae Lee and Jung Han Kim(PNU), Hong Pyo Lee(KHNP)

11:40 Evaluation of Prestressed Concrete Containment with Void
Hyeon-Keun Yang and Jae-Wook Jung(KAERI)

12:00 Comparison of Seismic Design Methodologies and Licensing Precedents for Advanced Reactors under 10 CFR Parts 50/52, 53, and Proposed Part 57
Bong Yoo, Yun-Hwan Maeng, Chang-Hun Hyun, and Jae-Young Choi(BEES)

10B 부지 및 운영 (Site and Operation)

10.29.(목) | 좌장 박동희(Hahm, Daegi), 함대기(Park, Donghee) | 105

13:30 A Preliminary Study on AWP for Optimizing SMR BOP Construction Schedules
Sanghwan Byeon and Wooyong Jung(KINGS)

13:50 Strategies for Balanced Risk Flow-Down in International Nuclear Power Plant Construction under Localization Requirements
Jakub Stoklasa and Woo-yong Jung(KINGS)

14:10 Siting Considerations of Small Modular Reactors Near Populated Areas: A Case Study of Kuwait
ABDULLAH ALOMANI(KINS)

14:30 Coffee Break

14:50 Assessing Operational Performance Before and After LTO in a Nuclear Power Plant
Ki Sig Kang and Yong Deog Kim(KINGS), Se Youl Won(KHNP)

15:10 Development of an Availability Contribution Assessment Framework for Plant Modifications in Nuclear Power Plants
Kyungseok Park, Hakkyu Lim, and Yongjae Lee(KINGS)

15:30 Automation of Nuclear Power Plant Liquid-Filter Replacement Using FilterBot: Development and Field Demonstration
Seong-Sin Kim, Keung Koo Kim, and Hak Kyu Lim(KINGS)

15:50 Development and Numerical Analysis of a Differential Gear for the Mechanical Encoder of a Single-Failure-Proof Polar Crane for Nuclear Power Plant
Byoungwoo Kim, Keungkoo Kim, and Jooil Yoon(KINGS)

10C 수화학 (Water Chemistry)

10.29.(목) | 좌장 권혁철(Kwon, Hyuk Chul), 전순혁(Jeon, Soon-Hyeok) | 106

13:30 Prediction of Water Chemistry throughout the PWR Secondary System
Hyeeun Jeong and Chi Bum Bahn(PNU), Jia Yu and Young-Jin Oh(KEPCO E&C)

13:50 Preliminary Evaluation of Film Products for In-Depth Compatibility and Feasibility Studies in NPP Secondary System
Hyuk-Chul Kwon, Yong-Sang Cho, Seung-Ho Lee, Cho-Rong Kim, and Gi-Soon Hwang(KHNP)

14:10 Review of Considerations for Radiation Dose Rate Assessment of Plant Equipment Following Shutdown Chemistry
Seung-Ho Lee, Hyuk-Chul Kwon, Cho-Rong Kim, Yong-Sang Cho, and Gi-Soon Hwang(KHNP)

14:30 Review of Phase-Change and Liquid-Vapor State Modeling Approaches in PWR CRUD
Sanseong Kweon, Dongmin Kim, and Richard Foster(NIFTEP), Sungyeol Choi(NIFTEP|SNU)

10D 구조 및 설계 (Strucuture and Design)

10.30.(금) | 좌장 권태현(Kwon, Tae-Hyun), 이홍표(Lee, Hongpyo) | 106

09:00 Ontology-Guided Multi-Agent Labeling of Reactor-System Schematics for GENESYS™
Seungyoon Lee and In Cheol Bang(UNIST), Doyeong Lim(CSU)

09:20 Manufacturing and Reliability Assessment of Submerged-Arc-Welded Steel Pipes below 14 Inches as Alternatives to Seamless Pipes for Nuclear Power Applications
Byung Doo Chu(DONGYEUN STEEL), Keung Koo Kim and Joo-Il Yoon(KINGS)

09:40 Review of Pre-Service and In-Service Inspection Issues for the Steel Containment Vessel of the Innovative Small Modular Reactor and Proposal of Inspection Methods
Jinbok Choi, Tae-Hyun Kwon, and Habeun Choi(KAERI), Dong-Yuk Kim(KINS)

10:00 Machine Learning Surrogate for Thermal Expansion Stress Prediction and Optimal Routing Recommendation of Nuclear Piping Using Accumulated Stress Analysis Data
YEONJI SONG(KEPCO E&C)

10:20 Effective In-plane Stiffness for Finite Element Analysis of SC walls
Hyuk-Jin Kwon and Hong-gun Park(SNU)

11:00 Crack Assessment of Containment Building Liner Plate up to Maximum Crack Extent
Do-Yeon Kim and Tae-Hyun Kwon(KAERI)

11:20 Experimental Study on Air Leakage Characteristics of PCCV
Jihun Kim, Yousang Lee, and Hong-Gun Park(SNU)

11:40 Influence of Impact Direction on the Local Structural Response of an i-SMR Steel Containment Vessel
Kyeong Seo Lee, Min Jeong Park, and Yoon-Suk Chang(KHU)

10E 원자력 건설 및 운영기술 (Construction and Operation Technology for Nuclear Facility) – POSTER

10.29.(목) – 30.(금)

| 좌장 최진복(Choi, Jinbok), 박준희(Park, Junhee) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO10E01 A Review of the Applicability of Technical Standards for Pre-service Inspection Reflecting i-SMR Design Characteristics
Keon-Yeop Kim, In-Seon Yeo, and Jin-Yong Lee (FNC Tech.), Dong-Yuk Kim(KINS)

PO10E02 Preliminary GIS Multi-Criteria Suitability Assessment for Small Modular Reactor Siting in Thailand
Methawee Nakkam and Eric Yee(KINGS)

PO10E03 Comparison of Wind Hazard Curves from Observation-Based Extreme Value Analysis and Typhoon Logic-Tree Simulation for Korean Nuclear Power Plant Sites
Jeong-Gon Ha, Beom-Jin Kim, Daegi Hahm, and Minkyu Kim(KAERI)

