KNS(P)-001-2026 춘계학술발표회 프로그램

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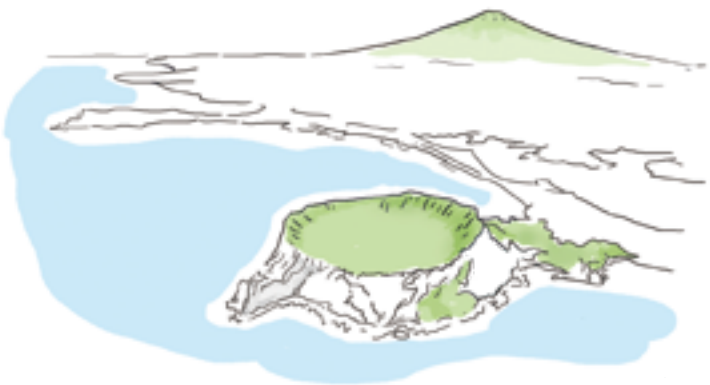
2026 KNS Spring Conference

2026 춘계학술발표회

KOREAN NUCLEAR SOCIETY

2026. 5. 6.(Wed.) ~ 8.(Fri.)

제주 국제컨벤션센터



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사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

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KOREAN NUCLEAR SOCIETY

CONTENTS

학회장 인사말

최성민 학회장

2026년 한국원자력학회 춘계학술발표회 참가자 여러분께,

안녕하십니까? 한국원자력학회를 대표하여 2026년도 춘계학술발표회에 함께해 주신 여러분께 깊이 감사드리며, 진심으로 환영의 인사를 드립니다. 작년에 이어 올해에도 한층 더 다채로운 프로그램으로 여러분을 모시게 되어 매우 기쁘게 생각합니다.

이번 춘계학술발표회에서는 5월 6일에 18건의 워크숍이 개최되며, 5월 7일과 8일에는 682편의 연구논문이 발표됩니다. 워크숍에서는 전문 학술 및 정책 분야의 다양한 주제가 다루어질 예정입니다. 또한 학술발표회에 앞서 5월 4일부터 6일까지는 OECD/NEA, 한국원자력학회, 한국원자력연구원이 공동으로 주최하는 '원자력을 위한 인공지능 국제워크숍'이 진행됩니다.

춘계학술발표회 개회식에서는 김기수 포스코 그룹 CTO 겸 포스코홀딩스 미래기술연구원장님을 기조강연자로 모셨습니다. 우리나라 철강 산업의 혁신과 난제, 그리고 원자력과의 협력 가능성을 조망하는 의미 있는 강연이 될 것으로 기대됩니다. 이어 "우리 산업의 미래를 위한 원자력 – 전망과 과제"를 주제로, 에너지 수요 기업이 참여하는 패널토론이 마련되어 있습니다. 이번 기조강연과 패널토론은 증가하는 산업 전력 수요와 원자력의 역할을 수요 기업의 시각에서 직접 듣고, 향후 과제를 함께 논의하는 뜻깊은 자리가 될 것입니다.

산업계 세션에서는 해외 원전 사업 추진 현안을 심도 있게 다룰 예정이며, 만찬 행사에서는 "원자력, 그게 된다고? 마음껏 상상하라!"를 주제로 한 학생 경진대회도 준비되어 있으니 많은 관심과 성원을 부탁드립니다.

또한 올해에는 뛰어난 학문적 업적과 통찰력 있는 리더십으로 우리나라 원자력 발전에 지대한 공헌을 하신 故 강창순 교수님을 기리는 추모세션이 5월 7일 개최됩니다. 학회에서 처음 마련되는 추모세션으로, 우리나라 원자력 발전에 큰 업적을 남기신 분을 기리며 학문적 전통을 계승하고 발전시키는 계기가 될 것으로 기대합니다.

이번 춘계학술발표회가 학문적 성과의 공유를 넘어, 원자력의 미래를 함께 설계하는 실질적인 소통과 협력의 장으로 이어지기를 바라며, 우리나라 에너지 정책과 산업 경쟁력, 그리고 국민 복지 향상에 의미 있는 방향을 제시하는 계기가 되기를 기대합니다. 아울러 이러한 노력이 국민에게 다가가는 원자력으로 이어지기를 바랍니다.

한국원자력학회는 이러한 논의를 선도하는 중심 플랫폼으로서의 역할을 더욱 충실히 수행해 나가겠습니다. 모쪼록 아름다운 제주에서 소속 기관과 전문 분야를 넘어 뜻깊은 교류의 시간을 보내시고, 모두 건강하고 보람 있는 일정이 되시기를 기원합니다.

감사합니다.

한국원자력학회장 최 성 민 拜上

Greetings from the KNS President

Sung-Min Choi

President of
Korean Nuclear Society

Dear Participants of the 2026 KNS Spring Conference,

On behalf of the Korean Nuclear Society (KNS), I would like to extend my sincere welcome and appreciation to all of you for joining the 2026 KNS Spring Conference. Following last year's success, we are pleased to present an even more diverse and enriching program this year.

This conference will feature 18 workshops on May 6, and a total of 682 technical papers will be presented on May 7 and 8. The workshops will cover a wide range of topics in both academic and policy areas. In addition, prior to the conference, an international workshop on "Artificial Intelligence for Nuclear Energy," jointly organized by OECD Nuclear Energy Agency, KNS, and Korea Atomic Energy Research Institute, will be held from May 4 to 6.

We are honored to have Mr. Kisoo Kim, POSCO Group CTO and Director of POSCO N.EX.T Hub, as the keynote speaker at the opening ceremony. His lecture is expected to provide valuable insights into the challenges and innovations of the steel industry, as well as the potential synergies with nuclear energy. This will be followed by a panel discussion titled "Nuclear Energy for the Future of Our Industry: Prospects and Challenges," featuring major energy-consuming industries. The keynote and panel discussion will offer a meaningful opportunity to hear directly from industry stakeholders about growing energy demands and the role of nuclear energy, while exploring future directions together.

The industry sessions will address key issues related to overseas nuclear power projects in depth. In addition, a student competition under the theme "Nuclear—Is It Really Possible? Dare to Imagine!" will be held during the banquet. We encourage your interest and participation.

We will also hold a memorial session on May 7 in honor of the late Professor Chang Sun Kang, who made profound contributions to the advancement of nuclear energy in Korea through his remarkable academic achievements and insightful leadership. As the first memorial session organized by our Society, it will serve as a meaningful occasion to honor his legacy and to carry forward and further develop our academic traditions.

I hope that this conference will go beyond the sharing of academic achievements and serve as a platform for meaningful communication and collaboration in shaping the future of nuclear energy. I also hope that it will provide valuable directions for Korea's energy policy, industrial competitiveness, and the enhancement of public welfare. Furthermore, I sincerely wish that these efforts will lead to nuclear energy that is better understood and embraced by the public.

The KNS will continue to fulfill its role as a leading platform that fosters such discussions and collaborations. I hope you will enjoy fruitful and rewarding interactions beyond institutional and disciplinary boundaries in beautiful Jeju, and I wish you all a healthy and pleasant stay.

Thank you.

Sincerely,

Sung-Min Choi
President of the Korean Nuclear Society

학술발표회 전체 일정 (Conference Program Overview)

| Registration 5. 6.(Wed.) 12:30~17:00 / 5. 7.(Thu.) 08:00~17:00 / 5. 8.(Fri.) 08:00~12:00

International Workshop on AI for Nuclear Energy

Date	Room
5. 4.(Mon.) ~ 6.(Wed.)	Samda Hall (3F)

5. 6.(Wed.) Workshop

	Program	Fee	Room
A	신개념 대형원전 개발 현황 및 전망 Status and Prospects of New Concept Large NPP Development	-	Halla Hall A
B	탄력운전기술 개발 현황 및 전망 Current Status and Future Outlook of Load-following Operation	30,000	301
C	고효율 처분기술의 가치 (2026 고준위방사성폐기물 처분 Safety Case 워크숍) Value of High Efficiency Disposal Technology (2026 Workshop on Safety Case for High-Level Radioactive Waste Disposal)	-	202A
D	핵연료 및 재료연구 기반의 현주소와 나아갈 방향 Current status and future direction of nuclear fuel and materials research infrastructure	60,000	Samda Hall A
E	SMR 개발 및 사업 추진 활성화 Accelerating SMR Development and Business Implementation	-	Halla Hall B
F	혁신형 SMR 리스크 평가 현황 및 기술이슈 Current Status and Technical Issues of i-SMR PSA	-	201A
G	중대사고 연구와 AI 연구의 융합 : 현황과 미래 협력 방향 Severe Accident Research and AI Integration : Current Status and Future Collaboration	50,000	201B
H	하나로 중성자 활용 최신 연구 현황 Recent Advances in Neutron Utilization at HANARO	50,000	300
I	오랜 동행: 국가유산과 원자력 그리고 AI Sustainable Partnership: Nuclear Science, Cultural Heritage, and AI	-	303A
J	제3차 핵융합/원자력 재료 이온빔 조사 시험 및 평가 워크숍 3rd Workshop of the Ion Beam Irradiation Test and Evaluation on Nuclear Fusion/Fission Materials	-	202B
K	제3회 우주방사선 반도체 영향평가 : 민 · 관 · 연 우주 생태계 강화 워크숍 The 3rd Workshop on the Assessment of Space Radiation Effects on Semiconductors: Strengthening the Civilian-Government-Research Space Ecosystem	50,000	203
L	SMR 안전 기술: 구조적 도전과 외부재해 대응 SMR Safety Technology: Structural Challenge and External Hazard Mitigation	-	303B
M	제7차 원자력진흥종합계획 수립을 위한 환경변화 대응	-	400
N	AI · 탄소중립 시대, SMR 생태계의 역할과 의미 The role and meaning of SMR industrial system in the age of AI and carbon net zero	-	401A
O	IAEA의 안전조치 활동 및 이에 따른 정보제공 의무 · 절차에 관한 KINAC-IAEA 공동 워크숍 KINAC-IAEA Joint Workshop on IAEA Safeguards Activities and State's Obligations Regarding Provision of Information	-	401B
P	AI로 가속하는 원자력 연구개발: 최신 동향과 적용사례 AI-Accelerated Nuclear R&D: Latest Trends and Applications	50,000	402A
Q	해양용 용융염원자로(MARINA) 국내 개발 현황 Development Status of the Marine Molten Salt Reactors (MARINA) in Korea	-	302
R	원자력 인공지능 강습회 (규제와 진흥) AI in Nuclear Engineering Course (Regulation and Promotion)	-	Samda Hall B

참가자 중식 (Participants' lunch)

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

산업계 세션 (Industry Session)

Date	Room
5.7.(Thu.) 09:30 ~ 11:00	Samda Hall (3F)

故강창순 교수님 추모 세션 (Memorial Session in Honor of the Late Prof. Chang Sun Kang)

Date	Room
5.7.(Thu.) 14:40 ~ 15:40	Samda Hall (3F)

제103차 평의원회

Date	Room
5.7.(Thu.) 12:00 ~ 13:30	Ocean View (5F)

개회행사 (Opening Ceremony)

Date	Room
5.7.(Thu.) 16:00 ~ 18:10	Halla Hall (3F)

만찬 및 학생 경진대회 (Banquet and Student Competition)

Date	Room
5.7.(Thu.) 18:10 ~ 19:30	Tamna Hall (5F)

5. 7.(Thu.) ~ 8.(Fri.) 구두발표 (Oral Presentation)

	세 션 명	발표장	발표일
1A	원자로시스템기술 1 (Reactor System Technology 1)	303B	5.7.(Thu.) PM
1B	원자로시스템기술 2 (Reactor System Technology 2)	303B	5.8.(Fri.) AM
2A	원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)	301	5.7.(Thu.) AM
2B	원자로물리 및 계산과학 2 (Reactor Physics and Computational Science 2)	301	5.7.(Thu.) PM
2C	원자로물리 및 계산과학 3 (Reactor Physics and Computational Science 3)	301	5.8.(Fri.) AM
2D	원자로물리 및 계산과학 4 (Reactor Physics and Computational Science 4)	302	5.8.(Fri.) AM
3A	후행핵연료주기 1 (Back-End Nuclear Fuel Cycle 1)	202A	5.7.(Thu.) AM
3B	후행핵연료주기 2 (Back-End Nuclear Fuel Cycle 2)	202A	5.7.(Thu.) PM
4A	원자력재료 (Nuclear materials)	202B	5.7.(Thu.) AM
4B	핵연료 (Nuclear fuels)	203	5.7.(Thu.) AM
4C	모델링/AI (Modeling/AI)	202B	5.7.(Thu.) PM
4D	중성자흡수재 (Neutron absorber)	203	5.7.(Thu.) PM
4E	핵연료피복관 (Nuclear fuel cladding)	203	5.8.(Fri.) AM
5A	열수력 실험 1 (Thermal Hydaulics Experiment 1)	302	5.7.(Thu.) AM
5B	열수력 실험 2 (Thermal Hydaulics Experiment 2)	Halla Hall A	5.8.(Fri.) AM
5C	열수력 해석 1 (Thermal Hydraulic Analysis 1)	303B	5.7.(Thu.) AM
5D	열수력 해석 2 (Thermal Hydraulic Analysis 2)	Halla Hall B	5.8.(Fri.) AM
5E	안전해석 현안 1 (Safety Analysis Issues 1)	Samda Hall A	5.8.(Fri.) AM
5F	안전해석 현안 2 (Safety Analysis Issues 2)	302	5.7.(Thu.) PM
5G	열수력 신기술 1 (Advanced Thermal Hydraulics 1)	303A	5.7.(Thu.) AM
5H	열수력 신기술 2 (Advanced Thermal Hydraulics 2)	Samda Hall B	5.8.(Fri.) AM
6A	원자력안전 1 (PSA for Advanced Reactor)	201A	5.7.(Thu.) AM
6B	원자력안전 2 (Severe Accident 1)	201B	5.7.(Thu.) AM
6C	원자력안전 3 (Fire Risk Assessment)	201A	5.7.(Thu.) PM
6D	원자력안전 4 (Accident Assessment/Analysis)	201B	5.7.(Thu.) PM
6E	원자력안전 5 (External & Level 2/3 PSA)	201A	5.8.(Fri.) AM
6F	원자력안전 6 (Severe Accident 2)	201B	5.8.(Fri.) AM
6G	원자력안전 7 (Risk Assessment Technology & RIDM)	202A	5.8.(Fri.) AM
8A	방사선 이용 및 기기 1 (Raidation Utilization and Instrumentation 1)	300	5.7.(Thu.) AM
8B	방사선 이용 및 기기 2 (Raidation Utilization and Instrumentation 2)	300	5.7.(Thu.) PM
9A	양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)	303A	5.7.(Thu.) PM
10A	지진 (Seismic)	400	5.7.(Thu.) AM
10B	수화학 및 건설 (Plant Water Chemistry and Construction)	401A	5.7.(Thu.) AM
10C	외부재해 (External Hazard)	400	5.7.(Thu.) PM
10D	운전/정비/열화 및 구조 (Operation/ Maintenance/Aging Management and Structural Analysis)	400	5.8.(Fri.) AM
11A	원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)	401B	5.7.(Thu.) AM
11B	원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)	401A	5.7.(Thu.) PM
11C	원자력정책, 인력 및 협력 3 (Nuclear Policy, Human Resources and Cooperation 3)	401A	5.8.(Fri.) AM
12A	계측제어 및 인간공학 · 자동원격 1 (Nuclear I&C, Human Factors and Automatic Remote Systems 1)	402A	5.7.(Thu.) AM
12B	계측제어 및 인간공학 · 자동원격 2 (Nuclear I&C, Human Factors and Automatic Remote Systems 2)	401B	5.7.(Thu.) PM
12C	계측제어 및 인간공학 · 자동원격 3 (Nuclear I&C, Human Factors and Automatic Remote Systems 3)	402A	5.7.(Thu.) PM
12D	계측제어 및 인간공학 · 자동원격 4 (Nuclear I&C, Human Factors and Automatic Remote Systems 4)	401B	5.8.(Fri.) AM
12E	계측제어 및 인간공학 · 자동원격 5 (Nuclear I&C, Human Factors and Automatic Remote Systems 5)	402A	5.8.(Fri.) AM

5. 7.(Thu.) ~ 8.(Fri.) 포스터 게시 및 발표 (Poster Presentation)

Date	Room
5. 7.(Thu.) 13:00 ~ 18:00 **[저자 발표시간 13:00 ~ 14:00]** 5. 8.(Fri.) 09:00 ~ 12:00	Lobby (3F)

역대회장 초청 간담회

Date	Room
5. 8.(Fri.) 08:00 ~ 09:30	300 (3F)

지부 활동결과 및 계획발표회

Date	Room
5. 8.(Fri.) 10:00 ~ 11:00	303A (3F)

제38대 임원진

회장

최성민

수석부회장

문주현

부회장

심형진

조석진

설영실

최기용

황태석

감사

박석빈

최재돈

총무이사

강경호

이정익

사업이사

박홍준

이지훈

재무이사

이정훈

홍승오

국제협력이사

김형대

조동건

기획이사

박현식

심재구

고급정책연구소

백 민 소장

학술이사

김종성

이현철

편집이사

이덕중

이영일

홍보이사

고문성

최성열

대학·청년이사

성지현

이지민

특임이사

노동석

정용훈

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


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이지민

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팀장

송지현

팀장

이연화

팀장

유진원

산업계 세션 (Industry Session)

| 일 시 2026. 5. 7.(Thu.) 9:30 ~ 11:00
| 장 소 삼다홀 (Samda Hall, 3F)

일 정	내 용
09:30 ~ 09:35	[사회 : 심재구 기획이사] Moderator : Jae Gu Sim, Planning Secretary [개회 및 참석자 소개] 심재구 (한국원자력학회, 기획이사) Opening Remarks & Participant Introduction : Jae Gu Sim (KNS, Planning Secretary)
09:35~09:40	[인사말] 최성민 (한국원자력학회장) Welcoming Remarks : Sung-Min Choi (KNS, President)
09:40~09:55	[발표1] 차세대연구로 사업 현황 : 서경우 (한국원자력연구원, 차세대연구로사업단장) Current Status of the Next-Generation Research Reactor : Kyoungwoo Seo (KAERI, Next-Generation Research Reactor Group Project Manager)
09:55~10:10	[발표2] 글로벌 SMR 개발 동향 : 남요식 (한국원전수출산업협회, 사업본부장) Global SMR Development Trends and Outlook : NAM, YOH-SHIK (KNA, Vice President)
10:10~10:25	[발표3] 국내 원전산업 발전을 위한 원자력산업협회의 역할 : 최기영 (한국원자력산업협회, 원전기업지원센터장) The role of KAIF in Advancing Korea's Nuclear Power Industry : Choi Ki-Young (KAIF, Center Leader, Nuclear Industry Support Center)
10:25~10:30	[패널토론 준비] Preparation of Panel Discussion
10:30~11:00	[패널토론 및 질의응답] Panel Discussion and Q&A

故강창순 교수님 추모 세션
(Memorial Session in Honor of the Late Prof. Chang Sun Kang)

| 2026. 5. 7.(Thu.) 14:40 ~ 15:40
| 삼다홀 (Samda Hall, 3F)
| **주제(Theme)** "대한민국 원자력계의 영원한 스승 故강창순 교수님을 기리며"
"In Honor of the Late Prof. Chang Sun Kang, Mentor of Korea's Nuclear Community"