PO10E04 Partial-Group Operation of External Control Drums for Long-Life Fast Molten Salt Reactors
Jongwoo Lee, Seungyop Peak, and Ji Hwan Kim(HDEC)

PO10E05 A Study on the Establishment and Utilization of a Domestic Rapid Dissemination Process for Overseas OE Reports on PHWR
Bongho Cho(KHNP CRI)

PO10E06 Causes of POSRV Leakage and Prevention Measures
Sujun Kim and Eric Yee(KINGS)

PO10E07 Baseline UT Thickness Measurement of HANARO 28-inch Secondary Cooling Piping
Taeho Kim, Minsu Kim, Kyungsu Park, Hyeonwoo Park, and Byunghun Hwang(KAERI)

PO10E08 Extended Logical Approach for Aging Management of Non-Metallic Components in Active Mechanical Equipment In Connection with PSR-Based Decision Making
Sunghyun Youn, Seungpyo Hong, Donghwa Shin, and Changho Ji(TAEYANG ENG.)

PO10E09 Operating Condition Analysis for Closed Flushing of Primary Cooling System in the KJRR
Jeongeun Kim, Dayong Kim, and Hyunwoo Lee(KAERI)

PO10E10 Development of a One-Time Inspection Program for the Continued Operation of Hanbit Units 1 and 2
Kyunghee Lee, Dahye Kim, and Jimin Kim(KHNP CRI)

PO10E11 Efficient Management Strategies for Nuclear MMIS Engineering Deliverables
DONGIL LEE and SEOYOUNG CHOI(KHNP CRI)

PO10E12 Reliability Enhancement Methods for MMIS in Plant Operational Phase
DONGIL LEE and SEOYOUNG CHOI(KHNP CRI)

PO10E13 Prototype Development of a Repair Welding Robot for Three-Dimensional Trajectory Tracking on Large-Diameter Piping
Honghyeon Cho, SangBeom Nam, and GeunHwee Park(KNR), Minjae Choi(KAERI)

PO10E14 Proposal and Applicability Assessment of Control Logic for an sCO_2 Recompression Brayton Power Conversion System Considering Part-Load Operation
Donghyeon Lee and Sungjoong Kim(HYU)

PO10E15 A Literature-Based Review of Design Characteristics and Considerations for Nuclear-Powered Ships
Hyojeong Kim, Kwangphil Park, and Jeongwoo Lee(Chungnam National Univ.), Sangtae Kim(HYU)

PO10E16 Model-Based Nuclear Systems Engineering (MBNSE): A Design Framework for Small Modular Reactors under Evolving Safety Regulatory Requirements
Changmin Yoon and Jeong Ik Lee(KAIST)

PO10E17 Estimation of Probabilistic Precipitation at an NPP Site Considering the SSP3-7.0 Climate Change Scenario
Beom-Jin Kim, Daegi Hahm, Minkyu Kim, and Jeong-Gon Ha(KAERI)

PO10E18 Analysis of Flood-Induced Nuclear Accident Propagation Mechanisms Using System Dynamics
Hyeri Jang, Jaehwan Yoo, Jiyun Jeon, DavidMinsu Kang, and Byunghyun Kim(Kyungpook National Univ.)

PO10E19 System Dynamics Analysis of Flood-Induced LOOP/SBO Progression and Recovery in Nuclear Power Plants
Jiyun Jeon, Hoyeon Kim, Jaehwan Yoo, Hyeri Jang, and Byunghyun Kim(Kyungpook National Univ.)

PO10E20 Insights into Water-Level Discretization in Risk Quantification of Bayesian Network-based Flood PSA
Chaeyeon Go and Shinyoung Kwag(HBNU), Seunghyun Eem(Kyungpook National Univ),
Changuk Mun and Daegi Hahm(KAERI)

PO10E21 Experimental Validation of the Newmark Permanent Displacement Method Using Small-Scale 1g Shaking Table Experiments and GIS-Based Seismic Hazard Mapping of Slopes near a Nuclear Power Plant
Kyeongjae Park, Chaeyeon Go, and Shinyoung Kwag(HBNU), Seunghyun Eem(Kyungpook National Univ),
Daegi Hahm(KAERI)

PO10E22 A Fracture Energy Regularized Damage Model for Tensile Cracking Modeling in Reinforced Concrete Structure
Habeun Choi and Tae-Hyun Kwon(KAERI)

PO10E23 Finite Element Analysis of Plastic Strain and Residual Stress in a Nozzle Dissimilar Metal Weld under Different Annealing Temperature Conditions
Beom-Jin Kim, Jun-Young Jeon, Chang-Young Oh, and Sang-Woo Song(KIMS)

PO10E24 Seismic Fragility Assessment of NPP Cabinet Equipment under Initial, Aged, and Retrofitted Conditions
Jae-Wook Jung and Hyeonkeun Yang(KAERI), Dong Uk Park and Sung Jin Chang(PNU)

PO10E25 A Methodology for Evaluating Operating Loads during Fuel Insertion into Fuel Handling Equipment
woocheol Choi, mingyu Kim, hojung Lee, soungkyu Lee, and daeheon Lim(KEPCO E&C)

PO10E26 Python-Based Modernization and PWR Benchmarking of the GALE Methodology for Future SMR Effluent Assessment
Joo Hyung Kim, Seung Beom Goh, and Yong Kyun Kim(HYU)

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

11A 10.29.(목) 원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)

| 좌장 장선영(Chang, Sunyoung), 정익(Jeong, Ik) | 206

09:00 Development of a Preliminary Organization for i-SMR Operation and Maintenance
Jihyeon Kim, Taecheol Park, Sanggyu Lim, and Hangon Kim(i–SMR)

09:20 Assessing Licensing Management Maturity in Nuclear Power Plant Projects: A Preliminary Study
Hoang Anh Nguyen and Woo–yong Jung(KINGS)

09:40 Distinguishing Heavy Water Production and Upgrading Equipment from General Industrial Equipment under the Revised NSG Guidelines
Sangwoo Han, Sujeong Kim, and Chansuh Lee(KINAC)

10:00 A Study on Bias Analysis of North Korea's Nuclear Threat by Country Using a Self-expanding Crawler
Yonhong Jeong, Gayeon Ha, and Sueyeon Lee(KINAC)

10:20 A Comparative Analysis of Nuclear Activity Assessment Processes in the EU and Korean Green Taxonomies
Youngwoo Lee, Joo Hyung Moon, Jai Oan Cho, Gisol Nam, and Young Joon Lee(KAERI)

10:40 Coffee Break

11:00 Economics of the Marginal SMR Module in an Off-Grid 24/7 Carbon-Free Data-Center Microgrid
Sungmun Yoon, Kangwook Cho, and Soojin Park(KINGS)

11:20 A Preliminary System Cost Comparison of Single-Node and Multi-Node Grid Representations of the 2024 Korean Power System Using Posy2
Jai Oan CHO, Gisol NAM, Youngwoo LEE, Joo Hyung MOON, and Young Joon LEE(KAERI)

11:40 Regulatory Issues in the Marine Utilization of Non-Light-Water SMRs and Their Remedies
Jong Chull Jo, Hiwon Lee, and Ga Hee Sim(TIUM solutions), Jae Hoon Lee(Sungshin Women's Univ.), Guk Hee Yoo(Dankook Univ.)

12:00 A Comparative Study of Safety and Safeguards Framework for Nuclear Fuel Reprocessing
Diva Jati Kanaya(KAIST), Manwoong Kim(POSTECH)

12:20 Cooperation Is Not a Purchase Order: Participation Pathways and Assessment of Project Progress in SMR Projects Involving U.S. Design Developers
Yuhan Yi(Changwon National Univ.)

11B 10.30.(금) 원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)

| 좌장 이영준(Lee, Youngjoon), 정원표(Jeong, Won Pyo), 이영우(Lee, Youngwoo) | 206

09:00 Strengthening the Regulatory Processes and Documentation Across the Lifecycle of Nigeria's Research Reactor: A Proposal for Formalising Regulatory Oversight Functions in Response to the 2017 IAEA IRRS Recommendation 7
Arome Olowojoba(KAIST), Daesoo Shin(KINS)

09:20 An Incomplete Demonstration Pathway: Structural Limits of Korea's SMR Special Act and Directions for Reform
Joo Hyung Moon, Gisol Nam, and Youngwoo Lee(KAERI)

09:40 Anticipated Regulatory Issues for Code-level Surrogate Models Replacing Nuclear Safety Analysis Codes
Sihyeong Yu and Joongoo Jeon(POSTECH), Chaeeun Jang(HYU)

10:00 Development of Quantitative Indicators for the Graded Regulation of Research Reactors with Various Criteria
Yuseung Lee, Jeongkyu Cho, and Hojin Park(KHU)

10:20 Structuring First Indonesia Nuclear Power Plan Projects as Emerging Nuclear Nations: A Four-Dimensional AHP Decision Model
Soojin Park and Agus Aryanto(KINGS)

10:40 Coffee Break

11:00 An Energy Justice Analysis of Korea's SMR Siting Framework: Gijang i-SMR Site Selection
Gaeul Choi and Sungyeol Choi(SNU)

11:20 Assessment of Korea's 2038 Generation Capacity Mix from a Firm Power Perspective
Gisol Nam, Jai Oan Cho, Youngwoo Lee, Joo Hyung Moon, and Young Joon Lee(KAERI)

11:40 An Analysis of Replacement Energy Costs Associated with Nuclear Power Plant Outages in South Korea
Gisol Nam, Jai Oan Cho, Youngwoo Lee, Joo Hyung Moon, and Young Joon Lee(KAERI)

12:00 Development of a National Long Term Energy Mix Optimization Model for Achieving Carbon Neutrality by 2050
Ji–eun Joo and Jong–hee Lee(KAERI), Manki Lee and Dong Seok Roh(SNU),
Sung–Min Choi, Yong Hoon Jeong, and Jeong Ik Lee(KAIST)

12:20 Preliminary Operational Requirements for ROK Military Microreactors: Lessons from U.S. Defense Microreactor Programs
Yeongchan Kim and Jeong Ik Lee(KAIST)

11C 원자력정책, 인력 및 협력 (Nuclear Policy, Human Resources and Cooperation)–POSTER

10.29.(목) – 30.(금)

| 좌장 손희동(Sohn, HeeDong) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO11C01 Bridging Theory and Practice- A New Textbook, The Introduction to Nuclear Engineering using OPENMC
Kwangheon Park(KHU)

PO11C02 Development of a New Korean Textbook, Uranium Chemistry, for Human Resource Development
Nobuaki Sato(Tohoku Univ.), Kwangheon Park and Kun–ok Chang(KHU)

PO11C03 Analysis of National Nuclear Workforce Estimation Models for Newcomer Countries: The IAEA NPHR Modelling Tool and Alternative Approaches
HANSUK KO(KAERI)

PO11C04 Development of Radiaiton Safety Culture Index (RSCI) and Its Assessment Framework
Yeeun Lee, Yisub Min, and Jeongmin Park(KAERI)

PO11C05 Framework to Support Ageing and Obsolescence Management Using Agentic AI
Kweonwoo Sohn, Changhwan Cho, and Sungjong Kim(MIRAE–EN)

PO11C06 Current Activities of KAERI-ICERR
Sung Ho Ahn, Youngmi Nam, Gwang Min Sun, Jin Won Shin, Young Soo Han, Jintae Hong, and Young Gwan Jin(KAERI)

PO11C07 Development of a Radiation Education Supplementary Resource for K–12 Teachers
Jinmyeong Shin and Jihyun Kim(KAERI)

PO11C08 Development Directions for Nuclear and Radiation Teaching Materials and Educational Kits Based on a Comparative Analysis of Domestic and International Resources
Jinmyeong Shin and Hyewon Yoo(KAERI)

PO11C09 Longitudinal Assessment of Metabolic Syndrome Risk and Cognitive Decline Following the Fukushima Daiichi Nuclear Power Plant Accident: A Comprehensive Review
Seung Jin Choi(KHNP RHI)

PO11C10 Analysis of Nuclear Safety Culture and Executive Leadership Strategy for Emerging Nuclear Nations: The Case of Türkiye
Aysenur Ugurlu(KINGS)

PO11C11 Regulatory Body Integration and the Safety–Security–Safeguards Interface : A Comparison of Six National Arrangements
Youngsuk Bang, Soeun Shin, and Sukhoon Kim(FNC Tech.)