Program	
14:40 ~ 14:55	[사회 : 장미 (한국원자력연구원)] [Moderator : Mee Jang (KAERI)] 개회 및 고인에 대한 묵념 Tribute Opening remarks and a moment of silence
	최성민 한국원자력학회장 Sung-Min Choi (President, KNS) 인사말 및 추모 세션 취지 설명 Welcoming Remarks & Purpose and significance of the memorial session
	김무환 (前 포항공과대학교 총장) Moo Hwan Kim (Former President of POSTECH) 강창순 교수님 원자력계 족적 보고 Review of Prof. Kang's major milestones in the Korean nuclear field
14:55 ~ 15:30	김기환 (원자력안전위원회 기획조정관) Ki Hwan Kim (Director General for Planning and Coordination, NSSC) [초대 원자력안전위원회 위원장으로서 강창순] [As the First Chairman of NSSC] 독립 규제기관 출범과 안전 가치 정립 Establishment of independent regulatory bodies and safety values
	황주호 (前 한국수력원자력㈜ 사장) Joo Ho Whang (Former President & CEO, KHNP) [산업계 리더로서의 강창순] [As a Leader of the Nuclear Energy Industry] 산업계 원로로서의 정책 자문과 혜안 Policy advice and insights as an industry elder
	백민 (포항공과대학교) Min Baek (POSTECH) [연구자로서의 강창순] [As a Researcher] 방사선 안전 연구 및 국제협력 성과 Achievements in radiation safety research and international cooperation
	김은희 (서울대학교) Eun Hee Kim (Seoul National University) [동료 교수로서의 강창순] [As a Fellow Professor] 후학 양성과 학과 발전을 위한 헌신 Dedication to nurturing future generations and departmental growth
	정범진 (경희대학교) Bum-Jin Chung (Kyung Hee University) 이영욱 (한국원자력통제기술원) Young Wook Lee (KINAC) [스승으로서의 강창순] [As a Teacher] 제자들에게 남긴 가르침과 철학 및 회고 Reflections on his teachings and philosophy & Reminiscences by his disciples
15:30 ~ 15:35	[영상 편집·제작] 김용민 (대구가톨릭대학교) & 이영욱 (한국원자력통제기술원) Video Produced by : Yongmin Kim (DCU) & Young Wook Lee (KINAC) 추모 영상 상영 및 마무리 Memorial Video and Closing

개회행사 (Opening Ceremony)

| 일 시 2026. 5. 7.(Thu.) 16:00 ~ 18:10
| 장 소 한라홀 (Halla Hall, 3F)

Program	
[개회식] 16:00~16:35	[사회 : 이현철 학술이사] Moderator : Lee Hyun Chul, Academics Secretary [장내안내 및 국민의례]
	[개회사] 최성민 학회장 Opening Remarks : Sung-Min Choi(President, Korean Nuclear Society)
	[축 사] 황정아 (더불어민주당 국회의원, 국회 과학기술정보방송통신위원회 위원) Hwang Junga(Member of the National Assembly, Democratic Party of Korea) [축 사] 이원주 (기후에너지환경부 에너지전환정책실장) Lee Wonju (Deputy Minister for Energy Transition Policy, Ministry of Climate, Energy, Environment)
	[감사장 수여] Award of the Appreciation Plaque • 연임하지 않은 제37대 임원 등 - 학회장 : 이기복 - 부회장 : 김종두, 전대욱 - 이 사 : 박지영, 이유호, 임채준, 조형규, 홍서기 - 여성지부장 : 전은주 [2025년도 한국원자력학회 추계학술발표회 우수논문상 시상] Award of the Best Paper at the KNS 2025 Fall Conference [2026년도 한국원자력학회 장학증서 수여] Award of Scholarships Certificate for the KNS 2026
[기조강연] [패널토론] 16:35~18:10	[기조강연] Keynote Speech - 철강산업의 현재와 미래 경쟁력을 위한 혁신기술 : 김기수(포스코홀딩스 미래기술연구원장, 그룹CTO) - Innovative Technologies for the Current and Future Competitiveness of the Steel Industry : Kim, Kisoo(Chief Technology Officer (CTO) of POSCO Holdings)
	[패널토론] 우리 산업의 미래를 위한 원자력 - 전망과 과제 Nuclear Energy for the Future of Our Industry - Prospects and Challenges 좌 장 : 정동욱 (중앙대학교 에너지시스템공학부 교수) Dong Wook JERNG(Professor, Chung-Ang Univ.,) - 발제1 : 홍인철 (포스코홀딩스 전략에너지사업실 부장) Inchul Hong (Strategic Energy Business Office Head of Group, POSCO Holdings) - 발제2 : 김무환 (SK이노베이션 Energy Solution 사업단장) Moohwan Kim (EVP, Energy Solution Business Division, SK Innovation Co., Ltd) - 발제3 : 윤영진 (GS에너지㈜ Heat & Power 지원실 전무) YOON Youngjin (Senior Vice President, GS Energy) - 발제4 : 정용훈 (KAIST 원자력 및 양자공학과 교수) Yong-hoon Jeong (Professor, KAIST) - 질의응답 (Q&A)

만찬 및 원자력 학생 경진대회 (Banquet and Student Competition)

| 일 시 2026. 5. 7.(Thu.) 18:10 ~ 19:30
| 장 소 탐라홀 (Tamna Hall, 5F)

Program	
만찬	[사회 : 성지현, 이지민 대학청년이사] Moderator : Seong Jee Hyun, Lee Ji-Min Students and Young Members Secretary
	[학생 경진대회] Student Competition
	[연구회별 우수포스터 논문 공개] Announcement of Best Poster Paper by Professional Divisions
	[경품추첨] Giveaway Raffle

기조강연(Keynote Speech)

| 일 시 2026. 5. 7.(Thu.) 16:35 | 장 소 한라홀(Halla Hall, 3F)

김 기 수
Kim, Kisoo

포스코홀딩스
미래기술연구원장,
그룹CTO

Chief Technology
Officer(CTO)
of POSCO Holdings

철강산업의 현재와 미래 경쟁력을 위한 혁신기술

Innovative Technologies for the Current and Future Competitiveness of the Steel Industry

철강은 건설, 기계, 자동차 등 핵심 산업의 기반 소재로서 세계 에너지 소비와 온실가스 배출에서 큰 비중을 차지하고 있으며, 특히 아시아 지역을 중심으로 생산과 소비가 집중되어 있다. 그러나 글로벌 과잉설비, 수익성 악화, 그리고 탈탄소 전환을 요구하는 규제와 시장 압력(CBAM, Scope 3 등)이 동시에 작용하면서 철강 산업은 심각한 딜레마에 직면해 있다.

철강 제조는 고로(BF)와 전기로(EAF)를 중심으로 한 에너지 다소비 공정으로, 특히 고로 기반 일관제철소는 석탄 의존도가 높아 탄소 집약적 구조를 가진다. 이에 따라 철강 산업의 탄소중립 달성을 위해서는 공정 자체의 근본적 전환이 필수적이며, 그 핵심 대안으로 수소환원제철(Hydrogen Reduction Ironmaking) 이 부상하고 있다. 수소환원제철은 철광석을 수소로 환원하여 물(H_2O)만을 배출하는 공정으로, 기존 고로 대비 획기적인CO_2 감축이 가능하다.

그러나 수소환원제철의 상용화를 위해서는 막대한 양의 청정수소와 무탄소 전력 공급이 전제되어야 한다. 조강3,400만 톤 기준 연간 약500만 톤의 수소와 수GW 규모의 전력이 필요하며, 이는 재생에너지 단독으로는 안정성과 경제성 측면에서 한계가 있다. 이러한 문제의 거의 유일한 현실적 해법으로 원자력, 특히 고온가스로형 원자로(HTGR)를 활용한 원자력-수소 제철 개념을 제시한다.

이 시스템은CO_2를 기존 대비99% 이상 감축하면서도 제철 원가 경쟁력을 유지할 수 있는 기술적 · 경제적 가능성을 입증하였으며, 제철소와 원자로의 근접 배치가 가능한 높은 안전성도 확보하고 있다.

결론적으로, 철강 산업의 탈탄소 전환은 단순한 공정 개선을 넘어 에너지 시스템 전반의 혁신을 요구하며, 수소환원제철과 원자력의 결합은 대규모 청정수소 공급과 무탄소 전력 확보를 동시에 달성할 수 있는 전략적 대안이다. 이는 철강 산업의 지속가능성을 확보함과 동시에 국가 에너지 · 산업 경쟁력을 강화하는 핵심 수단이 될 것이다.

Steel is a foundational material for core industries such as construction, machinery, and automotive. It accounts for a significant portion of global energy consumption and greenhouse gas emissions, with production and consumption heavily concentrated in Asia. However, the steel industry currently faces a severe dilemma, driven by global overcapacity, deteriorating profitability, and simultaneous regulatory and market pressures demanding a transition to decarbonization, such as the Carbon Border Adjustment Mechanism (CBAM) and Scope 3 emissions reporting.

Steel manufacturing is an energy-intensive process centered on Blast Furnaces (BF) and Electric Arc Furnaces (EAF). In particular, BF-based integrated steel mills have a carbon-intensive structure due to their high reliance on coal. Consequently, a fundamental transformation of the production process itself is essential to achieve carbon neutrality in the steel industry. Hydrogen Reduction Ironmaking is emerging as the key alternative. This process uses hydrogen to reduce iron ore, emitting only water (H_2O) and enabling a drastic reduction in CO_2 emissions compared to conventional blast furnaces.

However, the commercialization of hydrogen reduction ironmaking requires a massive supply of clean hydrogen and carbon-free electricity. For a production capacity of 34 million tons of crude steel, approximately 5 million tons of hydrogen and several gigawatts (GW) of power are required annually. Relying solely on renewable energy poses limitations in terms of stability and economic viability. As a nearly unique and realistic solution to these challenges, the concept of "Nuclear Hydrogen Steelmaking"—utilizing nuclear energy, specifically High-Temperature Gas-cooled Reactors (HTGR)—is proposed.

This system has demonstrated the technical and economic potential to reduce CO_2 emissions by more than 99% compared to existing methods while maintaining the cost-competitiveness of steel production. Furthermore, it ensures high safety standards, allowing for the close proximity of reactors to steel plants.

In conclusion, the decarbonization transition of the steel industry requires more than just incremental process improvements; it demands an innovation of the entire energy system. The combination of hydrogen reduction ironmaking and nuclear energy is a strategic alternative that can simultaneously achieve a large-scale supply of clean hydrogen and carbon-free power. This will serve as a key means of securing the sustainability of the steel industry while strengthening national energy and industrial competitiveness.

2025 추계학술발표회 우수논문상 및 2026 KNS 장학생
(Best Paper Awards and KNS Scholarship)

2025 추계학술발표회 우수논문상

성 명	소 속
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김치헌	경희대학교
서지영	중앙대학교
이상제	서울대학교
이준영	한양대학교
이지현	서울대학교
임지환	한국원자력연구원
정소영	한국수력원자력
조승규	울산과학기술원
조우석	울산과학기술원
최용석	서울대학교
허동영	POSTECH
Ahmed Abdelrahman	KEPCO International Nuclear Graduate School
Yessika Natalia Chelsie	한국원자력연구원

2026년도 한국원자력학회 장학생

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경희대학교	김정빈, 신지은, 김두이
동국대학교	조원현, 이지후
부산대학교	김영재, 이창현
서울대학교	윤나영, 김승범, 박형민
세종대학교	박성진, 김채욱
울산과학기술원	기주형, 윤승빈
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조선대학교	이서영
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포항공과대학교	김효주
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한양대학교	김수현, 장영진, 김정민
한전 국제원자력대학원대학교	Bartosz Swakowski, Michal Henryk Wroblewski
UST-KAERI 스쿨	Khurram Shahzad

Workshops

International Workshop on AI for Nuclear Energy

Building the AI Playbook to accelerate deployment and reduce costs

| Date May 4(Mon.) – 6(Wed.), 2026
| Venue International Convention Center (ICC)
| Host OECD Nuclear Energy Agency, Korea Atomic Energy Research Institute, Korean Nuclear Society

■ **Main Workshop / Samda Hall (3rd Floor of ICC)**

Date		Program
May 4 (Mon.)	11:00	Arrival and Registration
	13:00	**Welcome Remarks**
	13:30	**Opening Remarks:** The Stewardship of Intelligence – Grounding AI in Human Responsibility & Ethics
	13:45	**Framing Remarks:** The Emerging AI Ecosystem
	14:00	**Panel Session 1:** AI Potential Across the Nuclear Life Cycle
	15:00	Coffee Break
	15:30	**Fireside Chat:** The Battle for the Nuclear Brain: Global Tech Giants vs. Sovereign AI
	16:00	**Panel Session 2:** Learning from AI Adoption and Challenges in other Industries
	16:45	**Panel Session 3:** Design & Simulations, Qualifications
	17:15	End of First Day
	18:30	**Welcome Reception** at **Ocean View Hall** (5th Floor of ICC)
May 5 (Tue.)	09:00	Arrival and Check–In
	09:30	**Panel Session 4:** AI and the emerging Deep Tech ecosystem, Innovation and Financing
	10:15	**Panel Session 5:** Policy Frameworks and Ecosystem Strategy for Accelerating AI for Nuclear
	11:00	**Panel Session 6:** Construction & Site Monitoring
	11:45	**Spotlight:** NEA Initiatives around AI for Nuclear
	12:30	Lunch Break at **Delizia** (3rd Floor of ICC)
	14:00	**Panel Session 7:** Predictive Maintenance
	15:00	Coffee Break
	15:30	**Panel Session 8:** Knowledge Asset Management and the AI–Augmented Workforce
	16:30	**Young Professionals Delegation Session**
	16:35	**Closing Session**
	17:00	End of Second Day

※ **Wednesday 6 May – Networking Event for Foreigners**

■ **AI Hands–On Workshop : Quick Start / Room 301 (3rd Floor of ICC)**

Date		Program
May 4 (Mon.)		**Getting Friendly with AI** (Fundamentals & Chatbot)
	10:30	**Morning Session: AI Fundamentals**
	12:00	Lunch Break at **Delizia** (3rd Floor of ICC)
	14:00	**Afternoon Session: GenAI Copilot**
	15:30	End of First Day
May 5 (Tue.)		**Guarding Safety with AI** (Diagnosis & Visualization)
	10:30	**Morning Session: Anomaly Detection**
	12:00	Lunch Break at **Delizia** (3rd Floor of ICC)
	14:00	**Afternoon Session: Visualization**
	15:30	End of Second Day

OECD/NEA RegLab Deep Dive Workshop

RegLab2 DeepDive Workshop (Closed Event)

| **Date** May 6(Wed.) – 8(Fri.), 2026
| **Venue** International Convention Center (ICC)
| **Host** OECD Nuclear Energy Agency, Korea Atomic Energy Research Institute

Date		Program	
Day 1 May 6 (Wed.)	13:00	**Welcome**	Plenary
		Scene setting	Plenary
		Mock Case Overview	Plenary
		Use case Value	Plenary
		Related Perspective 1	Plenary
		Mock Case Challenge 1 : – "qualified competent body"	Breakout 1
	17:00	**Day 1 Close**	
Day 2 May 7 (Thu.)	09:00	**Welcome**	Plenary
		Summary of Day 1	Plenary
		Plan for Day 2	Plenary
		Mock Case Challenge 2 : – "qualified across lifecycle"	Breakout
		Lunch Break at **Delizia** (3rd Floor of ICC)	Plenary
		Lunch	
		Feedback	Plenary
		Mock Case Challenge 3 : – "guardrails"	Breakout
	17:00	**Day 2 Close**	
Day 3 May 8 (Fri.)	09:00	**Welcome**	Plenary
		Summary of Day 1	Plenary
		Plan for Day 3	Plenary
		Related Perspective 3	Plenary
		Mock Case Challenge 4 : – "accountability gaps"	Breakout
		Summary	Plenary
		Next steps	Plenary
	12:00	**Day 3 Close**	

A

신개념 대형원전 개발 현황 및 전망

Status and Prospects of New Concept Large NPP Development

| 일시 · 장소 2026. 5. 6.(Wed.) 13:30~18:00 · 제주국제컨벤션센터, 3층 한라홀A(Room HallaHall A, 3F)
| 주최 한국원자력학회 원자로시스템기술 연구회

일 정	내 용
13:30~13:35	참석자 소개, 권순국 (한수원 중앙연구원) Participant Introduction, Sunguk Kwon (KHNP CRI)
13:35~13:40	개회사, 장희승 (한수원 품질기술본부장) Opening Remarks, Heeseung Jang (KHNP Quality & Technology Div.)
13:40~13:45	격려사, 박문규 (세종대학교) Congratulatory Address, Moonghu Park (Sejong Univ.)
13:45~14:10	신개념 대형원전 개발 현황, 하체웅 (한수원 중앙연구원) Status of New Concept Large NPP Development, Chewung Ha (KHNP CRI)
14:10~14:35	PROMETEUS 원자로냉각재계통 구성 및 설계 특성, 김석 (한국원자력연구원) PROMETEUS RCS Configuration and Design Features, Seok Kim (KAERI)
14:35~15:00	PROMETEUS 안전계통 구성 및 기능, 홍순준 (미래와도전) PROMETEUS Safety System Configuration and Features, Soon-Joon Hong (FNC)
15:00~15:25	PROMETEUS BOP 개념설계 주요 목표 및 착안점, 정재형 (한국전력기술) Main Objectives and Considerations of PROMETEUS BOP Conceptual Design, Jaehyung Jung (KEPCO E&C)
15:25~15:45	Coffee Break
15:45~16:10	PROMETEUS 최적 성능 구현을 위한 원자력연료 개념 및 추진전략, 박호영 (한전원자력연료) Conceptual Design and Implementation Strategy of Nuclear Fuel for Optimizing PROMETEUS Performance, Hoyoung Park (KEPCO NF)
16:10~16:35	원전 주기기 혁신 제작기술, 조성우 (두산에너빌리티) Advanced Manufacturing Technologies for NPP Major Components, Sungwoo Cho (Doosan Enerbility)
16:35~17:00	PROMETEUS 원자로냉각재펌프 설계 특성, 김형훈 (효성굿스프링스) PROMETEUS Reactor Coolant Pump Design Features, Hyeonghoon Kim (HGS)
17:00~17:25	원전 건설에 활용 가능한 자동화 장비 및 기술 동향, 이동주 (GS건설) Trends in Automation Technologies and Equipment for NPP Construction, Dongjoo Lee (GS E&C)
17:25~18:00	토의: 신개념 대형원전을 위한 혁신 기술, 서정관 (한수원 중앙연구원) Discussion: Innovative Technologies for New Concept Large NPP, Jeongkwan Suh (KHNP CRI)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 강준하 / 한수원 중앙연구원 / 042-870-5827 / junha.kang@khnp.co.kr

B

탄력운전기술 개발 현황 및 전망

Current Status and Future Outlook of Load-following Operation

| 일시 · 장소 2026. 5. 6.(Wed.) 13:15~18:00 · 제주국제컨벤션센터, 3층 301호(Room 301, 3F)
| 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	탄소중립 시대와 원전 운영 고도화 Advancing Nuclear Operations for Net-Zero 박동환 Dong Hwan Park (한국수력원자력 중앙연구원 KHNP-CRI)
14:00~14:30	Mode-K+ 알고리즘 기반 제어봉만을 이용한 APR1400 부하추종운전 APR1400 Daily Load Follow Operations with Mode-K+ Algorithm without Soluble Boron Adjustment 김용희 Yonghee Kim (한국과학기술원 KAIST)
14:30~15:00	소듐냉각고속로 부하추종운전 타당성 연구 Feasibility Study on Load-Following Operation of SFRs 이민재 Min Jae Lee (한국원자력연구원 KAERI)
15:00~15:30	APR1400 탄력운전 Flexible Operation for APR1400 민지홍 Ji Hong Min (한국전력기술 KEPCO E&C)
15:30~15:50	휴식 (Break)
15:50~16:20	탄력운전용 노심 설계 방법론 및 안전성 평가 기술개발 Development of Core Design Methodology and Safety Evaluation Technology for Flexible Operation 전승환 Seung-hwan Jun (한전원자력연료 KNF)
16:20~16:50	탄력운전시 핵연료-피복관 상호작용 거동 Pellet-Cladding Interaction Behavior during Flexible Power Operation 윤학규 Hak Kyu Yoon (한전원자력연료 KNF)
16:50~17:20	운전지원시스템 개발 현황 및 계획 Operation Support System Development Status and Plan 김형석 Hyeong-Seog Kim (한전원자력연료 KNF)
17:20~17:50	i-SMR 탄력운전 개발 현황 및 향후 계획 Overview of i-SMR Flexible Operation Development and Future Plans 김진선 Jinsun Kim (한전원자력연료 KNF)
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

고효율 처분기술의 가치 (2026 고준위방사성폐기물 처분 Safety Case 워크숍)

Value of High Efficiency Disposal Technology (2026 Workshop on Safety Case for High-Level Radioactive Waste Disposal)

| 일시 · 장소 2026. 5. 6.(Wed.)14:00~16:50 · 제주국제컨벤션센터, 2층 202A호(Room 202A, 2F)
| 주최 한국원자력학회 후행핵연료주기 연구회

일 정	내 용
14:00~14:05	개회사, 지성훈 (한국원자력학회 후행핵연료주기연구회장) Opening remarks, Sung-Hoon Ji (Head for Division of Back-End Nuclear Fuel Cycle)
14:05~14:10	축사, 최성민 (한국원자력학회장) Congratulatory remarks, Sung-Min Choi (President of Korean Nuclear Society)
14:10~14:15	축사, 백민훈 (한국방사성폐기물학회장) Congratulatory remarks, Min-Hoon Baik (President of Korean Radioactive Waste Society)
14:15~14:30	핀란드·스웨덴 방식 그 이후: 국외 대안처분 개념 개발 현황, 지성훈 (한국원자력연구원) Beyond the Finnish & Swedish Approach : Current Status of International Alternative Disposal Concept Development, Sung-Hoon Ji (KAERI)
14:30~14:50	적층제조 처분용기 R&D 현황, 김가영 (한국원자력연구원) R&D Status of Additive Manufacturing Disposal Canisters, Gha-Young Kim (KAERI)
14:30~14:50	고기능 완충재 R&D 현황, 윤석 (한국원자력연구원) R&D Status of High Performance Buffer Materials, Seok Yoon (KAERI)
14:50~15:10	고효율 처분시스템 개념 개발 현황, 이창수 (한국원자력연구원) Current Status of High-Efficiency Disposal System Concept Development, Changsoo Lee (KAERI)
15:10~15:30	비용 절감을 넘어 에너지 경쟁력으로: 사용후핵연료 고효율 처분기술과 원자력의 경제성, 조동건 (한국원자력연구원) Savings to Strength: High-Efficiency Spent Fuel Disposal and Nuclear Economy, Dong-Keun Cho (KAERI)
15:30~15:50	휴식
15:50~16:50	전문가 패널 토의 및 종합 논의, 이기복 (한국원자력연구원), 문주현 (단국대학교), 이성복 (한국원자력환경공단), 윤형준 (한국전력기술) Expert Panel Discussion and Wrap-Up Discussion, Gi-Bok Lee (KAERI), Joohyun Moon (Dankook Univ.), Sung-Bok Lee (KORAD), Hyeong-Joon Yun (KEPCO E&C)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 윤석 / 한국원자력연구원 / 042-868-2946 / syoon@kaeri.re.kr

D

핵연료 및 재료연구 기반의 현주소와 나아갈 방향

Current status and future direction of nuclear fuel and materials research infrastructure

| 일시 · 장소 2026. 5. 6.(Wed.) 13:00~18:00 · 제주국제컨벤션센터, 3층 삼다홀A(Room Samda Hall A, 3F)
| 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) Opening, Dong Jin Kim (KAERI)
13:40~14:05	소재-시험-해석 통합 연계를 통한 차세대 경수로 핵연료 기술개발과 시험기술 인프라의 역할, 김동주 (한국원자력연구원) Advanced LWR Fuel Technology Development through Materials-Testing-Analysis Integration and the Role of Testing Infrastructure, Dong-Joo Kim (KAERI)
14:05~14:30	핵연료 연구 기반 강화를 위한 조사후시험 인프라 확충과 현대화, 진영관 (한국원자력연구원) PIE Infrastructure Expansion and Modernization for Nuclear Fuel Research Reinforcement, Young Gwan Jin (KAERI)
14:30~14:55	하나로 중성자빔 장치 소개/원자력 재료 연구 활용, 한영수 (한국원자력연구원) Introduction of Hanaro Neutron Beam Instruments / Application of Nuclear Materials Research, Young-Soo Han (KAERI)
14:55~15:20	차세대 원자로 실물화를 위한 국내 핵연료 자격화 추진 요건 및 기반 시설, 이유호 (서울대학교) Key Requirements and Infrastructure for Domestic Nuclear Fuel Qualification to Enable Deployment of Advanced Reactors, Youho Lee (SNU)
15:20~15:40	휴식 Break
15:40~16:05	가동원전 안전 운영 및 차세대 원전 개발을 위한 원자력 재료 하베스팅 연구 플랫폼, 김성우 (한국원자력연구원) Materials Harvesting Research Platforms for Safe Operation of PWR and Development of Advanced Reactors, Sung-Woo Kim (KAERI)
16:05~16:30	한국원자력환경복원연구원 중저준위 방사성폐기물 특성분석 인프라 구축 현황 및 향후 활용 계획, 하영수 (한국원자력환경복원연구원) Infrastructure Development for Characterization of Low- and Intermediate-level Radwaste at the Korea Research Institute of Decommissioning (KRID): Current Status and Future Utilization, Yeong Su Ha (KRID)
16:30~16:55	탄뎀가속기의 원자력 재료 개발에의 활용, 김계령 (한국원자력연구원) Application of the Tandem Accelerator in the Development of Nuclear Materials, Key-Ryung Kim (KAERI)
16:55~17:40	패널 토의, 진행자: 김동진 (한국원자력연구원), 패널: 김동주 (한국원자력연구원), 이유호(서울대학교), 장창희(카이스트), 진영관(한국원자력연구원) Panel Discussion, Moderator: Dong Jin Kim (KAERI) Panelist : Panelist : Dong-Joo Kim (KAERI), Youho Lee (SNU), Changheui Jang (KAIST), Young Gwan Jin (KAERI)
17:40~18:00	종합 토의 및 폐회 Closure

| 기타사항 - 등록비 : 60,000원 / 석식제공
- 문의처 : 김대종 / KAERI / 042-868-4559 / dkim@kaeri.re.kr

E

SMR 개발 및 사업 추진 활성화

Accelerating SMR Development and Business Implementation

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~17:30 · 제주국제컨벤션센터, 3층 한라홀B(Room HallaHall B, 3F)
| 주최 한국원자력학회 열수력연구회, 한국원자력산업협회
| 협찬 한국수력원자력

일 정	내 용
14:00~14:05	환영사, 최성민 (한국원자력학회) Welcoming Remarks, Sung-min Choi (KNS)
14:05~14:10	개회사, 노백식 (한국원자력산업협회) Opening Remarks, Baek-sik Noh (KAIF)
14:10~14:30	혁신형 SMR 표준설계 개발 현황, 김한곤 (i-SMR 사업단) Development Status of i-SMR Standard Design, Han-gon Kim (Innovative SMR Development Agency)
14:30~14:50	차세대 원전(SMR) 성공을 위한 안전규제 체계의 혁신, 정용훈 (KAIST) Innovating Safety Regulatory Framework for the Success of Next-Generation SMR, Yong-hoon Jeong (KAIST)
14:50~15:10	미국 SMR 사업현황과 위험도정보활용 규제, 강현국 (美 RPI) U.S. SMR Business Status and Risk-Informed Regulation, Hyun-gook Kang (RPI, USA)
15:10~15:30	SMR 미래를 위한 규제기반 마련, 김인구 (RMAS) Establishing Regulatory Foundations for the Future of SMR, In-koo Kim (RMAS)
15:30~15:50	휴식시간 Coffee Break
15:50~16:10	SMR 국내 규제체계 및 사전설계검토 결과, 지용기 (한국원자력안전기술원) Domestic Regulatory Framework for SMR and Results of Pre-Application Design Review, Yong-gi Ji (KINS)
16:10~16:30	SMR 표준설계에서의 PSA 기반 안전성 검토, 박진희 (한국원자력연구원) PSA-based Safety Review in SMR Standard Design, Jin-hee Park (KAERI)
16:30~16:50	SMR 핵비확산 · 핵안보 규제체계 및 사전설계검토 결과, 권국희 (한국원자력통제기술원) SMR Nuclear Nonproliferation and Nuclear Security Regulatory Framework and Results of Pre-Application Design Review, Kook-hee Kwon (KINAC)
16:50~17:10	SMR 산업 활성화를 위한 법 · 제도 개선방안, 김형대 (경희대학교) Legal and Regulatory Improvement Measures for Promoting the SMR Industry, Hyung-dae Kim (Kyung Hee Univ.)
17:10~17:30	재생e와 SMR 조화 기반 무탄소 전원 활성화 방안, 손태영 (한국수력원자력) Strategies to Promote Carbon-Free Power Based on the Integration of Renewable Energy and SMR, Tae-young Son (KHNP)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 박상언 / 한국원자력산업협회 / 02-6953-2511 / parks@kaif.or.kr

F

혁신형 SMR 리스크 평가 현황 및 기술이슈

Current Status and Technical Issues of i-SMR PSA

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 2층 201A호(Room 201A, 2F)
| 주최 한국원자력학회 원자력안전 연구회

일 정	내 용
14:00~14:10	개회사, 김창현 (한수원중앙연구원) Opening, Chang Hyun Kim (KHNP CRI)
14:10~14:30	i-SMR 개발현황, 전호준 (한수원중앙연구원) Current Status of i-SMR Development, Hojun Jeon (KHNP CRI)
14:30~15:00	i-SMR 내부사건 PSA 모델 개발 현황, 신성민 (한국원자력연구원) Current Status of Internal Event Level 1 PSA Model Development for i-SMR, Sung-min Shin (KAERI)
15:00~15:30	i-SMR Level-2 PSA 모델 개발 현황, 조재현(중앙대학교) Current Status of Level 2 PSA Model Development for i-SMR, Jaehyun Cho (CAU)
15:30~15:50	휴식 시간 Break Time
15:50~16:20	i-SMR 외부사건 PSA 모델 개발 현황, 김성현(한전전력기술) Current Status of External Event Level 1 PSA Model Development for i-SMR, Sunghyun Kim (KEPCO E&C)
16:20~16:50	SMR PSA 규제 연구 현황, 허균영 (경희대학교) Current Status of Regulatory Research on PSA for SMR, Gyunyoung Heo (KHU)
16:50~17:20	국내 SMR PSA 분야 규제검토 경험 및 예상현안, 조남철 (한국원자력안전기술원) Domestic SMR PSA Regulatory Review Experience and Anticipated Issues, Namchul Cho (KINS)
17:20~17:50	종합토의 Closure

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 박종우 / 한국원자력연구원 / 042-868-2436 / jwpark822@kaeri.re.kr
백세진 / 한수원중앙연구원 / 042-870-5386 / white.sejin@khnp.co.kr

G

중대사고 연구와 AI 연구의 융합 : 현황과 미래 협력 방향

Severe Accident Research and AI Integration : Current Status and Future Collaboration

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 2층 201B호(Room 201B, 2F)
| 주최 한국원자력학회 원자력안전 연구회

일 정	내 용
13:30~13:50	워크샵 등록 Registration
13:50~14:00	개회사, 임호곤 (한국원자력연구원) Opening, Ho-Gon LIM (KAERI)
14:00~14:20	중대사고 예측 및 대응을 위한 인공지능 활용 전략, 서미로 (한국수력원자력 중앙연구원) Strategies for Application of AI in Severe Accident Prediction and Response, Mi Ro SEO (KHNP CRI)
14:20~14:40	COSAIN 소개 및 개발 Insight, 김종현 (한국과학기술원) COSAIN: Overview and Development Insights, Jonghyun KIM (KAIST)
14:40~15:00	중대사고 관리 시스템 개발을 위한 한전기술의 인공지능 적용 현황, 이대형 (한전기술) Current Status of AI Application Research at KEPCO E&C for the Development of Severe Accident Management System, Daehyung LEE (KEPCO E&C)
15:00~15:30	AI가 중대사고 연구를 대신해 줄 수 있을까? 유용균 (한국원자력연구원) Can AI Replace Research on Severe Accident? Yonggyun YU (KAERI)
15:30~15:50	휴식 Break
15:50~16:10	인공지능기법을 이용한 중대사고 연구 현황, 하광순 (한국원자력연구원) Severe Accident Research Using AI Technology at KAERI, Kwangsoon HA (KAERI)
16:10~16:40	외생 변수 통합 시계열 예측을 위한 LLM 접근법, 박찬영 (한국과학기술원) LLM-based Time Series Forecasting with Exogenous Variables, Chanyoung PARK (KAIST)
16:40~17:10	복잡 연계 계통의 상호 의존성을 고려한 시계열 예측, 이재길 (한국과학기술원) Dependency-Aware Time-Series Forecasting in Complex Interconnected Systems, Jae-Gil LEE (KAIST)
17:10~18:00	종합토의 및 폐회 Closing

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 정재훈 / 한국원자력연구원 / 042-868-4691 / jhjung@kaeri.re.kr

H

하나로 중성자 활용 최신 연구 현황

Recent Advances in Neutron Utilization at HANARO

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 3층 300호(Room 300, 3F)
| 주최 한국원자력학회 방사선 이용 및 기기 연구회

일 정	내 용
13:30~14:00	워크숍 등록
14:00~14:05	개회사, 한영수 (한국원자력연구원)
14:05~14:10	환영사, 김명섭 (하나로이용연구단장, 한국원자력연구원)
14:10~14:35	중성자회절을 이용한 첨단 금속재료의 잔류응력 및 변형거동 연구, 김동규(건국대학교) Neutron Diffraction Investigation of Residual Stress and Deformation Behavior in Advanced Metallic Materials, Dong-Kyu Kim(Konkuk Univ.)
14:35~15:00	중성자 및 X-선 소각산란을 활용한 첨단에너지소재 분석, 진형민(충남대학교) Small-Angle Neutron and X-ray Scattering for Probing Advanced Energy Materials, Hyeong Min Jin(Chungnam Natl. Univ.)
15:00~15:25	하나로 중성자 시설을 이용한 차폐체의 열중성자 감쇠계수 분석, 김영주(한국원자력연구원) Analysis of thermal neutron attenuation of shielding materials using neutron facility at HANARO, Youngju Kim(KAERI)
15:25~15:50	중성자 회절 분석을 통한 Ni-rich NCM 양극재의 구조적 열화 메커니즘 규명 및 재활용 연구, 송석현(한국에너지기술연구원) Elucidating Structural Degradation of Ni-rich NCM via Neutron Diffraction for Advanced Recycling and Synthesis, Seok Hyun Song(KIER)
15:50~16:10	휴식
16:10~16:35	하나로 중성자 산란 연구 기반 무오류 양자소재 개발 전략, 이성수(한국원자력연구원) HANARO Neutron scattering-Based Strategy for Developing Error-Free Quantum Materials, Seongsu Lee(KAERI)
16:35~17:00	Advancement in Neutron Activation Analysis at HANARO and Future Perspectives, K.B. Dasari (Jeonbuk Natl. Univ.)
17:00~17:25	원심분무 U3Si2 분말 기반 판형핵연료 개발 및 실증 현황, 조태원(한국원자력연구원) Status of Development and Qualification of Atomized U3Si2 Dispersion Fuel, Tae Won Cho(KAERI)
17:25~17:50	국가원자력연구개발 지원을 위한 노내조사시험 현황 및 연구개발 계획, 양성우(한국원자력연구원) In-pile Irradiation Testing for Nuclear R&D: Current Status and Future Plans, Seong Woo Yang(KAERI)

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 한영수 / 한국원자력연구원 / 010-5434-5327 / yshan@kaeri.re.kr

I

오랜 동행: 국가유산과 원자력 그리고 AI

Sustainable Partnership: Nuclear Science, Cultural Heritage, and AI

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 3층 303A호(Room 303A, 3F)
| 주최 한국원자력학회 방사선이용 및 기기 연구회

일 정	내 용
14:00~14:20	워크숍 등록 Registration
14:20~14:25	개회사, 선광민 (한국원자력연구원) Opening Remarks, Gwang-Min Sun (KAERI)
14:25~14:30	환영사, 최성민 (한국원자력학회) Welcome Address, Sung-Min Choi (Korea Nuclear Society)
	좌장 : 김귀영 (한국원자력연구원) Session Chair : Kui Young Kim (KAERI)
14:30~15:00	국내 문화유산 대상 변위 및 훼손 탐지 연구 사례와 결과, 이상윤 (한국전자통신연구원) Research Cases and Results of Displacement and Damage Detection for Domestic Cultural Heritage, Sang-Yun Lee (ETRI)
15:00~15:30	대면적 야외 문화유산 진단을 위한 초분광 기반 식생 건강성 평가 및 위해식물 탐지, 최기현 ((주)지오스토리) Hyperspectral-Based Vegetation Health Assessment and Invasive Plant Detection for Large-Scale Outdoor Cultural Heritage Diagnosis, Ki Hyun Choi (Geostory)
15:30~15:50	휴식 Break
15:50~16:20	문화유산 진단분석 분야에서의 방사선 기술의 역할과 과제, 한민수 (한국전통문화대학교) The Role and Challenges of Radiation Technologies in Cultural Heritage Diagnostics and Analysis, Minsu Han (Korea National University of Heritage)
16:20~16:50	AI 영상분석 기반 건축유산 표면 손상 자동 탐지 기술 개발, 유정민 (한국전통문화대학교) AI-based Video Analysis for Automatic Detection of Surface Damage in Architectural Heritage, Jeongmin Yu (Korea National University of Heritage)
16:50~17:30	이탈리아 북부 트리에스테의 싱크로트론 빔라인: 문화유산 분야 응용 연구 성과, 마르코 말라고디 (파비아대학교, 이탈리아) The Synchrotron Beamlines of Trieste in Northern Italy: Results of Applications for Cultural Heritage, Marco Malagodi (The University of Pavia, Italy)
17:30~18:00	종합 토의 및 폐회, 박해준 (한국원자력연구원) Q/A, Closing Remarks, Hae Jun Park (KAERI)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 전준표 / KAERI / 063-570-3063 / jpjeun@kaeri.re.kr

J

제3차 핵융합/원자력 재료 이온빔 조사 시험 및 평가 워크숍

3rd Workshop of the Ion Beam Irradiation Test and Evaluation on Nuclear Fusion/Fission Materials

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 2층 202B호(Room 202B, 2F)
| 주최 한국원자력학회 양자공학 및 핵융합기술 연구회

일 정	내 용
14:00~14:05	인사말(정영욱, KAERI), 사회 (이승현, KAERI) Opening Address
14:05~14:20	KAHIF 이용현황 및 계획 (이승현, 한국원자력연구원) Service Status and Plans of KAHIF for nuclear fusion/fission material research (Seunghyun Lee, KAERI)
14:20~14:35	KIST 이온조사시설 현황 (문선우, 한국과학기술연구원) Current status of the ion-irradiation facilities at KIST (Sunwoo Moon, KIST)
14:35~14:50	하나로 조사시험: 현황, 과제 및 연구개발 계획 (양성우, 한국원자력연구원) Irradiation Testing at HANARO: Status, Challenges, and R&D Plans (Seongwoo Yang, KAERI)
14:50~15:10	기념촬영 및 휴식 Break Time
15:10~15:25	KAHIF 활용 디버터 소재 조사 특성 평가 계획 (진형하, 한국원자력연구원) Evaluation of Irradiation-induced properties of Divertor Materials using KAHIF : Current status and Future plans (Hyung-Ha Jin, KAERI)
15:25~15:40	이온조사 기반 모사실험을 이용한 핵융합 구조재 및 플라즈마 대면재의 조사손상 연구 (신찬선, 명지대학교) Surrogate Ion-Irradiation Studies of Irradiation Damage in Fusion Structural and Plasma-Facing Materials (Chansun Shin, Myongji University)
15:40~15:55	이온조사시험을 활용한 ARAA 용접부 기계적 특성 평가 (노상훈, 부경대학교) Mechanical property evaluation of ARAA welds using ion irradiation tests (Sanghoon Noh, Pukyong National University)
15:55~16:10	조사 손상 시뮬레이션을 위한 원자간 퍼텐셜 모델 (남호석, 국민대학교) Review on the Development of Interatomic Potential Models for Radiation Damage Simulation (Ho-Seok Nam, Kookmin University)
16:10~16:25	철 이온 조사에 의한 ARAA강의 취화 분석 (이정구, 전은채, 박태원, 김연서, 울산대학교) Analysis of embrittlement of Fe ion-irradiated ARAA steel (Jung Gu Lee, Eun-chae Jeon, Taewon Park, Yeon-Seo Kim, University of Ulsan)
16:25~16:40	과도격자분광을 이용한 이온빔 조사 물성변화 실시간 측정 연구 (이유호, 서울대학교) Real-Time Measurement of Ion Irradiation –Induced Property Chages via Transient Grating Spectroscopy (Youho Lee, SNU)
16:40~17:00	휴식 Break Time