PO11C12 Reassessing Radioactive Waste Inventories at North Korean Nuclear Facilities: Updated Estimates and Sensitivity Bounds
Minsoo Kim and Byungmarn Koh(KINAC)

PO11C13 A Virtual Light-water SMRs of Standard Physical Protection System Design from Vital Area Identification to Vulnerability Assessment
Jung Soo Kim, Gee Man Lee, and Woo Sik Jung(Sejong Univ.)

PO11C14 Comparison of Nuclear Material Accounting Report Formats and Operator-side Considerations in Format Transition
Hojin Hwang, Hyun–Jo Kim, Ju–Ang Jung, Hyun–Sook Kim, Jin–Ha Choi, and Keun–Hong Min(KAERI)

PO11C15 EMRALD-Based Evaluation of Passive Delay in a Defense-in-Depth Physical Protection System for Deployable Microreactors
Young Jin Go and Jeong Ik Lee(KAIST)

PO11C16 A Comparative Study on Export Control Legal and Regulatory Frameworks in Major Countries
Ju–Ang Jung, Hojin Hwang, Keunhong Min, and Jinha Choi(KAERI)

PO11C17 A Regulatory-Perspective Classification Framework for AI Applications in Nuclear Power Plants: A Multi-criteria Watchlist for Regulatory Triage
HyeongKi Shin(KINS)

PO11C18 Technology-Neutral and Design-Responsive Safety Requirements for Maritime Nuclear Applications
Youngsuk Bang and Soeun Shin (FNC Tech.), Amy Paik (Johns Hopkins Univ.)

PO11C19 Maritime Nuclear Regulation by International Organizations and in State Practice: A Comparative Survey and Proposals for Korea
Youngsuk Bang(FNC Tech.), Amy Paik(Johns Hopkins Univ.)

PO11C20 Review of Domestic and International Regulatory Frameworks for Licensed Reactor Operator Staffing Requirements
GWANYOUNG KIM, MINKI CHO, and JOONSOO PARK(KINS)

PO11C21 Artificial Intelligence in the Nuclear Field: A Survey of Activities by Regulatory Bodies and International Organizations
Kun–Young Han and Sa–Kil Kim(KAERI)

PO11C22 Comparative Analysis and Improvement Directions for PHWR In-Service Inspection Technical Standards
Kwando Lee and Eric Yee(KINGS)

PO11C23 Review of Domestic and International Regulatory Approaches for Licensing Heat-Supply Light-Water SMRs
Soyoung Kim and Kwanghyun Ahn(KAERI),Kangheon Lee(Rx Inc.)

PO11C24 Applicability of Korean Siting Regulations to Light-Water SMRs for Heat Supply
Soyoung Kim and Kwanghyun Ahn(KAERI), Kangheon Lee(Rx Inc.)

PO11C25 Identification of Plausible Phenomena for Potential Advanced Fuel Design Using LLM
Suyeon Jeong(KHNP), Ho Jin Ryu(KAIST)

PO11C26 A Preliminary Study on Identifying the Human Role in the AI Era of Nuclear Power Plants: The Relationship Between AI-Based Support Systems and Human Operators
Yujin Kim, Cheolwoong Kim, Sinho Kim, Joon Eon Yang, JinHo Song, and Sung Joong Kim(HYU)

PO11C27 Fiscal Trends in Korea's Nuclear Science and Technology Sector (2007-2025): Policy Driven Structure Changes and Future Outlook
Yeoryeong Jeon and Jiwon Yang(KoFONS)

제12분과 원자력 계측제어, 인간공학 및 자동원격 (Nuclear I&C, Human Factors and Automatic Remote Systems)

12A 10.29.(목) 계측제어 및 인간공학·자동원격 1 (Nuclear I&C, Human Factors and Automatic Remote Systems 1)

| 좌장 김재민(Kim, JaeMin), 신지현(Shin Jihyun) | 205

09:00 Aligning Deep Diagnostic Explanations with Prior Domain Knowledge in Nuclear Power Plants
Ji Hyeon Shin, Young Ho Chae, and Seo Ryong Koo(KAERI)

09:20 Open-Set Recognition for Root Cause System Identification of Untrained Abnormal Condition in a Small Modular Reactor
Dong Geon Jang, Eon Sang Jeon, Young Hun Kim, and Man Gyun Na(CSU)

09:40 Development of an AI-based Condition Monitoring System for Critical Electronic Components in Reactor Protection Systems
Hye Seon Jo, Jin Seong Kim, Se Heon Lee, and Man Gyun Na(CSU)

10:00 Design of an Autonomous Stair Traversal Method for a Tracked Mobile Robot in Nuclear Power Plants
Wonseo Lee, Dongseok Ryu, Sungmoon Joo, and Jonghwan Lee(KAERI), Seungjun Lee(HYU)

10:20 Prediction of Pipe Wall Thinning Caused by Flow Accelerated Corrosion Using a Physics-Informed Neural Network
Hee–Jae Lee and Jonghyun Kim(KAIST), Jae Seong Im and Hun Yun(KEPCO E&C)

10:40 Coffee Break

11:00 Non-Intrusive Fleet-level AGC Testbed Built on a Full-Scope Multi-Unit SMR Training Simulator
Jae Min Kim and Seo Ryong Koo(KAERI)

11:20 Sequential Training Data Production Allocation for AI-based Abnormal Event Diagnosis in Nuclear Power Plants
Seung Gyu Cho and Seung Jun Lee(UNIST)

11:40 Time-Dependent Action-based Prediction of Parameters for Operator Decision Support in Abnormal Situations at Nuclear Power Plants
Hyojin Kim and Jonghyun Kim(KAIST)

12:00 Addressing Reliability Challenges of Deep Learning Models in Nuclear Application
Jeong–ho LEE and Myungsoo KIM(KINAC)

12B 10.30.(금) 계측제어 및 인간공학·자동원격 2 (Nuclear I&C, Human Factors and Automatic Remote Systems 2)

| 좌장 박재관(Park, JaeKwan), 성승환(Seong, Seung Hwan) | 201

09:00 An MLOps Framework for Lifecycle Management of Intelligent in NPPs
Seokjoo Choi, Hoon Jeong, YeonJin Ryu, and Youngsoo Min(SureData Lab.), YoonJoon Lee(KAIST), YoungHo Chae(KAERI)

09:20 A Concept of Fault-Tolerant Control Systems in a Nuclear Plant
Seung–Hwan SEONG, Taek–Kyu KIM, Jae–Kwan Park, and Seo–Ryong Koo(KAERI)

09:40 Hardware Performance Analysis for Deploying a Report-Writing Agent in Closed-Network Nuclear Industry Environments
DaeYoung Lee, Sang–Beom Kang, and Seung–Hyeok Yang(FNC Tech.)