J

제3차 핵융합/원자력 재료 이온빔 조사 시험 및 평가 워크숍

3rd Workshop of the Ion Beam Irradiation Test and Evaluation on Nuclear Fusion/Fission Materials

| **일시 · 장소** 2026. 5. 6.(Wed.) 14:00～18:00 · 제주국제컨벤션센터, 2층 202B호(Room 202B, 2F)
| **주최** 한국원자력학회 양자공학 및 핵융합기술 연구회

일 정	내 용
17:00～17:15	Fe 이온 조사에 의한 SA508 강의 조사경화 거동 : 기존 단조재와 DED 적층재의 비교 (류호진, 한국과학기술원) Irradiation Hardening Behavior of SA508 Steel under Fe-ion Irradiation : Comparison between Conventional Forging and DED Additive Manufacturing (Ho Jin Ryu, KAIST)
17:15～17:30	Fe 기반 개발 합금의 조사 환경에서의 미세조직 변화 및 기계적 거동 연구 현황 (엄현준, 장창희, 한국과학기술원) Microstructural Evolution and Mechanical Behavior of Developed Fe-based Alloys under Irradiation Conditions (Hyun Joon Eom, KAIST)
17:30～17:45	조사손상 전산모사: 핵융합 소재 개발 현황과 간극 (이병찬, 경희대학교) Irradiation-damage simulation: the state of the art and gaps in fusion materials development (Byeongchan Lee, Kyung Hee University)
17:45～17:55	글로벌 TOP 극한환경 혁신형 핵융합 디버터 개발 전략연구단 연계 기술표준화 준비 현황 (이동원, KAERI) Progress on Standardization Efforts in the Global TOP Innovative Fusion Divertor Development Program (Dong Won Lee, KAERI)
17:55～18:00	마무리 (이동원, 한국원자력연구원) Closing

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

K

제3회 우주방사선 반도체 영향평가 : 민 · 관 · 연 우주 생태계 강화 워크숍

The 3rd Workshop on the Assessment of Space Radiation Effects on Semiconductors : Strengthening the Civilian–Government–Research Space Ecosystem

| 일시 · 장소 2026. 5. 6.(Wed.) 13:30～18:00 · 제주국제컨벤션센터, 2층 203호(Room 203, 2F)
| 주최 한국원자력학회 양자공학 및 핵융합기술 연구회

일 정	내 용
13:30～13:35	개회사, 이재상 단장 (한국원자력연구원) Opening Remarks, Jae-Sang Lee, Director (KAERI)
13:35～13:40	축사, 주한규 원장 (한국원자력연구원) Congratulatory Remarks, Han-Gyu Joo, President (KAERI)
13:40～14:10	Anecdotes of spacecraft anomalies or failures due to space radition, 전인수 교수 (서울대) Prof. In-Soo Jun (Seoul National Univ.)
14:10～14:40	Cosmic Ray Induced DRAM Failure Mechanism and its Replications on Satellite Environment, 황유철 마스터 (삼성전자) Yu-Cheol Hwang, Master (Samsung Electronics Co., Ltd.)
14:40～15:05	우주항공 산업 육성을 위한 고신뢰 반도체 기반 구축 기획 방향, 유미진 공업사무관 (우주항공청) Planning Directions for Establishing a High-Reliability Semiconductor Infrastructure to Foster the Aerospace Industry, Mi-Jin Yoo, Deputy Director (KASA)
15:05～15:30	국방 우주표준화체계 발전 방향 및 구축 현황, 이해연 선임연구원 (국방기술품질원) Development Directions and Current Status of the Defense Space Standardization System, Hae-Yeon Lee, Senior Researcher (DTaQ)
15:30～15:50	기념촬영 및 휴식 Group Photo & Coffee Break
15:50～16:20	Memory 반도체의 우주방사선 검증을 위한 양성자가속기 & CubeSat 활용 방안에 대한 연구, 황인록 TL (SK하이닉스) Study on the Use of Proton Accelerators & CubeSats for Space Radiation Verification of Memory Semiconductors, In-Rok Hwang, TL (SK hynix Inc.)
16:20～16:50	저궤도 초소형위성 부품의 방사선 영향평가: 지상 시험과 우주 실증 사례, 이정규 이사 (나라스페이스) Radiation Effects Assessment of LEO Micro-satellite Components : Ground Testing and In-Orbit Validation Cases, Jung-Kyu Lee, Director (Nara Space Technology Inc.)
16:50～17:15	우주용 대용량 메모리 모듈 개발을 위한 우주방사선 영향평가 및 시험 현황, 손종대 책임연구원 (한국천문연구원) Current Status of Space Radiation Effects Assessment and Testing for the Development of High-Capacity Memory Modules for Space Applications, Jong-Dae Sohn, Principal Researcher (KASI)
17:15～17:40	우주제약 산업의 동향 및 전망, 윤학순 대표 (스페이스린텍) Trends and Outlook for the Space Pharmaceutical Industry, Harg-Soon Yoon, CEO (Space LiinTech)
17:40～17:55	양성자과학연구단 시설 및 연구 현황, 김유미 책임연구원 (한국원자력연구원) Facilities and Research Status of the Korea Multi-Purpose Accelerator Complex, Yu-Mi Kim, Principal Researcher (KAERI)
17:55～18:00	폐회사, 정영욱 소장 (한국원자력연구원) Closing Remarks, Young-Uk Jeong, Director General (KAERI)

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 김유미 / 한국원자력연구원 / 054-750-5577 / yumikim@kaeri.re.kr
이재상 / 한국원자력연구원 / 054-750-5301 / jslee8@kaeri.re.kr

L

SMR 안전 기술: 구조적 도전과 외부재해 대응

SMR Safety Technology: Structural Challenge and External Hazard Mitigation

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~17:30 · 제주국제컨벤션센터, 3층 303B호(Room 303B, 3F)
| 주최 한국원자력학회 원자력 건설 및 운영기술 연구회

일 정	내 용
14:00~14:05	개회사, 송규민 (KHNP) Opening, Kyu-Min Song (KHNP)
14:05~14:30	원전 SC구조 모듈화 공법 적용을 위한 실용화 기술 현황, 한고은 (KHNP) Current status for the application of modular construction technology using SC structure in nuclear power plants, Goeun HAN (KHNP)
14:30~14:55	SC 구조의 상세요건마련을 위한 규제기반 기술 개발 현황, 박홍근 (서울대학교) Development of Regulatory-Based Technology for Establishing Detailed Requirements of SC Structures, Hong-Gun PARK (Seoul National University)
14:55~15:20	SC구조 인허가 심사 방안 및 기술기준 선정 방향(안), 정래영 (KINS) Plan for Licensing Review of SC Structure and Applicable Standards, Raeyoung JUNG (KINS)
15:20~15:40	휴식 Break
15:40~16:20	소형 모듈러 원전의 내진 · 면진설계 현황, 서춘교 (한국전력기술) Seismic & Seismic Isolation Design for Small Modular Reactor, Choongyo SEO (KEPCO E&C)
16:20~16:40	SMR의 설계초과 외부재해에 대한 규제기반기술 개발 현황, 함대기(KAERI) Development of Regulatory-Based Technology of SMRs under Design-Extended External Hazards, Deagi HAHM (KAERI)
16:40~17:00	SMR의 설계초과 외부재해 대응을 위한 기술적 과제 (김정한, 부산대학교) Technical Research Needs for Beyond Design Basis External Hazards in SMRs, Jung Han KIM (Pusan National University)
17:00~17:30	종합 토론 및 폐회 Discussion & Closing

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 함대기 / KAERI / 010-7227-8385 / dhahm@kaeri.re.kr

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제7차 원자력진흥종합계획 수립을 위한 환경변화 대응

| 일시 · 장소 2026. 5. 6.(Wed.) 14:10~17:10 · 제주국제컨벤션센터, 4층 400호(Room 400, 4F)
| 주최 한국원자력학회 원자력정책, 인력 및 협력 연구회

일 정	내 용
14:10~14:15 ('5)	개회사, 이영일 (한국연구재단 단장)
14:15~14:20 ('5)	축사, 과기부 정부 대표 (미정) / 최성민 (한국원자력학회 학회장)
14:20~14:30 ('10)	원자력진흥정책의 추진방향과 앞으로의 과제, (과기부/한국연구재단)
(세션1) 원자력진흥종합계획의 주요 내용과 성과 공유	
14:30~14:50 ('20)	제6차 원자력진흥종합계획 성과분석, 최성열 (서울대학교)
14:50~15:10 ('20)	제7차 원자력진흥종합계획의 추진 환경과 주요 현안, 이영준 (한국원자력연구원)
15:10~15:30 ('20)	휴식 Break
(세션2) 환경 변화 대응	
15:30~15:50 ('20)	제4차 방사선진흥계획 수립을 위한 추진방향, 김용균 (한양대학교)
15:50~16:10 ('20)	제4차 원자력안전종합계획 수립을 위한 추진방향, 정구영 (한국원자력안전기술원)
16:10~16:20 ('10)	휴식 Break
(세션3) 종합 토의	
16:20~17:10 ('50)	패널토의 및 폐회 좌장 : 정범진 경희대 교수 패널 : 정용훈 한국과학기술원 교수, 임채영 한국원자력연구원 본부장, 조재선 ㈜미래와도전 부사장, 김인구 소형모듈원자로규제연구추진단 단장, 김윤경 이화여대 교수

| 기타사항 - 등록비 : 무료 / 석식 제공 없음
- 문의처 : 박태진 / 한국연구재단 / 010-6257-4921 / etjpark@nrf.re.kr

N

AI·탄소중립 시대, SMR 생태계의 역할과 의미

The role and meaning of SMR industrial system in the age of AI and carbon net zero

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 4층 401A호(Room 401A, 4F)
| 주최 한국원자력학회 원자력 정책, 인력 및 협력 연구회

일 정	내 용
13:30~14:00	워크숍 등록 Registration
14:00~14:05	개회사, 이재영 (한동대) Opening Address : Jaeyoung Lee (Handong University)
14:05 ~ 14:15	축사 I, 황일순 (서울대, 명예교수) Congratulatory Remaks I, Il Soon Hwang (SNU)
	축사 II, 박홍준 (동국대, 한국원자력학회 대구경북지부 감사) Congratulatory Remaks II, Hong June Park (Dongguk University)
	축사 III, 최성민 (KAIST, 한국원자력학회장) Congratulatory Remaks IIII, Sung-Min Choi (KAIST, President of KNS)
14:15~14:35	기조연설, 김무환 (前 포스텍 총장) Keynote Address, former-President Moo Hwan Kim (POSTECH) SMR의 미래 : 우리는 무엇을 준비하여야 하나? (The Future of SMR : What should we prepare?)
14:35~14:55	경상북도 SMR 정책 방향, 김미경(경상북도) Policy Direction of SMR in Gyeongbuk, KOREA, Mi-gyeong Kim (Gyeongbuk Province)
14:55~15:15	철강산업 탈탄소 실현을 위한 SMR의 역할, 육진성(포스코홀딩스) IThe Strategic Role of SMRs in Decarbonizing the Steel Industry, Jinsung Yook (POSCO-Holdings)
15:15~15:35	교육용원자로 구축을 통한 차세대원자력 선도인력 양성 방안, 심형진(서울대) Developing Next-Generation Nuclear Leaders through the Deployment of a Advanced Educational Reactor, Hyung Jin Shim (SNU)
15:35~15:55	AI 활용 가상원자로 플랫폼 구축, 조윤제(한국원자력연구원) Establishment of virtual nuclear reactor platform using AI, Yun-Jae Cho (KAERI)
15:55~16:15	SMR 사업 성공을 위한 공급망 구축 방안, 이상일(서울대) Strategies for Building a Supply Chain to Ensure the Success of the SMR Business, Sang IL LEE (SNU)
16:15~16:25	사진촬영 및 휴식 Photo and Break Time
16:25~17:25	패널 토론, 좌장 이재영 교수(한동대) Panel Discussion, chairman prof Jaeyoung Lee(Handong University)
17:25~17:30	정리 및 종료 Clean-up

| 기타사항 - 등록비 : 무료 / 석식제공(사전희망자)
- 문의처 : 박재규 / 포항테크노파크 / 010-2300-6353 / jaepark@ptp.or.kr

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IAEA의 안전조치 활동 및 이에 따른 정보제공 의무·절차에 관한 KINAC–IAEA 공동 워크숍

KINAC–IAEA Joint Workshop on IAEA Safeguards Activities and State's Obligations Regarding Provision of Information

| 일시 · 장소 2026. 5. 6.(Wed.) 13:30～18:00 · 제주국제컨벤션센터, 4층 401B(Room 401B, 4F)
| 주최 한국원자력학회 원자력정책, 인력 및 협력 연구회
| 주관 한국원자력통제기술원(KINAC), 국제원자력기구(IAEA)

일 정	내 용
13:30～13:40	개회사, 이영욱 (한국원자력통제기술원) Opening Remarks, Young Wook Lee (KINAC)
13:40～13:50	IAEA의 안전조치 개요 및 이를 위한 안전조치 관련 정보의 평가와 활용, 김완진 (국제원자력기구) Overview of IAEA Safeguards and Evaluation and Use of Safeguards-Relevant Information, Woan Jin Kim (IAEA)
13:50～14:20	원자력사업자의 정보제공 의무, Sandra Munoz (국제원자력기구) Reporting Requirements under the Safeguards Agreement and Additional Protocol thereto, Sandra Munoz (IAEA)
14:20～14:50	공개정보를 활용한 IAEA의 정보수집 활동, 김완진 (국제원자력기구) IAEA Use of Open Source Information for Verification of State Reports and Declarations, Woan Jin Kim (IAEA)
14:50～15:20	정보수집 및 분석을 위한 IAEA의 위성영상 활용, Marc Lafitte (국제원자력기구) IAEA Use of Satellite Imagery for Verification of State Reports and Declarations, Marc Lafitte (IAEA)
15:20～15:40	휴식 Coffee Break
15:40～16:40	추가의정서(AP)에 따른 정보제공의무에 대한 심층 설명, Stephen Francis (국제원자력기구) In Focus: Provision of Information under AP Requirement, Stephen Francis (IAEA)
16:40～17:20	요건에서 실행까지: IAEA 안전조치 검증활동 사례, Stephen Francis (국제원자력기구) From Requirements to Practice: Examples of IAEA Safeguards Verification Activities, Stephen Francis (IAEA)
17:20～18:00	국내 추가의정서 이행 현황 및 향후 계획, 이승민 (한국원자력통제기술원), AP Implementation in the ROK: Challenges and Future Plans, Seungmin Lee (KINAC)

| 기타사항 - 등록비 : 무료 / 석식제공 없음
- 문의처 : 김광서 / KINAC / 042-860-9769 / kwkim02@kinac.re.kr

P

AI로 가속하는 원자력 연구개발: 최신 동향과 적용사례

AI-Accelerated Nuclear R&D: Latest Trends and Applications

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~17:30 · 제주국제컨벤션센터, 4층 402A호(Room 402A, 4F)
| 주최 한국원자력학회 원자력계측제어, 인간공학 및 자동원격 연구회

일 정	내 용
14:00~14:10	개회사, 최종균 (한국원자력연구원) Opening, Jong-Gyun Choi (KAERI)
14:10~14:40	한수원 주요설비 자동예측진단기술 개발 동향, 예송해 (한국수력원자력) Development and Application of Automatic Predictive Diagnostic Technology for Power Generation Equipment, Songhae Ye (KHNP)
14:40~15:10	AI 기반 필수 디지털자산 유형 분류 기법, 이원영 (한국전력기술) AI-based Critical Digital Asset Type Classification Technique, Wonyoung Lee (KEPCO E&C)
15:10~15:40	Toward LLM-Based Operational Support for NPP Transient Scenarios : A Study with Simulation Data, 최정훈 (한국원자력연구원) Toward LLM-Based Operational Support for NPP Transient Scenarios : A Study with Simulation Data, Jeonghun Choi (KAERI)
15:40~16:00	휴식 Break
16:00~16:30	Digital Input Card와 DC-DC Converter의 수명 시험 데이터 분석을 통한 수명 예측, 정준하 (아주대학교) Lifetime Prediction of Digital Input Cards and DC-DC Converters through Life Test Data Analysis, Joon Ha Jung (Ajou Univ.)
16:30~17:00	Evolving Reactor Core Simulation Software through AI : Approaches and Insights, Siarhei Dzianisau (울산과학기술원) Evolving Reactor Core Simulation Software through AI : Approaches and Insights, Siarhei Dzianisau (UNIST)
17:00~17:30	방사선 계측 및 핵융합로 진단 분야 AI 기반 추론 기법 활용 사례, 권범규 (서울대학교) Applications of AI-based Analysis in Radiation Measurement and Fusion Reactor Diagnostics, Beomkyu Kwon (Seoul National Univ.)

| 기타사항 - 등록비 : 50,000원 / 석식제공
- 문의처 : 김재민 / 한국원자력연구원 / 010-6563-2316 / jaemink@kaeri.re.kr

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해양용 용융염원자로(MARINA) 국내 개발 현황

Development Status of the Marine Molten Salt Reactors (MARINA) in Korea

| 일시 · 장소 2026. 5. 6.(Wed.) 13:00~17:20 · 제주국제컨벤션센터, 3층 302호(Room 302, 3F)
| 주최 한국원자력학회
| 후원 차세대원자력정책센터
| 사회 김치형 (한국원자력연구원, MSR원천기술개발사업단)

일 정	내 용
13:00~13:15	등록 Registration
13:15~13:20	개회 및 안내 : 이동형 (한국원자력연구원, MSR 원천기술개발사업단장) Opening Remarks : Dong-Hyoung Lee (KAERI)
13:20~13:25	환영사 : 최성민 (한국원자력학회장) Welcoming Remarks : Sung-Min Choi (KNS)
13:25~13:30	워크숍 개최 배경 설명 : 김학노 (前, 한국원자력학회장) Explanation Background of the Workshop : Hark Rho Kim (KNS)
제1부. MSR 원천기술개발사업 진행 현황 및 성과 Part1. Progress and Achivements of the Molten Salt Reactor (MSR) Development Project	
13:30~13:55	노심설계 전산코드 개발 현황 : 박동규 (㈜미래와도전, 이사) Current Status of Reactor Core Design and Analysis Code Development : Tongkyu Park (FNC Technology Co., Ltd.)
13:55~14:20	MSR 핵연료 및 재료 기술 개발 현황 : 이창화 (한국원자력연구원, 책임연구원) Recent Progress in MSR Fuel and Materials Technology Development : Chang Hwa Lee (KAERI)
14:20~14:45	계통 기술 개발 현황 : 구경회 (한국원자력연구원, 책임연구원) Status of System Design Development : GYEONG-HOI KOO (KAERI)
14:45~15:10	용융염 원자로 안전성 기술 개발 현황 : 김성일 (한국원자력연구원, 책임연구원)) Current Status of MSR Safety Technology Development : Sung Il Kim (KAERI)
15:10~15:30	휴식 Coffee Break
제2부. 민간의 해양용 MSR(MARINA) 개발 현황 및 성과 Part2. Current Status and Achivements of the Private Sector Development of Marine MSRs(MARINA)	
15:30~15:55	MSR 상용화를 위한 현대건설 연구 현황 : 김지환 (현대건설, 파트장) Progress of HDEC's R&D toward MSR Commercialization : Kim, Ji Hwan (Hyundai Engineering & Construction)
15:55~16:20	MARINA 적용 추진선 설계 사례 : 김종원(삼성중공업, 그룹장) Case Studies on Nuclear Powered Ships with MARINA : KIM, Jongwon(SAMSUNG Heavy Industries)
16:20~16:45	MSR 적용 부유식 원전 개발 현황 및 전망 : 이정현(HD한국조선해양, 책임연구원) Development Status of MSR-Based Floating Nuclear Power Plants : Jeonghyeon Lee(HD Korea Shipbuilding & Offshore Engineering)
16:45~17:10	MARINA MSR, Off-gas System 개발 현황 : 김화평 (센추리, 연구원) Development Status of MARINA MSR and Off-Gas Systems : KIM HWAPYOUNG (Century)
17:10~17:20	결언 및 폐회 : 이동형 (한국원자력연구원, MSR 원천기술개발사업단장) Closing Remarks : Dong-Hyoung Lee (KAERI)