10:00 Preserving LCO Requirement Relationships through Chunking for RAG on Nuclear Power Plant Technical Specifications
Woo Shin Kim, Il Hoon Park, and Yong Joon Shin(GNP SYSTEM)

10:20 LLM-Based Specification Generation for Automated Table Authoring in Periodic Safety Review Reports
Seunghyeok Yang, Sangbeom Kang, and Daeyoung Lee(FNC Tech.)

10:40 Coffee Break

11:00 Fault Signal Detection in Nuclear Power Plant Measurements Using Gated Fusion of Temporal and Inter-Variable Experts
Yu seob Kim, Seung Gyu Cho, and Seung Jun Lee(UNIST)

11:20 Signal Validation for Flexible Operation of Nuclear Power Plants Using a Temporal Convolutional Autoencoder
Jiyong Lee and Jonghyun Kim(KAIST)

11:40 Design of a Reinforcement Learning Framework for Terrain-adaptive Locomotion of a Tracked Mobile Robot in Nuclear Power Plants
Seungjun Lee and Jeakweon Han(HYU), Wonseo Lee and Dongseok Ryu(KAERI)

12:00 Virtual-Camera-Based Staircase Detection and Geometric Parameter Estimation from Sparse LiDAR Point Cloud Maps for Mobile Robots in Nuclear Facilities
Sungmoon Joo and Dongseok Ryu(KAERI)

12C
10.30.(금)

계측제어 및 인간공학·자동원격 3 (Nuclear I&C, Human Factors and Automatic Remote Systems 3)

| 좌장 김승근(Kim, SeungGeun), 박진균(Park, JinKyun) | 202

09:00 Effect of a Multi-module Operation Environment on the Reliability of Human Operators: Overview
Jinkyun Park, Yochan Kim, and Jaewhan Kim(KAERI)

09:20 Effects of Human-System Interface Quality Related to Automation and Passivity on Human Error Probability in Multi-Module Operations
Tae Ryoun Kim, Taewon Yang, Tae Young Jhee, and Jonghyun Kim(KAIST)

09:40 Exploratory Analysis of Shift Supervisor Effects on Unsafe Acts in Multi-Module Operations
Donghee Jung, Kyeongseo Kim, and Seung Jun Lee(UNIST)

10:00 Impacts of a Multi-Module Operation on Human Performance Across Cognitive Activity Types
Jaeeun Kim, Seong Kyu Park, Dohyeon Kim, Hongseok Kim, Dae In Choi, and Bub Lin Kim(NESS)

10:20 A Comparative Study of Multi-Agent Collaboration Structures for On-Premises LLM-Based Technical Document Generation
Jinkyung Kwon(KAERI), Hogeon Seo(UST|KAERI)

10:40 Coffee Break

11:00 Development of Human-AI Communication Error Taxonomy for Safety Analysis of Agent-based Decision Support Systems
Seung Geun Kim and Hogeon Seo(KAERI)

11:20 Comparison of Full Fine-Tuning and LoRA Fine-Tuning for Nuclear Reactor Operator Exam QA Using Gemma Models
Isak Hwang(HYU), YoonPyo Lee(UIUC), Hogeon Seo(KAERI)

11:40 Stage-wise Evaluation of an On-Premises LLM Pipeline for INES Event Rating
Minje Shin, YooJoon Seoung, and Seung Jun Lee(UNIST)

12D
10.30.(금)

계측제어 및 인간공학·자동원격 4 (Nuclear I&C, Human Factors and Automatic Remote Systems 4)

| 좌장 손광섭(Son KwangSeop), 송재구(Song, JaeGu) | 203

09:00 Measuring the Inference Cost of Adversarial Machine Learning Mitigations: A Case Study on Diagnostic AI Supporting Autonomous Operation
Ju Hyung Song, JaeKwan Park, Jae-Gu Song, Yonggu Lee, Seongyeol Oh, Inhye Hahm, and Young Jun Lee(KAERI)

09:20 Lifecycle-Based Cybersecurity Regulatory Status for Operating Nuclear Facilities in South Korea
Dayoung Jung, Joonseok Lim, Minho Hwang, Minseok Kim, and Gyunyoung Heo(KHU)

09:40 Regulatory Trends in Cyber Security Event Monitoring and Detection for Nuclear Facilities
Seongyeol Oh, JaeKwan Park, Jae-Gu Song, Yonggu Lee, Ju Hyung Song, Inhye Hahm, and Young Jun Lee(KAERI)

10:00 A Study on Cybersecurity Regulatory Trends for Remote Operation of Small Modular Reactors
Yonggu Lee, JaeKwan Park, Jae-Gu Song, Seongyeol Oh, JuHyung Song, Inhye Hahm, and YoungJun Lee(KAERI)

10:20 International Trends in Lifecycle-Based Cybersecurity Regulation for Nuclear Facilities
Yonggu Lee, Seongyeol Oh, and JuHyung Song(KAERI), Joonseok Lim and Gyunyoung Heo(KHU)

10:40 Coffee Break

11:00 An Integrated Cybersecurity Maturity Assessment Framework for Nuclear Facilities
Hyeonseo Choe, DongJun Choi, and JungTaek Seo(Gachon Univ.)