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

원자력 인공지능 강습회 (규제와 진흥)

AI in Nuclear Engineering Course (Regulation and Promotion)

| 일시 · 장소 2026. 5. 6.(Wed.) 14:00~18:00 · 제주국제컨벤션센터, 3층 삼다홀B(Room Samda Hall B, 3F)
| 주최 한국원자력학회
| 후원 POSTECH 첨단원자력공학부

일 정	내 용
14:00~14:05	개회사, 문주현(한국원자력학회 수석부회장) Opening Address, Joo Hyun Moon (Dankook University)
14:05~15:00	선형회귀부터 Transformer까지, 전준구(POSTECH) From Linear Regression to Transformer, Joongoo Jeon (POSTECH)
15:00~16:00	AI 기본법 개요 및 패널 토의, 전준구(POSTECH) Overview of the AI Basic Act, Joongoo Jeon (POSTECH)
16:00~16:30	원자력 인공지능 이해하기: PINN으로 열수력코드 만들기, 전준구(POSTECH) What is AI in Nuclear Engineering?, Joongoo Jeon (POSTECH)
16:30~17:00	2주짜리 CFD를 10초 만에: Neural Operator와 원자력 Surrogate의 최전선, 송민섭 (한양대학교) From Simulation to Inference: AI-Driven CFD Surrogates for Next-Generation Reactors, Minseop Song (Hanyang University)
17:00~17:30	빠르고 똑똑한 안전해석 AI 조교, 김경모(KENTECH) Rapid and Smart AI Assistant for Safety Analysis, Kyung Mo Kim (KENTECH)
17:30~18:00	클로드 코드를 활용한 자율 연구 에이전트 맛보기, 유용균 (한국원자력연구원) Getting Started with Autonomous Research Agents via Claude Code, Yonggyun Yu (KAERI)

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

분과별 논문 발표
(Technical Sessions)

제1분과

원자로시스템기술 (Reactor System Technology)

1A 5.7.(Thu.) 원자로시스템기술 1 (Reactor System Technology 1)

| 좌장 이근우(Yi, Kunwoo), 한훈식(Han, Hun Sik) | 303B

13:30 Parametric Sensitivity Analysis of Internal Pressure Capacity under Material Property Variations in Local FE Model for Equipment Hatch of 1:4 Scale PCCV
Ho-Young Son, Do-Yeon Lee, Yoon-Suk Chang, Sangwoo Lee, Yu-Gyeong Jung, and Bu-Seog Ju(KHU)

13:50 Coupled Simulation of CRUD Growth in PWRs Using a Time-Dependent CRUD Source Term Model
Dongmin Kim(SNU), Seungjin Seo(HDEC), Sungyeol Choi(IOER SNU|NIFTEP|SNU)

14:10 Toward an Integrated Risk-Informed and Performance-Based Safety Classification Model for Small Modular Reactor Systems
Manwoong KIM(POSTECH, NSI), Sukho LEE(NSI)

14:30 Coffee Break

14:50 Neutronics Performance of Axially-shielded Burnable Absorber (ABA) in the Equilibrium Cycle of Soluble Boron-Free SMR
Yunseok Jeong, Jaehyun Ryu, and Yonghee Kim(KAIST)

15:10 CORONA Code Verification Study on MHTGR-350 Core
SUNG NAM LEE, Nam-il TAK, and CHAN SOO KIM(KAERI)

15:30 Development of a 1D Noble Metal Transport and Flotation Code for Helium Bubbling Systems in Passive Molten Salt Reactors
Yun Sik Cho and Sung Joong Kim(HYU)

1B 5.8.(Fri.) 원자로시스템기술 2 (Reactor System Technology 2)

| 좌장 손인우(Son, In-woo), 오승환(Oh, Seunghwan) | 303B

09:00 A Verification Methodology for Safety Evaluation of RCPB Leakage Detection Technology in i-SMR
DoHee Kang, Mugabi Jophous, and JaeHo Jeong(CAU)

09:20 Probabilistic Safety Assessment of Series-Configured Redundant ECCS Malfunction-Prevention Valves in a Water-Cooled SMR
Eunhee Jang, Ho Seok, Dohun Kwon, Haeram Jeong , Gyunyoung Heo, and Hyungdae Kim(KHU)

09:40 Development of a Thermal-Hydraulic Design Model for Once-Through Steam Generators
Tae Ho Lee, Seoung-Jin Kim, and Hyouk Kwon(KAERI)

10:00 Rod-aided Passively Autonomous Load-Follow Operation in the Soluble Boron-Free SMR
Yunseok Jeong, Dongju Choi, and Yonghee Kim(KAIST)

10:20 Risk-Informed Performance-Based Licensing Basis Event Selection for the BeSMART Micro Reactor: A Case Study
Kwang Nam Lee, Kye Kwang Jee, Kyung Hee Lee, Eungjae Kim, and Jangsik Moon(BEES)

10:40 Coffee Break

11:00 Modeling and Thermal Performance Evaluation of a Phase Change Material based Passive Safety System for the Passive Molten Salt Fast Reactor using the GAMMA+ Code
Baptiste BERLOT, Juhyeong LEE, Jihun IM, JinHo SONG, and Sung Joong KIM(HYU)

11:20 Analysis of Unplanned Shutdown in HANARO: Thermal Analysis of Thermal Overload Relay for Shutoff Rod Pump Motor
Hun Young Kim and DongHyuk Lee(KAERI)

11:40 A Preliminary Assessment of Pareto Optimization for a Gas-Lift Enhanced PMFR Primary System under Fuel Inventory Constraints
Jihun Im, JaeHyung Park, JinHo Song, JoonEon Yang, and Sung Joong Kim(HYU)

12:00 Structural Safety Assessment of Graphite Monolith in Heat Pipe Cooled Microreactor (HPMR) Considering Neutron Irradiation Effect
Myung Jin Jeong, Ye Sung Kim, and Hyoung Kyu Cho(SNU), Jaeuk Im(KAERI)

1C 원자로시스템기술 (Reactor System Technology) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 박수기(Park, Suki), 홍종간(Hong, Jonggan) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

P01C01 Conceptual Design of a Seawater Passive Decay Heat Removal System for the GPT-Marine Reactor
Yeongchan Kim and Jeong Ik Lee(KAIST)

P01C02 Preliminary Feasibility Assessment of PRDBE-Based Control for Process Heat HTGRs
Nayoung Kim and Jeong Ik Lee(KAIST)

P01C03 HTGR-Based Industrial Heat Retrofit: Feasibility Assessment for Steam Cracking and RWGS
Young Jin Go and Jeong Ik Lee(KAIST)

P01C04 Design Improvement of the Core Inlet Flow Path for a High Temperature Gas-cooled Reactor
Churl Yoon, Sung–Deok Hong, Sin–Yeob Kim, Hyeonil Kim, and Chan Soo Kim(KAERI)

P01C05 Preliminary Exergy Analysis of Liquid Air Energy Storage Systems Integrated with a Pressurized Water Reactor: A Comparative Study of Two-phase Expansion Configurations
Yong Jae Chae and Jeong Ik Lee(KAIST)

P01C06 Development and Commercialization of Innovative Manufacturing Technologies for SMR Applications
Dong yuk Kim and Yong ki Chi(KINS), Sung Woo Cho(Doosan Enerbility)

P01C07 Comparative Evaluation on PI Controller Optimization using SPACE and MARS-KS for iSMR Design
Se Young Ro, Semin Joo, and Jeong Ik Lee(KAIST)

P01C08 Assessment of KAERI Bundle CHF Database for Design Applications of Soluble Boron-free Small Modular Reactors
Juhyung Lee, Seong–Jin Kim, Hyuk Kwon, and Dae–Hyun Hwang(KAERI)

P01C09 Machine Learning-Based Optimization and Response Surface Analysis of Primary System Controller Gains of i-SMR
Taeho Roh, Semin Joo, and Jeong Ik Lee(KAIST)

P01C10 Comparison of Creep and Stress Relaxation Behavior for Induction Bent P91 Piping between Structural Tests and Finite Element Analysis
Tae–Won Na, Dong–Gi Song, Nak–Hyun Kim, Jong–Bum Kim, Chang–Gyu Park, and Junehyung Kim(KAERI)

PO1C11 Microstructural Creep Damage Analysis of Induction Bent P91 Piping in a Sodium-cooled Fast Reactor
Dong–Gi Song, Tae–Won Na, Jong–Bum Kim, Chang–Gyu Park, Nak–Hyun Kim, and June–Hyung Kim(KAERI)

PO1C12 Feasibility Study on POD-based ROM for Predicting Thermal-Hydraulic Behaviors in Nuclear Systems
Jongtae Kim, Dehee Kim, Jonggan Hong, and Jewhan Lee(KAERI)

PO1C13 Numerical Assessment of Passive Decay Heat Removal in a Molten Salt Reactor Drain Tank
KyongDong Im, Hoon Chae, and Eung Soo Kim(SNU), Nam–il Tak(KAERI)

PO1C14 Estimation of Recirculation Flow Inside Pump for Ship-mounted Molten Salt Reactor
Kyung Jun Kang and Gyeong–Hoi Koo(KAERI)

PO1C15 Simulation Analysis of Load Follow Capability in SALUS-100 via Primary Flow Control without Control Rod Motion
Jonggan Hong, Minjae Lee, Junkyu Han, Sun Rock Choi, Huee–Youl Ye, and Jewhan Lee(KAERI)

PO1C16 Preliminary Performance Test of STELLA-2 Reactor Vessel Cooling System
Seungjoon Baik, Yong–Hoon Shin, Jung Yoon, In Sub Jun, and Jewhan Lee(KAERI)

PO1C17 Effects of Primary Trip Parameter's Failure During the Feedwater Line Break in SALUS
Ji–Woong Han, Sun Rock Choi, In Sub Jun, Seungjoon Baik, Huee–Youl Ye, and Jewhan Lee(KAERI)

PO1C18 Comparison of 1D and 2D Finite Difference Methods for Molten Salt Solidification Prediction in a Molten Salt/sCO_2 PCHE
Jeong Min Baek, Sungwook Choi, and Jeong Ik Lee(KAIST)

PO1C19 Ambient Temperature Sensitivity Analysis of an Open Air Brayton Cycle Using GAMMA+
Sungwook Choi and Jeong Ik Lee(KAIST)

PO1C20 Investigation of System Efficiency Improvement Through Heat Pump Application in ABC Test Loop Stage II
Byeongmin Kang, Gihyeon Kim, and Jeongik Lee(KAIST)

PO1C21 Verification of a 1-D Freezing Model in Modelica Using a Natural Circulation Loop Model
Byeong Hyeon Ji, Sang Hoon Lim, and Eung Soo Kim(SNU)

PO1C22 CFD Analysis of Aerodynamic Forces on an S-CO_2 Compressor Blade at Various Incident Angles
BYUNGCHUL KIM, JEONG MIN BACK, and JEONG IK LEE(KAIST)

PO1C23 Designing Components of ABC Test Loop to Achieve Break-Even Conditions
Tae Woo Kim, Gihyeon Kim, and Jeong Ik Lee(KAIST)

PO1C24 Evaluation of Safety Margin Sensitivity to Initial Conditions During Reactivity Transients in a Critical Facility
Donghyun Kim and Su–ki Park(KAERI)

PO1C25 Preliminary Validation of Pressure Drop Prediction in SFA Flow Channels of a Research Reactor Using a Fluid Network Analysis Method
Yo Han Kim, Huiyung Kim, and Jonghark Park(KAERI)

PO1C26 Consideration of the Single Failure Criterion to the Closing Function of Check Valves in Research Reactors
Suki Park, Dongwook Jang, Donghyun Kim, Wooseok Jo, Cheol Park, and Jong–Pil Park(KAERI)

PO1C27 Cross-National TRL Comparison of Fission Surface Power (FSP) for Lunar Exploration
Tae Jun Park and Jeong Ik Lee(KAIST)

제2분과 원자로물리 및 계산과학 (Reactor Physics and Computational Science)

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

5.7.(Thu.) | 좌장 육승수(Yuk, Seungsu), 김도헌(Kim, Do Heon) | 301

09:00 Efficiency Assessment of Implicit Capture in Time-Dependent Monte Carlo Neutron Transport Calculations
Hyun Sik Choi and Hyung Jin Shim(SNU)

09:20 Predictor-Corrector Quasi-Static Monte Carlo Method for Molten Salt Reactor Transient Analysis
Inyup Kim and Yonghee Kim(KAIST)

09:40 A Comparative Study on One-node and Two-node Nodal Methods for GPU-accelerated Fine-mesh SP3 Calculations
Hyunsik Hong, Hwanyeal Yu, and Wi–Soo Jeong(KEPCO NF), Jooil Yoon(KINGS)

10:00 Convergence Analysis of Various Coarse-Mesh Finite Difference (CMFD) Schemes in Fixed-Source and Eigenvalue Neutron Transport Problems
Taesuk Oh and Ben Lindley(Wisconsin–Madison Univ.)

10:20 Robust Confidence Interval Estimate for Rare Radiation-Transport Event in Monte Carlo Simulation
Arief Rahman Hakim and Douglas A. Fynan(UNIST)

10:40 Coffee Break

11:00 iMC GUI: An Integrated Environment for Input Authoring and CSG Geometry Visualization for Monte Carlo Simulations
Sangjin Lee and Yonghee Kim(KAIST)

11:20 Effect of Surrogate Model on Screening-based Simulated Annealing for OPR-1000 Loading Pattern Optimization
Seongjin Jeong and Hyun Chul Lee(PNU)

11:40 Source Acceleration with Fine-mesh Finite Difference and a New Convergence Criterion in Monte Carlo Inactive Cycles
Sunjoo Yoon and Yonghee Kim(KAIST)

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

5.7.(Thu.) | 좌장 홍현식(Hong, Hyunsik), 박호진(Park, Ho Jin) | 301

13:30 IRPhE DUKE Depletion Benchmark Analyses by McCARD and PRAGMA with Various ENDF/B Evaluated Nuclear Data Libraries
Ho Jin Park(KHU)

13:50 Sensitivity Study of 1D/2D Power Synthesis Method for PWR Flexible Operation
John Caesar Katabarwa, Jooil Yoon, and John Caesar KATABARWA(KINGS)

14:10 A Study on Power Distribution Improvement using the Form Function in a Molten Salt Fast Reactor with a Local Moderator
Sungtaek Hong(KAERI), Yonghee Kim and Junwoo Lee(KAIST)

14:30 Development of a Direction-Specific Nodal Diffusion Solver for Cylindrical Geometry
Michal Kurowski, Muhammad Wazif Mohd Sallehhudin, and Jooil Yoon(KINGS)

2C
5.8.(Fri.)

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

| 좌장 조유권(Jo, YuGwon), 정은(Jeong, Eun) | 301

09:00 Preliminary Evaluation for the Design of a Critical Experiment Facility for Validation of a Chloride-Based HALEU Molten Salt Reactor
Jongwoo Lee, Inwon Cho and Seungyop Paek(HDEC)

09:20 Multi-Cycle Control Rod Design Optimization for Soluble Boron Free i-SMR using Multi-Objective Simulated Annealing
Woo Jin Lee and Ser Gi Hong(HYU), Jin Sun Kim(KEPCO NF)

09:40 Effectiveness of UN-GdN Burnable Absorber for 180MWt SMR Core loaded with LEU+ Fuels
Seung Taek Oh and Ser Gi Hong(HYU)

10:00 Preliminary Neutronic Analysis of Fission–Fusion Hybrid Systems for Minor Actinide Transmutation under the ARPA-E NEWTON Program
Taesuk Oh, Nolan Harris, and Ben Lindley(Wisconsin–Madison Univ.), Ross Radel and Matthew Nyberg(Shine Tech.)

10:20 Evaluation of the Kinetic Characteristics of a Soluble Boron-Free BANDI Core for Main Steam Line Break Accident Analysis
Ikje Noh and Hyung Jin Shim(SNU)

10:40 Coffee Break

11:00 Application of LLM-Based Coding Agents to Nuclear Reactor Conceptual Design
Yonggyun Yu and ByeongHa Jo(KAERI)

11:20 Development of a Similarity Analysis System with Various Techniques and Its Applications to LEU+ Fuel-Loaded Critical Assembly Designs Using McCARD
Min Ju Kim and Ho Jin Park(KHU)

11:40 MHTGR-350 Benchmark Calculation with ENDF/B-VIII.1 Multi-Group Cross Section Library using Library Correction System based on Various Correction Options
Jeongseok Kim and Ho Jin Park(KHU)

2D
5.8.(Fri.)

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

| 좌장 이민재(Lee, Minjae), 김원경(Kim, Wonkyeong) | 302

09:00 Analysis of Formation Mechanisms to Identify the Causes of Thermal Neutron Flux Degradation in Ex-core Detector of i-SMR
Jae Kyeong Lim, Yong IL Kim, Jong Seong Kim, and Young Tae Han(KEPCO E&C)

09:20 Burnup Enhancement Strategies in a PWR with an H_2O/D_2O Moderator
Youngrok Lee and Hyun Chul Lee(PNU)

09:40 Feasibility of Passively Autonomous Frequency Operations with APR1400
Dongju Choi, Yunseok Jeong, and Yonghee Kim(KAIST)

10:00 A Study on Rodded Load Follow Operation Without Soluble Boron Adjustment in APR1400
Dongju Choi, Yunseok Jeong, and Yonghee Kim(KAIST)

10:20 Impact of Axial Shape Annealing Function Formulation on Three-Dimensional Core Power Reconstruction Using Ex-Core Detectors
Minhyeok Bang, Junwoo Lee, and Yonghee Kim(KAIST)

10:40 Coffee Break

11:00 A Comparative Neutronic Core Design Study of the NQ150 Lead-Cooled Fast Reactor with Plutonium-Based Nitride and Metallic Fuels
Geunyong Choi, Seungnam Lee, and Ser Gi Hong(HYU), Greenspan Ehud(Nucleon Research Ltd.)

11:20 An Energy and Angle Sampling Program of Secondary Neutrons based on Continuous-energy Nuclear Data
Ao Zhang, Geunyong Choi, Ser Gi Hong, and Jingen Chen(HYU)

11:40 Improved Early-Active-Cycle Variance Estimation in the iDTMC Method Using Intra-Cycle Batching with Implicit Correlated Sampling Method
Jaehyeong Jang, Inyup Kim, and Yonghee Kim(KAIST)

2E
5.7.(Thu.) – 8.(Fri.)

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

| 좌장 한태영(Han, Tae Young), 윤주일(Yoon, Jooil) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO2E01 Development and Verification of HANS-D: High-Order FEM Code for the Neutron Diffusion Equation
Nak Woong Yang and Chang Je Park(Sejong Univ.)

PO2E02 Iterative Classification Method for Evaluating Absolute and Relative Uncertainties of Reactivity Worth
YuGwon Jo, Jaewoon Yoo, Jong-Hyuk Won, and Min Jae Lee(KAERI)

PO2E03 Development Strategy for a Hybrid Load-Following Simulation System: Combining Deep Learning-based Prediction and Optimization-Driven Control
Jungseok Kwon, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)

PO2E04 Development of a Flexible Operation Evaluation Program for Establishing Reactor Core Control Strategy and Preliminary PCI Analysis
Byeongmun Ahn, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.)

PO2E05 Definition and McCARD/DeCART Analysis of Light-Water SMR Core Benchmark Problems Based on NuScale
Seungsu Yuk and Jin Young Cho(KAERI)

PO2E06 A Preliminary Study on Core Loading Pattern Optimization Techniques Based on a 2D Spatial Allocation Model
Byeong-hyeok Ha, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)

PO2E07 A Numerical Method for the Diffusion Equation with Concentration-Dependent Diffusivity
Yeonhak Chu and Kunok Chang(KHU), Ju-seong Kim(KAERI)

PO2E08 Verification of Constructive Solid Geometry Modeling in GPU-Optimized Reactor Physics Monte Carlo Code, GREAPMC
Hyungwoo Sohn, Murat Serdar Aygul, and Deokjung Lee(UNIST)

PO2E09 Validation of the ACE-Format Neutron Library Generation System for the D1S Code Using Shutdown Dose Rate Calculations
Do Heon Kim and Young-Sik Cho(KAERI)

PO2E10 Optimization of a Molten Salt Reactor Core Design Using MLP Surrogate Model and Genetic Algorithm
Chanhwi An(HYU), Yoonpyo Lee(Illinois Urbana-Champaign Univ.)

PO2E11 Conceptual Design and Neutronics Analysis of a 30 kWth Monolithic Heat Pipe Reactor (SIREUS) for Space Applications
Seokjun Hong, Kwangsik Lee, Keonil Cha, and Changje Park(Sejong Univ.)

PO2E12 Axial Depletion Behavior of Gd-155 and Gd-157 in an i-SMR Core Considering Coolant Temperature Gradients
Jihoon Lee and Seung Min Woo(KHU)

PO2E13 Study on the Reduction of Reactivity due to Molten Salt Flow in MSR
Jae Uk Seo, Yubin Go, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)

PO2E14 Comparative Depletion Analysis of a Marine Molten Salt Fast Reactor Considering Explicit Primary Loop Geometry
Yubin Go, Seong Jun Yoon, Jae Uk Seo, Sung-Kyun Zee, and Tongkyu Park(FNC Tech.)

PO2E15 Decomposition of Reactor Temperature Coefficients with Spatially Heterogeneous Reflector Temperature Effects in Molten Salt Reactors
Seong Jun Yoon, Yu bin Go, Sung Kyun Zee, Tong kyu Park, and Jae Uk Seo(FNC Tech.)

PO2E16 Feasibility Study on Mitigation of Reactivity Swing via Utilization of Spent Fuel Rods with Molten Salt Fast Reactor Cores for Maritime Propulsion System
Jungbin Yoon, Hyunjun Chung, and Serin Kim(JBNU), Yoonhee Lee(KENTECH)

PO2E17 New Design of the Mobile Nuclear Fuel Assembly System for the Reactivity Control Purpose
SeoYeon Bang and SeungMin Woo(KHU)

PO2E18 Reactor Core Design with High-content Gadolinia Burnable Absorbers in Soluble Boron-free i-SMR
Jeongmu Eun, Hoseong Yoo, Gonghoon Bae, and Jinsun Kim(KEPCO NF)

PO2E19 Impact of RCS Temperature Program on the Neutronic Characteristics of a Soluble-Boron-Free SMR Core
Yu Yeon Cho, Seongho Park, and Junggyu Lee(KEPCO NF)

PO2E20 Comparison of Neutronic Performance and Reactivity Parameters Between HALEU and U-TRU fuel Loaded 150-MWe SFR Cores
Jong-Hyuck Won and Min-Jae Lee(KAERI)

PO2E21 Sensitivity Study of Fuel Pin for Long-cycle Metallic Fueled SFRs
Jiwon Choe, YuGwon Jo, Jong-Hyuck Won, Min Jae Lee, Jaewoon Yoo(KAERI)

제3분과 후행핵연료주기 (Back-End Nuclear Fuel Cycle)

3A 5.7.(Thu.) 후행핵연료주기 1 (Back-End Nuclear Fuel Cycle 1)

| 좌장 이준엽(Lee, Jun-Yeop), 김희경(Kim, Hee-Kyung) | 202A

09:00 Effect of C–S–H Colloids on Radionuclide Transport in Crushed Concrete Columns
Hyeonjin Eun, Seungmo Yeon, Hyeongjin Kim, Jisoo Jung, and Jong-Il Yun(KAIST), Hee-Kyung Kim(KAERI)

09:20 Assessment of Illitization Behavior of Bentonite Buffer Materials for Engineered Barrier Systems under K^+-Rich, High-Temperature Conditions
Sieun Park, Junhyuk Ham, and Ji Hyun Kim(UNIST), Seunghyun Kim and Yunju Lee(KIMS)

09:40 1D Pencil Electrode Experiment to Describe Pitting Corrosion of Copper Canister under Sulfide-rich Deep Geological Repository Environment
Pilhyeon Ju and Kwanil Chae(SNU), Nakkyu Chae and Samuel Park(KAERI), Richard I. Foster(NIFTEP), Sungyeol Choi(IOER SNU|NIFTEP|SNU)

10:00 Closed-Form Multi-Variable Correlation for Maximum Canister Surface Temperature in KBS-3V Repository Using Dimensionless Symbolic Regression
Hagyeong Cho(SNU)

10:20 Assessment of Neutron-Induced Activation Products and Waste Classification in the Structural Materials of Kori Unit 1
Eunkyung Seo(KHNP), Juyoul Kim(KINGS)

10:40 Coffee Break

11:00 Effect of Temperature on Electrochemical Catalytic Decomposition of H_2O_2 on UO_2
Jei-Won Yeon(KAERI)

11:20 A Study of a Ternary Am(III)-ISA-OH System under Alkaline Conditions
Hee-Kyung Kim, Hye-Ryun Cho, Wansik Cha, and So Yeon Chun(KAERI)

11:40 A DFT Study on Uranyl Complexation with Pyridine-3-carboxylic Acid in Aqueous Solution
Seonggyu Choi and Sang-Ho Lee(KAERI)

3B 5.7.(Thu.) 후행핵연료주기 2 (Back-End Nuclear Fuel Cycle 2)

| 좌장 강재혁(Kang, Jaehyuk), 김도윤(Kim, Do Yun) | 202A

13:30 How to Measure Fissile in Spent Fuel
YongDeok Lee and Jonghui Han(KAERI)

13:50 Uncompensated Resistance Measurement in Molten Salt with Various Electrode Materials
Jun Woo Park and Jong-Il Yun(KAIST)

14:10 Evaluation of Radiation Streaming Effects Due to Slit-Shaped Defects in HTGR Microreactor Transportation Casks
Wooseok Choi and Jeongik Lee(KAIST)

14:30 Coffee Break

14:50 Accelerated Corrosion Experiment of Al6061-B_4C Neutron Absorbers Simulated Spent Nuclear Fuel Pool Environment
Daehyeon Park and Ji Hyun Kim(UNIST)

15:10 Validation of VFM Based FA Placement Optimization for Canisters via PHITS and Reference Case Comparison
Jeseok Song, Hyeonyeong Lee, Yongbae Yoon, and Yong-deog Kim(KINGS)

15:30 Comprehensive Preliminary Numerical Analysis of Natural Convection Heat Transfer in a TN-32B Cask
TaeYeong Jung, JinHyeon Kim, and JaeHo Jeong(CAU), DoYoon Kim(KAERI)

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

5.7.(Thu.) – 8.(Fri.)

| 좌장 고원일(Ko, Won Il), 최승규(Choi, Seonggyu) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO3C01 Economic and Technical Feasibility of Biological and Chemical Decontamination for Spent Ion-Exchange Resin Reduction in APR 1400 Nuclear Power Plants
YoungJu Son, Hyeong Wook Kim, Kyung Chun Park, and Yeontae Lee(KEPCO E&C), Seung Yeop Lee(KAERI),

PO3C02 A Review on Long-Term Stabilization Mechanisms of Tc/Re in Sorption and Immobilization Systems
Hyolee Kim and Jaehyuk Kang(JNU)

PO3C03 Review of the Applicability of Plasma Treatment for Paraffin -Based Concentrated Waste Solids
JEONGSU JEONG and SANGDOO PARK(KHNP)

PO3C04 Demonstration of Plasma Torch Melting for the Treatment of Cement-Solidified Radioactive Waste Forms Using Surrogates
Sangdoo Park and Jeongsu Jeong(KHNP)

PO3C05 Design Factors and Scale-Up Considerations for Commercial-Scale Sintering System of Dispersible Radioactive Waste: A Review of Existing Studies
Hyungi Byun, Hyun Chul Lee, Dong-Seok Lim, and Min Beom Heo(FNC Tech.), Bongsoo Lee(KHNP RHI)

PO3C06 Feasibility Study on Thermochemical Regeneration of TEDA-impregnated Activated Carbon for HVAC System
SooHwan Kim and Jun-Hyung Ryu(Doungguk Univ.)

PO3C07 Temperature-Dependent Cation Exchange behavior of Ca-type Bentonite under High Ionic Stregnth Conditions
Mi Rae Kim, Seeun Chang, Changsoo Lee, DongKeun Cho, and Jin-Seop Kim(KAERI)

PO3C08 Removal of Radioactive Cobalt(II) Ions in High Temperature • Pressure Chemical & Volume Control System (CVCS) by Ceramic Nanoparticles Adsorbents
Jichan Kim, Hye jin Jang, Dornum Katusiime, and Sung Oh Cho(KAIST)

PO3C09 Improvement of the Cobalt Ion Adsorption Performance of δ-MnO_2 Nano Particle through Aging Optimization
Hyejin Jang, Jichan Kim, and Sung Oh Cho(KAIST)

PO3C10 Cobalt Removal Mechanism using Metakaolin-based Geopolymer Sorbent
Yueun Kang and Jaehyuk Kang(JNU)

PO3C11 Solidification and Leaching Behavior of Radioactive Liquid Organic Waste: A Review
Sehyun Cho and Jaehyuk Kang(JNU)

PO3C12 Development of a Multi-Scale Hydrogeological Monitoring Framework for Long-Term Safety Assessment of Deep Geological Disposal of High-Level Radioactive Waste
Sanghoon Lee, Eunhye Kwon, Ji–Min Choi, and Kyung–Woo Park(KAERI)

PO3C13 Evaluation of K^+ Ion-Exchange Selectivity in Ca-Bentonite
Seeun Chang, MiRae Kim, ChangSoo Lee, and JinSeop Kim(KAERI)

PO3C14 Uncertainty Analysis of Natural Barrier Input Parameters for Safety Assessment of Deep Geological Disposal Facilities and Domestic Application Strategies
Yeeun Choi, Jeongbeen Lee, Donggyu Lee, and Hongjun Park(Dongguk Univ.)

PO3C15 A Methodology for Establishing Residual Radioactive Limits for Subsurface Structures during Nuclear Facility Decommissioning
Hyung–Woo Seo, Young–Il Na, and Gang–Woo Ryu(KHNP)

PO3C16 Managing Unexpected Events in Nuclear Decommissioning Using Case-Based Analysis and Mitigation Strategies
Jihwan Yu, Minchul Kim, Hyuchang Choi, Sukwon Jung, Hyunmin Kim, Gangwoo Ryu, and Minseong Kim(KHNP)

PO3C17 Measures to Secure On-site Applicability of Nuclear Power Plant Decommissioning Equipment (Dismantling/Decontamination)
Suk Bon Yoon, Minseong Kim, Sukwon Jung, Hyu–Chang Choi, and Jin–Won Son(KHNP)

PO3C18 Simultaneous Separation of Residual EDTA, DTPA, and NTA from Metal Surfaces
Jin Young Yang and Hee–Jung Im(JNU)

PO3C19 A Method of Soil Radiological Survey According to Nuclear Power Plant Site Characteristics
Minseong Kim, Hyuchang Choi, Hyungwoo Seo, Youngil Na, and Gangwoo Ryu(KHNP)

PO3C20 Preliminary Evaluation of Building Dismantling Costs at Nuclear Power Plants for ALARA Evaluation
GANGWOO RYU, YOUNGIL NA, HYUNGWOO SEO, and MINSEONG KIM(KHNP)

PO3C21 Dew Point and Peak Fuel-rod Temperature Signatures in Pilot-scale Vacuum Drying
Ji Hwan Lim, Seung–Hwan Yu, and Ju–Chan Lee(KAERI),
Kyung–Wook Shin and Nam–Hee Lee(Sae–An Engineering)

PO3C22 Development and Validation of Thermal Analysis Model for Fuel Assembly Canister Test Simulator(FACTS)
Do Yun Kim, Ju–chan Lee, and Seunghwan Yu(KAERI)

PO3C23 Tensile Properties and Structural Integrity of Electron Beam Welded α-Titanium Alloys for Neutron Absorption Applications
Jung–Woo Kim, Young–Bum Chun, Sun–Young Park, Ji–Hoon Kang , and Seungmun Jung(KAERI)

PO3C24 Development and Validation Plan for Dynamic Material Models of Degraded Concrete in Dry Storage Systems
JaeHoon Lim, Siwan Noh, and Sang Soon Cho(KAERI)

PO3C25 Validation of Thermal Model for Fuel Assembly Canister Test Simulator (FACTS) Using Experimental Data
Ju–Chan Lee, Doyun Kim, Changhwan Shin, and Seunghwan Yu(KAERI)

PO3C26 Framework for Estimating ARF and RF of Chloride Molten Salts in Pyroprocessing Based on DOE-HDBK-3010
Hyojik Lee, Woojin Jo, Sangjin Park, Seokjun Seo, Jonghui Han, Ju Ho Lee, Yung Zun Cho, and Jaesoo Ryu(KAERI)

PO3C27 Management Strategy for High-Burnup and Extended-Cycle Spent Nuclear Fuel
Kiyoung Kim, Minho Song, and Eunyoung Kim(KHNP)

PO3C28 A Study on Decay Heat and Radioactivity Characteristics of LEU+ Spent Nuclear Fuel in i-SMR
Hyeonyeong Lee, Jeseok Song, and Yong–deog Kim(KINGS)

PO3C29 Estimation of Fuel Rod Drop Velocity in Spent Fuel Storage Pool During CANDU Bundle Handling
Taehyeon Kim, eunyoung Kim, minho Song, and kiyoung Kim(KHNP)

PO3C30 Mitigation of Localized Corrosion in Sensitized SS304 via SS304L Cold Spray Coating for Dry Storage Canisters
Jinwook Choi and Hwasung Yeom(DANE. POSTECH)

PO3C31 Identification of Uranium Oxychloride Phases in Uranium Chlorides with Wavelet-transformed EXAFS
Seokjoo Yoon, Seungmo Yeon, and Jong–Il Yun(KAIST)

제4분과 핵연료 및 원자력재료 (Nuclear Fuel and Materials)

4A 5.7.(Thu.) 원자력재료 (Nuclear materials)

| 좌장 김성우(Kim, Sung Woo), 강석훈(Kang, Suk Hoon) | 202B

09:00 Evaluation of Irradiation Embrittlement Models for SA508 Gr.3 Class 2 RPV Steels: RG 1.99 vs. ASTM E900-15
Gyeong-Geun Lee, Bong-Sang Lee, Jong-Min Kim, and Seokmin Hong(KAERI)

09:20 Corrosion behavior of Cold-Spray Ni and Ti Coatings for Spent Fuel Storage System
Jeongjun Lee, Jinwook Choi, and Hwasung Yeom(POSTECH)

09:40 Practical Use of PCVN Specimens for J-R Fracture Toughness Testing
Bong-Sang Lee, Min-Chul Kim, and Jong-Min Kim(KAERI)

10:00 Multiphysics Simulation of Flow-Assisted Erosion in the Secondary System Piping of i-SMR
Homin Yu and Kunok Chang(KHU)

10:20 Methodologies of Added Mass Consideration in Fluid–Structure Interaction and Its Influence on Reactor Vessel Internal Dynamics
Chiwoong Ra, Youngjin Park, and No-cheol Park(Yonsei Univ.)

10:40 Coffee Break

11:00 Evaluation of Flow-Accelerated Corrosion in Feedwater Systems under Flexible Operation Scenarios of Nuclear Power Plants
Jung Woo Kim, Ji Hun Kang, and Dae Young Lee(KEPCO E&C)

11:20 Collapse Pressure Evaluation of Helical Steam Generator Tubes Considering Geometric Characteristics and Temperature-Dependent Material Properties
Hyeon-Su You, Yong Gyun Shin, and Yoon-Suk Chang(KHU)

11:40 In-situ Synthesis of Oxide Dispersion Strengthened Alloy using Laser Powder-Directed Energy Deposition
Joowon Suh, Seungmun Jung, Young-Bum Chun, and Suk Hoon Kang(KAERI), Wonjong Jeong(KIMM), Heung Nam Han(SNU), Ho Jin Ryu(KAIST), Hee-Suk Chung and Sang Sub Han(KBSI)

4B 5.7.(Thu.) 핵연료 (Nuclear fuels)

| 좌장 김효찬(Kim, Hyochan), 장훈(Jang, Hun) | 203

09:00 Development of a Novel Phase-Field Model for Fission Gas Bubble Swelling in UO_2 Nuclear Fuel
Changhyun Jo and Youho Lee(SNU), Vishal Yadav and Michael Tonks(Univ. of Florida)

09:20 Simulation of OECD/NEA FIDES-II LOC-C-4 experiment practice by MERCURY V1.0
Hyochan Kim, Sung-uk Lee, Jang-soo Oh, and Donghwa Lee(KAERI)

09:40 Full Fuel Cycle Technoeconomic Analysis and Core Design Strategies for 24-Month High-Burnup PWRs Using LEU+ Fuel
Hyeongtak Kang, Chansoo Lee, SungHoon Joung, Seungmin Kwak, and Youho Lee(SNU)

10:00 Burnup-Dependent Full-Core Sensitivity Analysis of PWR Fuel Performance to Fuel Properties and Design Parameters
Donguk Kim and Youho Lee(SNU)

10:20 Development Status of GIFT-2.0: An Extended Fuel Performance Code for Burnup-Dependent Transient and Accident Analysis
Kyuseok Shim and Youho Lee(SNU)

10:40 Coffee Break

11:00 Development of Machine Learning Potential and Investigation of Diffusion Behavior in UO_2 via Molecular Dynamics Simulations
Jiwoo Kim and Ho Jin Ryu(KAIST)

11:20 Effects of Carbon Black Dispersion on Oxycarbide Fuel Kernels
Minseok Lee, Injin Sa, and Eung-Seon Kim(KAERI)

11:40 TRIPLE: A 3D Finite Element Code for TRISO Fuel and Its Application to HTGR Design and Multiscale Fuel Analysis
Jongho Park and Youho Lee(SNU)

12:00 Fission Gas Adsorbents in PWR Fuel Rod Plenum for Mitigation of High-Burnup Rod Internal Pressure: Experimental Feasibility Study and Fuel Performance Simulation
Eunchae Sim and Youho Lee(SNU)

4C 모델링/AI (Modeling/AI)

5.7.(Thu.) | 좌장 이경근(Lee, Gyeong-Geun), 이현근(Lee, Hyeon-Geun) | 202B

13:30 Mechanistic Modeling of Protection Loss and Embrittlement Behavior of Cr-Coated Zirconium Alloy Cladding ATF under High-Temperature Steam Oxidation
Dongju Kim and Youho Lee(SNU)

13:50 Development of a PCI Analysis Framework Using Cumulative Damage Index (CDI) Model in Smeared-Pellet Fuel Performance Codes and Its Application to the Load-Following PWR Fuel Safety Assessment
Dongki Lee, Chansoo Lee, Hyeongtak Kang, and Youho Lee(SNU)

14:10 Explainable Machine Learning for Mechanistic Analysis of Irradiation-Induced Tensile Behavior in Fast Reactor Cladding
Hongin Kim and Young-Kook Lee(Yonsei Univ.), Sunghwan Yeo, Jun-Hwan Kim, Jeong Mok Oh(KAERI)

14:30 Coffee Break

14:50 Thermodynamic Modeling of MCl - CrCl3 (M = Na, K) Systems and Prediction of Chromium Dissolution in Chloride Molten Salts
SungMin Yeo, YongJin Cho, TaeHyong Kim, and InHo Jung(SNU)

15:10 Explosion Analysis of Nuclear Fuel Cladding using PINN-based Predicted Material Properties
Yong Gyun Shin, Hyeon-Su You, and Yoon-Suk Chang(KHU)

15:30 Thermodynamic Modeling Progress of Uranium Chloride and Uranium Oxide Systems
YongJin Cho, TaeHyoung Kim, and In-Ho Jung(SNU)

4D
5.7.(Thu.)