11:20 Gap Analysis of Probabilistic Safety Assessment for Risk-Informed Cyber Security of Nuclear Facilities
Minho Hwang, Joonseok Lim, Dayoung Jung, and Gyunyoung Heo(KHU)

11:40 Regulatory Trends in Cyber Security for Non-Light Water Reactors
Jae-Gu Song and JuHyung Song(KAERI)

12:00 Analysis of the 2025 Poland Energy Sector Cyber Incident via Three Attack Models and Review of KINAC/RS-015 Regulatory Coverage
Minjung Kim and Chaechang Lee(KINAC)

12E
10.29.(목) – 30.(금)

계측제어 및 인간공학·자동원격 (Nuclear I&C, Human Factors and Automatic Remote Systems)–POSTER

| 좌장 김덕현(Kim, DuckHyun), 신동성(Shin, DongSeong) | Lobby (3F)

| 게시시간 10.29.(목) 13:00 ~ 18:00 / 10.30.(금) 09:00 ~ 12:00

| 저자 발표시간 10.29.(목) 13:00 ~ 14:00

PO12E01 Why Large Language Models Cannot Directly Write PSR Reports: A Framework for Learning from Expert Revisions while Preserving Value Integrity
SangBeom Kang, SeungHyeok Yang, and DaeYoung Lee(FNC Tech.)

PO12E02 Analysis of Turbine-Side Load-Following Performance of a 100MWth MSR without Control-Drum Actuation
Sangjin Kim(SNU), Woonho Jeong, Hyunwoong Lee, and Jihwan Kim(HDEC)

PO12E03 Applicability Evaluation on the Latest IEEE Standards for the I&C Systems Design of High Power Research Reactors
Yong Suk Suh, Hagtea Kim, Dane Baang, Insok Whang, Seung Ki Shin, and Jonghark Park(KAERI)

PO12E04 Remaining Useful Life Prediction Method and Software for I&C Control Cards and Electronic Components Reflecting Real-Time High-Precision Temperature Variations
Inseok Jang and Chang Hwoi Kim(KAERI)

PO12E05 Incorporation of IEEE 603-2009 to Regulation on Safety Classification and Applicable Codes for Nuclear Reactor Facilities
Sang Hun Lee(KINS)

PO12E06 Safety Classification of I&C Important to Safety Systems for APR1000
JEONG MO YANG, JONG SOO KWON, HUNG JUN KIM, and KOH EUN KIM(KEPCO E&C)

PO12E07 Study on Considerations for IPS Network Design in Multi-Module Nuclear Power Plants
Yun–Uk Park and Soon–Ae Lee(KHNP)

PO12E08 Analysis of Technical Standard Conformity for European Export in the MMIS Domain
DONGIL LEE and SEOYOUNG CHOI(KHNP CRI)

PO12E09 In Sync We Trust: The Power of Synchronous Resets in High-Reliability FPGA Architectures
DONGIL LEE and HAN GYU KIM(KHNP)

PO12E10 A Survey of AI-Aided FPGA Development Tools and Considerations for COTS Software Dedication
Yoona Heo, Younggyu Lee, Dae–won Kim, and Junbeom Yoo(Konkuk Univ.), Eunkyoung Jee(KAIST), Jiyoung Song(Hannam Univ.)

PO12E11 Spatially Resolved Optical Emission Spectroscopy Monitoring of Trace Xenon in an Atmospheric-Pressure Helium Microdischarge
Changsu Kim, Changwha Lee, and Guenwoo Go(X–Sentry), June Young Kim(Myongji Univ.)

PO12E12 A Study on Synchronization Design and Verification Scopes in FPGA based Safety System
Sunghyun Kim, Heetaek Lim, and Hyunki Kim(KHNP)

PO12E13 LLM-Agent Composition for Document-Grounded Conceptual Design of a Natural-Circulation Cooling Loop
Byeongha Jo(UST|KAERI), Yonggyun Yu(NST)

PO12E14 Feasibility Study on the Use of Imagination-Based Orthographic Views for 3D CAD Modeling Assistance
Yeonga Jang and Hogeon Seo(UST|KAERI)

PO12E15 Toward a Good Automation of the Next Generation Man-Machine Interface System for Nuclear Power Plants - Systems Approach and New Safety Paradigm
Yong Hee Lee(KAERI)

P012E16 An Automated Fine-Tuning Pipeline for Nuclear Domain-Specific LLMs using a Conversational Human-in-the-Loop Agent Framework
Seungdon Yeom(KAERI), Hogeon Seo(KAERI|UST)

P012E17 Advancing Software V&V for European and Domestic System V&V Compliance
DONGIL LEE and HANGYU KIM(KHNP)

P012E18 Development of a Software Engineering Lifecycle Framework Incorporating Traceability for FPGA-Based Platforms
HAN GYU KIM and DONGIL LEE(KHNP)

P012E19 Applicability Assessment of an ATC-Equipped Robotic Arm for Automated Remote Fabrication of SFR Metallic Fuel Slugs
Young–Ho Shim, Jung–Su Ahn, Sang–Gyu Park, and Jun–Hwan Kim(KAERI)

P012E20 Development of a Physical AI-Based Maintenance Manipulator Robot for Steam Generator Tube Plug Installation
Seungwon Ban, Sangbeom Nam, and Geunhwee Park(KNR), Taebong Lee and Yoo Yang(DOOSAN)

P012E21 LWIR-Based 6D Pose Estimation for Robotic Valve Manipulation in Visually Degraded Environments
Woo Son, Yeongkyu Kim, Seunghyeon Lee, Taejoo Kim, and Yukyung Choi(Sejong Univ.), Dongseok Ryu(KAERI)

P012E22 Condition Monitoring for Fault Diagnosis of the Electro-Hydraulic Operator of a Main Steam Atmosphere Dump Valve
Jedoo Ryu, Donghan Kim, Sungryul Kim and Jungmin Lee(KITECH)

P012E23 Physics-Digital Twin Based Synthetic Data Generation and AI Predictive Maintenance Technology for Non-Destructive Testing of Small Modular Reactors (SMR)
Jeongjun Lee, Dongyeong Heo, Jungmin Lee and Hwasung Yeom(DANE. POSTECH)

P012E24 Task-Adaptive AI Agent System for Improving Ultrasonic Imaging Algorithms
Jaejun Lee and Hogeon Seo(KAERI|UST), Dayeon Choi(KAERI|Chungbuk National Univ.)

P012E25 A Case Study on Performance Evaluation of AI-Based Regression Models in Nuclear Instrumentation and Control
Jaekwan Park and SeoRyong Koo(KAERI)

연구회 활동결과 및 계획발표회

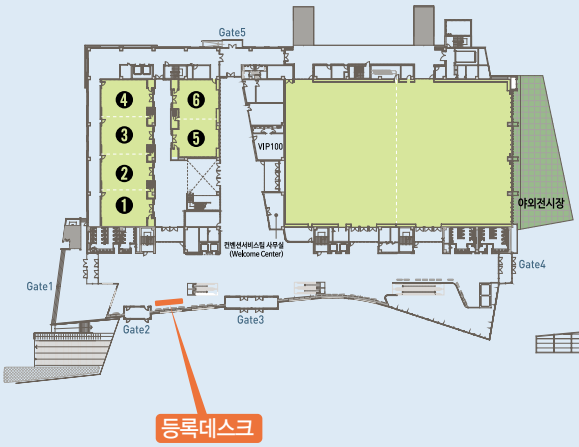
| 일 시 2026년 10월 30일(금) 10:00 ~ 11:30
| 장 소 경주화백컨벤션센터 101호

시간계획	내 용	
		[사회 : 황태석 연구회협의회 위원장]
10:00~10:10	인사말	최성민 학회장
10:10~11:10	[연구회 활동결과 및 계획 발표]	
	원자로시스템기술	정병렬 연구회장
	원자로물리 및 계산과학	이덕중 연구회장
	후행핵연료주기	지성훈 연구회장
	핵연료 및 원자력재료	김동진 연구회장
	원자력 열수력	최기용 연구회장
	원자력 안전	임호곤 연구회장
	방사선 방호	신창호 연구회장
	방사선 이용 및 기기	선광민 연구회장
	양자공학 및 핵융합기술	정경재 연구회장
	원자력건설 및 운영기술	김민규 연구회장
	원자력정책, 인력 및 협력	박홍준 연구회장
	원자력계측제어, 인간공학 및 자동원격	최종균 연구회장
11:10~11:20	종합토의	연구회협의회 위원 및 제38대 임원
11:20~11:30	마무리	

학술발표회 회의장 배치도

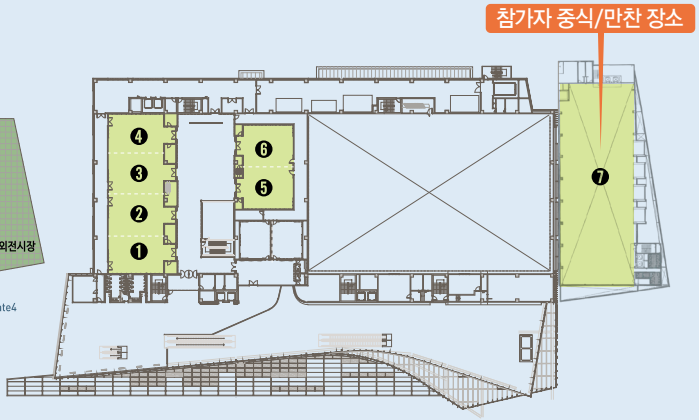
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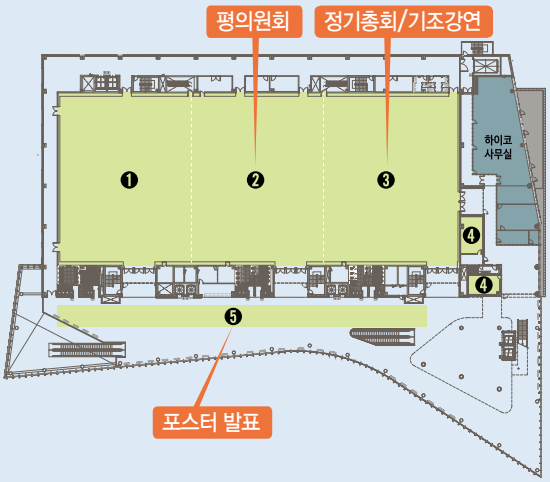
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⑦ 미디어센터