중성자흡수재 (Neutron absorber)

| 좌장 천영범(Chun, Young-Bum), 오장수(Oh, JangSoo) | 203

13:30 Hydration Resistance and Chemical State Analysis of Zirconia-doped Gadolinia Burnable Absorber
Hyeongju Bae and Ho Jin Yu(KAIST), Hyeong Jin Kim(KAERI)

13:50 Effect of 15% Er_2O_3 and Dy_2O_3 Doping on the Gd_2O_3 Crystal Structure at Elevated Temperature
Anissa Isnaini, Akmal Muhammad, and Ho Jin Ryu(KAIST)

14:10 Quantitative Raman-Based Phase Fraction Analysis of Ce-Doped Gadolinia under Heavy-Ion Irradiation
Hojin Ryu, Hakjun Lee, and Hyeongjin Kim(KAIST), and Seunghyeon Lee(KAERI)

14:30 Coffee Break

14:50 Performance Analysis of B4C-Al2O3 Burnable Absorber for SMR
JangSoo OH, YoungIn KIM, and HyoChan KIM(KAERI)

15:10 Mechanical, Physical and Thermal Properties of Titanium-Based Neutron Absorbing Structural Material Produced on a Large Scale
Young-Bum Chun, Ji-Hoon Kang, Sun-Young Park, Seungmun Jung, and Younguk Lee(KAERI)

15:30 Criticality Safety Analysis of Advanced Neutron Absorbers for LEU+ Spent Fuel Pool
Yujin Yang and Hwasung Yeom(POSTECH)

4E
5.8.(Fri.)

핵연료피복관 (Nuclear fuel cladding)

| 좌장 장근옥(Chang, Kunok), 정태식(Jung, Tae-sik) | 203

09:00 Evaluation of Cladding Stress Effect According to Pellet MPS Type and Size using Finite Element Analysis
Yunseog Nam, Gyeongha Choi, and Hakkyu Yoon(KEPCO NF)

09:20 Hydride Reorientation Under Normal Operating Conditions: Roles of Plastic Deformation and PCMI-Induced Hoop Stress
JUNHEE LIM and YOUHO LEE(SNU)

09:40 Complex Precipitate Engineering for High-Temperature Stability in Additively Manufactured FeCrAl Alloys
Omer Cakmak, Hwasung Yeom, and Jung-Wook Cho(POSTECH)

10:00 Safety Implications of Cr-Coated ATF Cladding: Realizable Benefits and Inherent Limitations
SungHoon Joung and Youho Lee(SNU)

10:20 High-temperature Steam Oxidation Behavior of Cr-coated Zr Alloy Cladding with Surface Cracks
Youngbeen Yoon, Dongju Kim, and Youho Lee(SNU)

10:40 Coffee Break

11:00 Predicting the Terminal Solid Solubility of hydrogen in Zirconium Using the Phase-Field Method
Kunok Chang and Sanghyun Ji(KHU)

11:20 Hydrogen Effect on Phase Transition Temperature of HANA-6
TIAN CHEN, DONGJU KIM, and YOUHO LEE(SNU)

11:40 Study on Pellet-Cladding Mechanical Interaction Behavior Using EDC-DIC Experiment and FE Analysis
Jungju Lee and Byoungjae Kim(CNU), Sung-Uk Lee and Hyochan Kim(KAERI)

12:00 Development of a Multi-layer Cr Coating Structure Model for ATF Cladding and Potential Incorporation of Coating Cracking Model Supported by Experimental Investigation
Hyuntaek Rho and Youho Lee(SNU)

4F

5.7.(Thu.) – 8.(Fri.)

원자력재료 (Nuclear materials) – POSTER

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

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO4F01 Synthesis of High-Purity UCl_4 via a $BiCl_3$-Based Chlorination Route for Chloride Molten Salt Reactors
Younghwan Jeon, Dalsung Yoon, and Chang Hwa Lee(KAERI)

PO4F02 Effect of Sintering Atmosphere on the Microstructure of High Gd_2O_3 UO_2 Nuclear Fuel
Ji Hwan Lee, Jae Ho Yang, Dong–Joo Kim, Yun Song Jung, Ji–Hae Yoon, Hyeong Jin Kim, and Dong Seok Kim(KAERI)

PO4F03 Fabrication of HTGR Fuel Compacts by Graphite Powder Compaction
Jae Joon Kim, Seok–Jin O, and Eung–Seon Kim(KAERI), Sanghyun Ji(KHU)

PO4F04 Development and Validation of a FEM-Based One-Dimensional Model for Coupled Thermal–Oxidation Analysis of Plate-Type Nuclear Fuel (PROPER-COMSOL 1D)
Heung Soo Lee, Cheol Min Lee, and June–Hyung Kim(KAERI)

PO4F05 3D Finite Element Analysis of Thermal-Mechanical Behavior in Helical Cruciform Fuel
Yeon Sung Choi(PNU), Jiwon Mun and Ho Jin Ryu(KAIST)

PO4F06 Sensitivity Analysis of CRUD Growth and Boron Hideout on Fuel Assemblies
Seungjin Seo(HDEC)

PO4F07 Verification of Aluminum Cladding Oxide Growth Models in the PROPER Fuel Performance Code
Cheol Min Lee, Heung Soo Lee, and June–Hyung Kim(KAERI)

PO4F08 Modeling for U-Zr Annular Metallic Fuel in SFR using COMSOL Multi-physics
Ju–Seong Kim, Heung Soo Lee, Cheol Min Lee, and June–Hyung Kim(KAERI)

PO4F09 Monte Carlo-Based Estimation of TRISO Kernel Attenuation Factors for an HTGR Source-Term Analysis
Young Min Kim, Jae Joon KIm, Eung Seon Kim, and Chan Soo Kim(KAERI)

PO4F10 Qualification Progress of Atomized U_3Si_2/Al Dispersion Fuel in KAERI
Tae Won Cho, Yong Jin Jeong, Dong Jun Park, and Jong Man Park(KAERI), Ann Leenaers, Jared Wight, and Beatriz Acevedo(SCK CEN)

PO4F11 Development and Verification of a Hot-cell ECT System for Spent Nuclear Fuel
Hyun Su Moon and Sung Geun Kim(KAERI)

PO4F12 Structrual Integrity Evluation of i-SMR Fuel Control Rod Assembly
Joongjin Kim, Daewoon Choi, Youngik Yoo, Donggeun Ha, and Joonkyoo Park(KEPCO NF)

PO4F13 Experimental Study on Vibration Characteristics of i-SMR Fuel Cladding
Han–Sang Woo, Jinseon Kim, Kyoung–hong Kim, Youngik Yoo, Donggeun Ha, and Joonkyoo Park(KEPCO NF)

PO4F14 High-Temperature Oxidation Behavior of CrAl Alloys in Ar-Steam with Increasing Al Content
Joonho Moon, Jong–Dae Hong, Hongryoul Oh, and Dong–Joo Kim(KAERI), Sung Eun Kim(Inha Univ.)

4G

5.7.(Thu.) – 8.(Fri.)

핵연료 (Nuclear fuels) – POSTER

| 좌장 김동석(Kim, Dong Seok), 이충용(Lee, Chungyong) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

P04G01 Evaluation of Radiation Damage to Tungsten in a Nuclear Fusion Environment
Junhyun Kwon, Dong Hyun Ahn, Hyung–Ha Jin, and Dong Won Lee(KAERI), Sungjin Kwon(KFE)

P04G02 Surface Engineering of Fuel Cladding via Anodic Nanoporous Oxide for Enhanced CRUD Resistance
Jun Heo, Sieun Baek, and Hee–Sang Shim(KAERI), Hye Jin Jang and Sung Oh Cho(KAIST)

P04G03 Simulation of Fe-Ion Irradiation Damage in the MSR Structural Material Hastelloy N under KAHIF Irradiation Conditions Using SRIM
Min Wook Kim, Seunghyun Lee, Sangbeen Lee, Kihyun Lee, Dae–Sik Chang, and Dong Won Lee(KAERI), Young Soo Yoon(Gachon Univ.)

P04G04 Long-term Thermal Aging Effects on the Inter-diffusion Behavior and Microstructural Evolution at the Cr-Barrier/FMS Cladding Interface
Hyeongwoo Min and Jeong Mok Oh(KAERI), Young Soo Yoon(Gachon Univ.)

P04G05 A Review of Hydriding Mitigation of Cr coatings for Zirconium-alloy Cladding
Ganghyeon Bae and Hwasung Yeom(DANE. POSTECH)

P04G06 Thermodynamic Interpretation of Stress Corrosion Cracking in Austenitic Stainless Steels using Explainable AI
Han Gyeol Cho, Dayu Fajrul Falaakh, and Chi Bum Bahn(PNU)

P04G07 Helium-ion Blistering in ITER-Grade and K-doped Tungsten under 20 keV He Ion Irradiation at 700 ˚C and the Effects of Microstructure and Crystallographic Orientation
Junhui Han, Woohyun Lim, Sangeun Kim, and Chansun Shin(Myongji Univ.),
Hyung–Ha Jin and Dongwon Lee(KAERI)

P04G08 Probabilistic Validation of the 160 um Critical Crack Depth Criterion for Spent Nuclear Fuel Cladding from the 1980s US Studies
Sangil Choi and Ju–Chan Lee(KAERI)

P04G09 Investigation of Gaseous ZrCl4 Reactions with Structural Materials for Off-gas System of Molten Chloride Salt Reactor Condition
Kyeongtae Park and Jaeyeong Park(UNIST)

P04G10 High-Temperature Air and Steam Oxidation of XM-19 for SMR Applications: Grain Size Effect and Comparison with 304 Stainless Steel
SeungYoon Baik and Chansun Shin(Myongji Univ.), Hyung–Ha Jin(KAERI)

P04G11 The Effect of Dissolved Hydrogen on Fuel Crud and Oxide Layer of Fuel Clad in Sub-cooled Nucleate Boiling Condition of PWR Primary Water
Sieun Baek, Min–gyo Seo, Suyong Jo, Do Haeng Hur, and Hee–Sang Shim(KAERI), Hyo–Sik Chang(CNU)

P04G12 Cold Sintering of Natural Clays for the Safe Immobilization of Volatile Nuclear Waste during Nuclear Decommissioning
Eman Hussain, Muhammad Akmal, and Ho Jin Ryu(KAIST)

P04G13 Core Component Manufacturing of Heat Pipe Reactor for Power Supply in Extreme Environments
Jong–Dae Hong, Hongryoul Oh, Ho–A Kim, and Junho Moon(KAERI)

PO4G14 Evaluation of Corrosion Resistance of Thermal-Sprayed Coated Materials for Molten Salt Reactors
Ji–Hyun Yoon and Chaewon Kim(KAERI), WonChan Lee and Jeoung Han Kim(HBNU)

PO4G15 Finite Element Analysis of Stress Evolution at Metal-Oxide Interface during High Temperature Oxidation
Jaeheon Kim and Chi Bum Bahn(PNU)

PO4G16 Composition Evolution Modeling and Property Evaluation Framework for Ag–In–Cd Control Rod Materials
Hyeong Jin Kim, Dong Seok Kim, Jae Ho Yang, Ji–Hae Yoon, Ji Hwan Lee, Yunsong Jung,
and Joonho Moon(KAERI)

PO4G17 Recent Irradiation Trends of Materials R&D (2020-2025)
Kee–Nam Choo, Seng–Jae Park, and Sung–Woo Yang(KAERI)

PO4G18 Assessment of Radiation Stability in Gd2O3-MOx Burnable Absorber for i-SMR
Yunsong Jung, Dong Seok Kim, Jae Ho Yang, Dong–Joo Kim, Ji–Hae Yoon, Ji Hwan Lee,
and Hyeon Jin Kim(KAERI)

PO4G19 Energy-based Modeling of Fretting Wear in Steam Generator Tubes
Daeyeop Kwon and Chi Bum Bahn(PNU), Heejae Shin and Young–Jin Oh(KEPCO E&C)

PO4G20 Micromechanical Integrity Evaluation of Advanced Manufactured SA508 Steels for Spent Fuel Verification Probe Housings
Jinho Ryu(KAIST|KINAC), Sung Woo Kwak(KINAC), Wonjong Jeong(KIMM), Ho Jin Ryu(KAIST)

PO4G21 AI-based Fatigue Crack Behavior Analysis of Al Alloy Using ML-DIC Images
Pius Jwa, Jinju Park, and Sungwoo Kim(KAERI)

PO4G22 Effects of Electron Beam Power on the Mechanical Properties of Welds in SA508 Low Alloy Steel
Se–Mi Hyun, Joon Yeop Kwon, Seokmin Hong, Jongmin Kim, and Min–Chul Kim(KAERI)

PO4G23 Experimental Investigation of the Effects of Molten Particle Dynamics and Substrate Temperature on the Oxidation Resistance of Plasma-Sprayed MoSi2 Coatings
Jonggeun Bae, Hoseok Kim, Ayoung Moon, and Monwon Song(JBNU)
Inchul Lee, Myeongseok Go, and DaeHwan Kim(Hanwha Aerospace)

PO4G24 Development of an ANSYS-Based FE Analysis Methodology for Simulating Neutron-Irradiation-Induced Deformation in Reactor Core Components
Hyeong–jin An and Jin–ha Hwang(PKNU)

제5분과

원자력 열수력 (Nuclear Thermal Hydraulics)

5A 5.7.(Thu.) 열수력 실험 1 (Thermal Hydaulics Experiment 1)

| 좌장 양진화(Yang, Jin-Hwa), 성지현(Seong, Jee Hyun) | 302

09:00 Assessment of Transient Reflood Cooling Performance as a Basis for Heat Transfer Evaluation of CRUD-Deposited Surfaces
Ju Hun Jung and In Cheol Bang(UNIST)

09:20 Measurements of Critical Heat Flux in a 2x2 Rod Bundle under Ocean Conditions
Tan Hung Hoang and Byoung Jea Kim(CNU)

09:40 Experimental Study on the Effect of CRUD-simulated Porous Structures on Pool boiling Heat Transfer in the Vertical Orientation
Yun Seok Choi(KHNP), Hyun Jin Yong and Jaehyeok Yang(Inha Univ.)

10:00 Comparison of Bubble Departure Diameter between High-pressure boiling and Hydrogen Evolution Reaction in Water Electrolysis under Atmospheric
Jeongheon Seo, Wooyeon Won, Yungyeong Kwon, and Haekyun Park(KNU)

10:20 Measurements of Critical Current Density in Alkaline Electrolysis Varying Inclination and Vertical Length of Cathode
Jaeduck Seo, Munseong Kim, and Haekyun Park(KNU)

10:40 Coffee Break

11:00 Experimental Investigation of CHF on Downward-Facing Plates with Micro-Porous Structure
So Min Huh, Su Yeon Park, and Bum Jin Chung(KHU)

11:20 Enhancement of Flow Boiling CHF on a Downward-facing Heated Wall using a Hydrophilic Metallic Wire-mesh
In Yeop Kang and Hyungdae Kim(KHU)

11:40 Influence of a Single Rib on Turbulent Natural Convection Heat Transfer at a Vertical Flat Surface
Dong–Gyu Lee and Bum–Jin Chung(KHU)

12:00 Influence of Truncation Angle on Natural Convection over a Lower Dome at Various Rayleigh Numbers
Minseo Park, Suyeon Park, and Bumjin Chung(KHU)

5B 5.8.(Fri.) 열수력 실험 2 (Thermal Hydaulics Experiment 2)

| 좌장 김석(Kim, Seok), 송민섭(Song, Min Seop) | Halla Hall A

09:00 Numerical Evaluation of Displacement-Robust and Fault-Tolerant Four-Sensor Probe Arrays for Local Bubble Parameter Measurement in Two-Phase Flow
Minhong Cho, XuanQuyet Do, Jinyeong Bak, Jae Jun Jeong, and Byongjo Yun(PNU)

09:20 Experimental Investigation of Upward and Downward Mixed Convection in Water Flows using an Optical Fiber Sensor
Sungkun Chung, Jihun Kim, Jeong Hyeon Oh, and HangJin Jo(POSTECH)

09:40 Effect of Compressible Volume on Pressure Drop Oscillations in a Vertical Annular Channel under Subcooled Flow Boiling Conditions
Jihwan Mun and Taeseok Kim(JNU)

10:00 Preliminary Experimental Evaluation of Cascading Failure in Multi Heat Pipe Test Facility
Joo Hyung Seo, Ji Sung Oh, and In Cheol Bang(UNIST)

10:20 Experimental Study on the Thermal Performance of a Sodium Heat Pipe Assembly for Space Nuclear Reactors
Sin–Yeob Kim, In Woo Son, Minkyu Lee, Byung Ha Park, and Chan Soo Kim(KAERI)

10:40 Coffee Break

11:00 Fundamental Experimental Study and Preliminary Heat Loss Estimation of a Vertical Sodium Heat Pipe with Hybrid Wick
Minkyu Lee, Sin–Yeob Kim, In Woo Son, Byung Ha Kim, and Chan Soo Kim(KAERI)

11:20 Structural Analysis of Heater Rods with Different Groove Shapes under Pressurized Conditions
Jihun Kim, SeHyeon Park, and HangJin Jo(POSTECH), Sungjin Kwon(NFRI)

11:40 Development of an Experimental Facility and Modeling Strategy for Jet Impingement Heat Transfer under i-SMR LOCA Conditions
Yonadan Choi and Yong Hoon Jeong(KAIST)

5C
5.7.(Thu.)

열수력 해석 1 (Thermal Hydraulic Analysis 1)

| 좌장 이승준(Lee, Seung Jun), 정재호(Jeong, Jae Ho) | 303B

09:00 Technical Requirements for CFD Analysis in Validating Fuel Assembly CHF Test Results
Jong Chull Jo and Hiwon Lee(TIUM solutions)

09:20 Heatmap-Based Similarity Mapping and Real-Gas Model Selection for sCO_2 Turbomachinery
Seungkyu Lee and Jeong Ik Lee(KAIST)

09:40 Performance Evaluation of the GPU-Parallelized CUPID Code for Large-Scale Reactor Thermal-Hydraulic Simulation
So–Hyun Park, Ik Kyu Park, and Il Jin Kim(KAERI)

10:00 Preliminary CFD of Boron Mixing in the i-SMR under a Natural Circulation
Seung Hyup Ji, Nam Kyu Ryu, and Byoung Jae Kim(CNU), YoungLong Lee(KEPCO E&C)

10:20 Comparative Analysis of 1D MARS-KS and 3D CFD Modeling for Thermal-Hydraulic Characteristics of i-SMR Helical Coil Steam Generator
Je–Hyeong Park, Won–Seok Ryoo, and Jae–Ho Jeong(CAU)

10:40 Coffee Break

11:00 Evaluation of Radiative Heat Transfer within Steel Containment Vessel of Small Modular Reactor
Jong Hui Lee, Minkyu Lee, Hun Sik Han, and Kwanghyun Ahn(KAERI)

11:20 Development of a Mechanistic Condensation-Liquid Film Coupled Model and Its Application to Forced-Convection Condensation of Superheated Steam
Hyung Jun Kim, Jeong Hun Kang, and Yeon–Gun Lee(Sejong Univ.), Jia Yu(KEPCO E&C)

11:40 Numerical Prediction of Radial Temperature Distribution in Volumetrically Heated Turbulent Flow for MSR Flow Analysis
Moon Hyeok Kang and Jeong Ik Lee(KAIST)

12:00 In-depth Elucidation of the Relationship between Heat Removal Performance and Operating Parameters using CFD
ByungHyun Bae, Je–Hyeong Park, and Jae–Ho Jeong(CAU), Sin–Yeob Kim(KAERI)

5D
5.8.(Fri.)