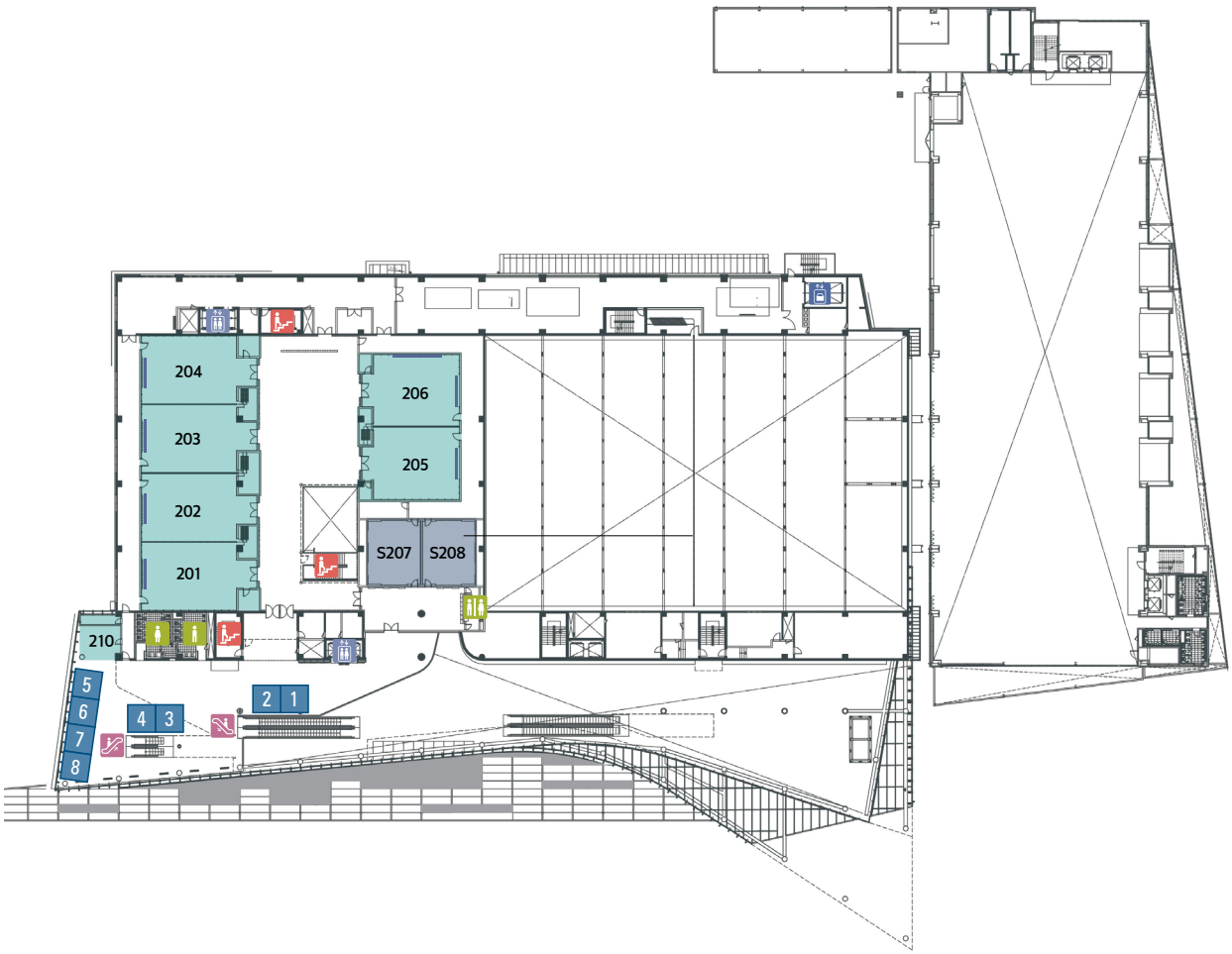


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① 300A ② 300B
③ 300C ④ VIP대기실 ⑤3층 로비



전시 위치 (경주화백컨벤션센터 2층 로비)



위치	기 업 명
1	YELLOW CAKE
2	아·태원자력협력협정 사무국
3	RX
4	tSNE (주)태성에스엔이

위치	기 업 명
5	ANRAK 선진원자로 산업기술연구조합 Advanced Nuclear Reactor Research Association of Korea
6	anflux (주)앤플럭스
7	es energy&sensor Future Energy Together
8	KAERI 한국원자력연구원 Korea Atomic Energy Research Institute

교 통 편

| 경주화백컨벤션센터 | 경상북도 경주시 보문로 507 Tel. 054-702-1000



버스

승차지점	번 호	소요시간
경주역	700, 710, 1150	50분
경주고속·시외버스터미널	11, 16, 18, 100-1, 150, 150-1, 710, 700, 1000, 1150	20-40분

자가용

출 발 지	소요시간
경주역	30분
경주고속·시외버스터미널	20분
경주IC	15분

택시

기본요금	4,500원 (밤11시-오전 4시 할증적용)
할증요금	경주는 구간별 할증요금제도가 운영되고 있습니다.

※ 복합할증(55%)적용 구간 : 경주예술의전당 반경 5km 밖 운행 시

한국원자력학회 특별회원 (Special Members)

한국수력원자력㈜ KOREA HYDRO & NUCLEAR POWER CO., LTD	DOOSAN	KAERI 한국원자력연구원 Korea Atomic Energy Research Institute	한국전력공사 KOREA ELECTRIC POWER CORPORATION	KEPCO E&C	KINS 한국원자력안전기술원 KOREA INSTITUTE OF NUCLEAR SAFETY
한전원자력연료	현대건설	DAEWOO E&C	SAMSUNG 삼성물산 건설부문	한전KPS주식회사 KEPCO PLANT SERVICE & ENGINEERING CO., LTD	한화오션 Hanwha Ocean
Westinghouse	KFE 한국핵융합에너지연구원 KOREA INSTITUTE OF FUSION ENERGY	DL E&C	(주)삼영유니텍	HYOSUNG HEAVY INDUSTRIES	KORAD 한국원자력환경공단
LS전선	한국원자력통제기술원 KINAC	GS 건설	GS에너지	한국원자력의학원	SK 에코플랜트
posco 포스코이앤씨	orano Giving nuclear energy its full value	AECL	GE	나우	DASSAULT SYSTEMES
SALTFOSS	SOOSAN 수산인더스트리	엔스코(주)	INEM	ILJINPower	SOOSAN ENS
한일원자력(주) HANIL NUCLEAR CO.,LTD	새한산업주식회사 NEW KOREA INDUSTRIAL CO.,LTD. SINCE 1967	iKONF 사용후핵연료관리핵심기술개발사업단	HD현대일렉트릭	株式會社 三信 Samshin Limited	MOASOFT
옵티멀에너지서비스(주) OPTIMAL ENERGY SERVICE CO.,LTD.	상지상사	SAEAN we care more... for you 세안기술주식회사 SAE-AN ENGINEERING CORPORATION	이성씨앤아이(주)	FNC 주식회사 미래와도전 FNC Technology Co., Ltd.	UMZ (주)유엠아이
DONGBU 주식회사 동부	WORI 주식회사 우리기술	GNP 주식회사 지엔피시스템	(주)금화피에스시	Century 센추리	Every Reliable enertork
한국에너지정보문화재단	KNT Korea Nuclear Technology	KINGS	TBOG Thinking Business On Green Energy	DK KOCEN 주식회사 코센 KOCEN Co., Ltd.	(주)삼의공영
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문의 및 신청
042-866-4222, ywha@rcaro.org

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| 발행인 | 최성민
| 발행처 | 한국원자력학회
| 주 소 | 대전광역시 유성구 유성대로 794, 4층 (장대동, 뉴토피아빌딩)
| 연락처 | Tel : (042)826-2613~5 Fax : (042)826-2617
E-mail : kns@kns.org
| 인쇄처 | 신진기획인쇄사 Tel : (042)638-7887
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