열수력 해석 2 (Thermal Hydraulic Analysis 2)

| 좌장 김경모(Kim, Kyung Mo), 서한(Seo, Han) | Halla Hall B

09:00 Analyses of Postulated ATWS Events in the Innovative Small Modular Reactor
Min Seok Lee, Seok Jeong Park, and Ung Soo Kim(KEPCO E&C)

09:20 A Sensitivity Study of Multiple SGTR at the i-SMR using SPACE Code
Hyunjoon Jeong(KHNP)

09:40 Orientation Effects on Natural Convection and Temperature Field in Heat Pipe-Cooled Micro-MSR Comparing Triangular and Circular Configurations
Seungyoon Lee, Doyeong Lim, and Incheol Bang(UNIST)

10:00 Benchmarking Thermochemistry-Coupled Radionuclide Release in Molten Salt Reactors: cGEMS vs OpenFOAM-GEMS
Dowon Lee, Juhyeong Lee, JinHo Song, and Sung Joong Kim(HYU)

10:20 Effect of Intra-particle Conduction and Surface Subdivision on High-Temperature Thermal Analysis
Sohyeon Ahn and Eung Soo Kim(SNU)

10:40 Coffee Break

11:00 Assessment of Practical Performance Gains in AI-based CHF Prediction
Mooneon Lee, Juhyung Lee, Dae-Hyun Hwang, and Hyouk Kwon(KAERI)

11:20 Numerical Assessment of Flooding Safety System Mitigation Performance During an Out-CV LOCA Scenario in a Small Modular Reactor using MELCOR Code
Hyo Jun An, Jae Hyung Park, Yujin Kim, Sehee Kwon, Hyunjun Chung, Yuseong Go, JinHo Song, Joon Eon Yang, and Sung Joong Kim(HYU)

11:40 Numerical Investigation of a Dual-Tank Drain System under Marine Environment
Hyeon Ji Kim and In Cheol Bang(UNIST)

5E
5.8.(Fri.)

안전해석 현안 1 (Safety Analysis Issues 1)

| 좌장 박영재(Park, Youngjae), 조영범(Jo, Young Beom) | Samda Hall A

09:00 Estimated Available Time for SBLOCA with Safety Injection Failure in APR1000
JEE YEA HONG, MIN SEOK LEE, and UNG SOO KIM(KEPCO E&C)

09:20 Analysis of Loss of Ultimate Heat Sink considering Cliff-Edge Effect in APR1000
YouNyeong Seol, DongWi Kim, MinSeok Lee, and SeokJeong Park(KEPCO E&C)

09:40 Assessment of the Boiling Heat Transfer Model for Horizontal Tube Bundles in the Passive Auxiliary Feedwater System of the SPACE Code
Mun Ryeol Park, Do Yeon Kim, Myung Jun Kim, Jin Gy Beak, and Dong In Yu(PKNU), Hyeok Jun Son(KOCEN), Hae Min Park and Jong Hyuk Lee(KAERI)

10:00 Validation of MARS-KS Models for the Passive Containment Cooling System of i-SMR and Application to Containment Transient Analysis
Changyong Jung, Yeon-Gun Lee, and Hyeonjo Kim(Sejong Univ.)

10:20 Development of a MATLAB-Based Lumped-Parameter Dynamic Analysis Methodology for Hydraulically-Operated PECCS Valves of i-SMR
JeongWon Han, YoungSeok Bang, and YoungJae Park (FNC Tech.)

10:40 Coffee Break

11:00 Preliminary Numerical Analysis of Heat Load Sharing Characteristics between PAFS and PCCS under PECCS Failure Conditions
Yujin Kim, Hyo Jun An, JinHo Song, Joon Eon Yang, and Sung Joong Kim(HYU)

11:20 Numerical Prediction of DNB in a Rolling 2×2 Rod Bundle with Tilted Rotation Axis
Namkyu Ryu and Byeongjae Kim(CNU)

5F 5.7.(Thu.) 안전해석 현안 2 (Safety Analysis Issues 2)

| 좌장 이재진(Lee, Jaejin), 김재순(Kim, Jae Soon) | 302

13:30 Modeling and Simulation with AMESIM Code and Comparison with MARS-LMR Code for a PGSFR IHTS
Min Gyu Park, Seon Gon Kim, and Jae Ho Jeong(CAU)

13:50 Sensitivity Study on the Natural Convection Test in the Molten Salt Reactor Experiment using the GAMMA+ Code
Hyun-Sik Park, Nam-il Tak, and Hong-Sik Lim(KAERI)

14:10 Comparative Analysis of Pump Sizing Requirements Molten Salt Systems
Sunghyun Yoo, Gihyeon Kim, and Jeong Ik Lee(KAIST)

14:30 Coffee Break

14:50 Coolability Evaluation of a Molten Salt Pool in MSR Containment Vessel under Decay Heat
Jaemin Han, Ye Hwan Chun, JinHo Song, and Sung Joong Kim(HYU)

15:10 Development of the Mechanistic Critical Heat Flux Prediction Methodology for Tube and Annulus Geometries
Min Seo Son, Yongsuk Choi, Tae Young Yang, Gi Won Bae, and Hyoung Kyu Cho(SNU)

15:30 Analytic Investigation on Drying Behavior of Water Film Spread on the Heated Metal Plate
Soon-Joon HONG and HyeonMin SEO(FNC Tech.)

5G 5.7.(Thu.) 열수력 신기술 1 (Advanced Thermal Hydraulics 1)

| 좌장 전준구(Jeon, Joongoo), 이기쁨(Lee, Gibbeum) | 303A

09:00 Improvement of the Critical Heat Flux Correlation using Symbolic Regression
Yeonha Lee and Jeong Ik Lee(KAIST)

09:20 Accelerating Computational Fluid Dynamics Simulations using Surrogate Model for Small Modular Reactor Digital Twin
Minseo Lee, Shilaj Baral and Joongoo Jeon(POSTECH), Chaehyeon Song, Bumjin Jo, and Minseop Song(HYU), Sangam Khanal and Seongmin Oh(JBNU)

09:40 Residual-guided AI-CFD Automated Framework can Accelerate 3D Fluid Flows: A Natural Circulation Case Study
Shilaj Baral and Joongoo Jeon(POSTECH), Youngkyu Lee(Brown Univ.), Sangam Khanal(JBNU), Sangseung Lee(Inha Univ.)

10:00 Operator Learning of Bubble Interface Evolution in Nucleate Boiling
UngJin Na, Gyudong Lee,Taeil Kim, and HangJin Jo(POSTECH), Hungyo Oh(PSI), Sungjin Kwon(KFE)

10:20 Agentic Continual Learning for Adaptive Forecasting in Thermal-Hydraulic Loops
Doyeong Lim and In Cheol Bang(UNIST)

10:40 Coffee Break

11:00 Comparative Evaluation of Data-Driven and Correlation-Guided Physics-Informed Neural Networks for Critical Heat Flux Prediction in Vertical Tubes
Eunhye Yeom and Taeseok Kim(JNU)

11:20 A Fully Data-Driven 3D CNN Framework for Volumetric Reconstruction of a Deformed Bubble from Two Orthogonal Views
Sangoh Shin, Janghun Han, and Minseop Song(HYU)

11:40 Pressure-Based Assessment of SST-IDDES for Surface Pressure and FIV-Relevant Metrics in Staggered Tube-Bundle Cross-Flow
Bumjin Cho and Minseop Song(HYU)

12:00 Thermal-Hydraulic and Reactivity Analysis of a Passive Molten Salt Fast Reactor Under Marine Rolling Motion
Juhyeong Lee, Seungmin Lee, Sinho Kim, and Sung Joong Kim(HYU)

5H 열수력 신기술 2 (Advanced Thermal Hydraulics 2)

5.8.(Fri.) | 좌장 손성민(Son, Seongmin), 송문원(Song, Moon Won) | Samda Hall B

09:00 Condensation Heat Transfer Analysis for Turbine Steam Extraction Points for SMR–TES Integration
Takhyun Chun, Gyudong Kim, Yong Jae Chae, and Jeong Ik Lee(KAIST)

09:20 Constrained Selection of Moisture Separator Reheater (MSR) Reheat Enthalpy Rise and Low-Pressure Turbine (LPT) Inlet Conditions Under Wet-Steam Penalty Models
Gyudong Kim, Takhyun Chun, and Jeong Ik Lee(KAIST)

09:40 Sizing and Economic Assessment of Very-High Temperature Reactor Type Small Modular Reactor–Coupled Open-Air Brayton Cycles
Joohyung Jung, Taejun Song, and Seongmin Son(KNU)

10:00 System-level Techno-economic Evaluation of Open-Air Brayton Cycle–based Direct Air Capture Integrated with Innovative Small Modular Reactors
Taejun Song, Joohyung Jung, and Seongmin Son(KNU)

10:20 Application of Multi-step Thermosiphon for the Containment Cooling of a Small Modular Reactor
Sung–Jae Yi, Hwang Bae, Sung–Uk Ryu, Sun–Il Lee, Jong–hyuk Lee, Hyun–Sik Park,
and Kyoung–Ho Kang(KAERI)

10:40 Coffee Break

11:00 Numerical Analysis of Molten Salt Spreading Using Particle Method
Wiktor Gronek and Han–Young Yoon(KINGS)

11:20 Modeling and Validation of Long Multi-Stage Orifice (MSO) Performance for Passive ECCS Valves
Young Seok Bang, JeongWon Han, Youngjae Park, Seong–Su Jeon, and Soon–Joon Hong(FNC Tech.)

11:40 Enhancing Radiative Heat Transfer in a Double-Walled MSR Containment Vessel Using Interlocking Fins
Sanghoon Lee and Yong Hoon Jeong(KAIST)

12:00 Impact of Radiation-Driven Optical Property Evolution on CubeSat Thermal Safety Margins in LEO
Sinyoung Park and Taeseok Kim(JNU)

5I

5.7.(Thu.) – 8.(Fri.)

열수력 실험 (Thermal Hydaulics Experiment) – POSTER

| 좌장 정준영(Jung, Jun Yeong), 조영범(Jo, Young Beom) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

P05I01 Numerical Simulation of the Chlorine-based Molten Salt Forced Circulation Loop Using Simscape Fluids
Jongwoo Lee, Woonho Jeong, Youngmin Kwon, and Jihwan Kim(HDEC)

P05I02 Numerical Investigation of Thermal-Hydraulic Behavior in a Double-Tube Thermosyphon with Separated Vapor–Liquid Flow Paths
Hyunhwa Lee, Sewook Hwang, and Kyung Mo Kim(KENTECH)

P05I03 Experimental Investigation of Heater Length and Orientation Effects on Critical Heat Flux in Downward-Facing Pool Boiling
Young Hee Kim, Dong–Hun Shin, and Yong Hoon Jeong(KAIST), Min Suk Lee(Texas A M Univ.), DongHoon Kam(Argonne National Laboratory)

P05I04 Development and Preliminary Testing of 3D-Printed Sodium Heat Pipe with Groove Wick
Almanzo Arjuna, Faruk Celik, Dong Hun Lee, Doyeong Lim, and In Cheol Bang(UNIST)

P05I05 Experimental Investigation of Wall Temperature Variation Caused by Internal Heat Generation in a Vertical Pipe Flow for Molten Salt Reactor Applications
Dong–Hyuk Park and Bum–Jin Chung(KHU)

P05I06 Flow Separation at the Upper Domes with Various Rayleigh Numbers and Truncation Angles
Suyeon Park and Bumjin Chung(KHU)

P05I07 Effect of Screen Mesh Size on Thermal Performance of a 2 m Underfilled Annular Sodium Heat Pipe
Jisung Oh, Faruk Celik, Ik Jae Jin, Doyeong Lim, and In Cheol Bang(UNIST)

P05I08 Preliminary Experiments on Single-Phase Heat Transfer and Onset of Nucleate Boiling in a Narrow Rectangular Channel for Research Reactors
Huiyung Kim, Jonghark Park, and Yo Han Kim(KAERI)

P05I09 Single- and Two-Phase Flow Characteristics in a Pin-Interrupted Mini-Channel
Ji–Yong Kim, Armanto P. Simanjuntak, Bo–Won Hwang, Koko Aung, and Jae–Young Lee(Handong Global Univ.)

P05I10 Numerical Investigation of Pipe Diameter Influence on Turbulent Behavior in Molten Salt Natural Circulation Systems
Heisung Jang, Benrico Fredi Simamora, Joohan Bae, and Jae–Young Lee(HGU)

P05I11 Design and Development of a Flow Boiling Experimental Facility using Optical Fiber Sensor
Yeongyu Lee, Jaejun Hyun, and Donghwi Lee(JBNU), Euijae Kim and Byeongill Jang(KEPCO NF), SeHyeon Park and HangJin Jo(POSTECH)

P05I12 Magnetic Resonance Velocimetry Study of Secondary Flow and Vortex Migration in a Helical Cruciform Fuel Bundle
Hyeongi Moon, Hangfei Dong, Sejin Oh, Minseop Song, and Simon Song(HYU)

P05I13 Review of Experimental Research Trends on Bubble Detachment Behavior and Lift-Off Diameter in Subcooled Flow Boiling
Heonseung Yeom and Taeseok Kim(JNU)

P05I14 Visualizing Geyser-Like Boiling in a Horizontally Oriented Annular-Wick Heat Pipe
Faruk Celik and In Cheol Bang(UNIST)

P05I15 Distributed Optical Fiber Measurement of Temperature Distributions at CHF in Pool Boiling using a Directly Heated Rod
Jaejun Hyun, Yeongyu Lee, and Donghwi Lee(JBNU), Euijae Kim and Byeongil Jang(KEPCO NF), SeHyeon Park and HangJin Jo(POSTECH)

P05I16 Rough Calculation of Heat Loss in Scaled-Down Test Facility for SMR
Heerim Choi, Seong–Su Jeon, and SangGyun Nam(FNC Tech.)

5J 열수력해석 (Thermal Hydraulic Analysis) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 임성원(Lim, Sung Won), 이정훈(Lee, Jeong-Hun) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

P05J01 A CFD Study on the Characteristics of Impinging Jet Flow on an H-type Beam
Gong Hee Lee(KINS)

P05J02 SMR Computational Analysis Framework Using AI Surrogate Models
Seong Jun Bae and Junhyuk Kim(KAERI)

P05J03 Multi-Dimensional Flow Model in the SPACE Code
Byoung Jae Kim and Sang Joon Ha(CNU), Seung–Wook Lee(KAERI)

P05J04 Development of a Dynamic Model for Integrated SMRThermal Energy Storage System
Hyeonmin Seo, Jungjin Bang, Seong–Su Jeon, Sang Gyun Nam, and Bub Dong Chung(FNC Tech.)

P05J05 Assessment of Thermal Fatigue for Helical Steam Generator during Density Wave Oscillations with MARS-KS
Jun Ha Hwang and Jeong Ik Lee(KAIST)

P05J06 Preliminary Simulation for Thermal Flow Phenomena in a Large Pool of Passive Safety Systems Using CUPID Code
Minseok Choi and Seong–su Jeon(FNC Tech.), Seok–jong Yun and Ji–su Kim(KHNP)

P05J07 Transient CFD Validation for Air–Water Two-Phase Flow in a Helical Coil Using Void Fraction Measurements
Janghun Han and Minseop Song(HYU)

P05J08 In-House Developed Thermal-Hydraulic Code for Research Reactor Thermal Margin Analysis
Junyoung Lim and Jaehyun Cho(CAU), Kiwon Song(KAERI)

P05J09 Evaluation of Steam Generator Thermal-Hydraulic Characteristics under Load-Following Conditions Using CFD
Dae Kyung Choi, Woohyuk Noh, and Choengryul Choi(ELSOLTEC), Won Man Park(D.T.LAB), Young–Jin Oh, Heejae Shin, Sang–Hoon Lee, and In–Su Yang(KEPCO E&C)

P05J10 Comparison of MARS-KS and MARS-KS-Colombo Code in Predicting Density Wave Oscillation (DWO) Onset Under HTR-PM Helical Tubes in Steam Generators
Yeongjae Cho, Hyochan Kim, Jun Ha Hwang, and Jeong Ik Lee Lee(KAIST)

P05J11 Techno-Economic Comparison of SOEC based Hydrogen Production with Large PWRs and SMRs in S. Korea
Changmin Yoon and Jeong Ik Lee(KAIST)

P05J12 Modification and Validation of a Single-Phase Friction Factor Correlation for Helically Coiled Tubes
Minyoung Park, Jong–Hyuk Lee, and Kwi–Seok Ha(KAERI)

P05J13 Refilling Experiments in an MSR Drain System Mock-Up for the Validation of System Codes
Woonho Jeong, Hyunwoong Lee, Sangjin Kim, Seul Bin Park, and Ji Hwan Kim(HDEC)

PO5J14 Modelling of Component Cooling Water System Using GOTHIC
Seongwan Hong, Yeon Jun Choo, and Seong-Su Jeon(FNC Tech.), Chan Park and Seong-bae Park(KHNP)

PO5J15 SPACE Simulation of ATLAS-PAFS for FLB, SLB, SGTR and SBO
Dong-Young Lee, Soon-Joon Hong, Seong-Su Jeon, Jehee Lee, and Youngjae Park(FNC Tech.)

PO5J16 Preliminary Analysis of Thermal-Hydraulic Performance for a Helium–Water Helical Coil Heat Exchanger Using MARS-KS
Jinwook Choi, Sera Jeon, and Seong-Su Jeon(FNC Tech.)

PO5J17 Preliminary Identification of Thermal–Hydraulic Phenomena for the Development of a PIRT for the HECTAR
Sera Jeon, Jin Wook Choi, Min Seok Choi, Hyeon Min Seo, and Seong Su Jeon(FNC Tech.)

PO5J18 Numerical Analysis on the Multi-phase Thermal-hydraulic Phenomena in the Passive Cooling System of i-SMR
Moon Hwan Hwang(UST), Seung Jun Lee and Hyun Sik Park(KAERI)

PO5J19 Data Assimilation-Based Enhancement of ATWS Analysis
Nguyen Huu Tiep, Jaeyong Lee, and Haeyong Jeong(Sejong Univ.)

5K 안전해석 현안 (Safety Analysis Issues) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 김신엽(Kim, Sin-Yeob), 이제희(Lee, Jehee) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO5K01 Preliminary Study on sCO_2 Leakage in Helical Heat Exchanger for PWR-sCO_2 Power Cycle
Gihyeon Kim, Sungwook Choi, and Jeong Ik Lee(KAIST)

PO5K02 Simulation of DOBO Tests using SPACE Code
Kwi Seok Ha, Jong-Hyuk Lee, Seungwook Lee, Changwon Lee, and Dong-Jin Euh(KAERI)

PO5K03 Comparative Study of External Film Condensation on Inclined Tubes: CFD Analysis vs. SPACE System Code
Taeyeon Min and Jeong Ik Lee(KAIST)

PO5K04 Performance Evaluation of Graphene-Enhanced Phase Changed Materials for Passive Containment Cooling System
Hyochan Kim and Jeong Ik Lee(KAIST)

PO5K05 Introduction to an Analysis Methodology for Channel and Bundle Power Operating Limits in a PHWR
Bong-Jin Ko, Dong-Sik Jin and Jun-Hyun Park(STDTE)

PO5K06 Multiphase Modeling of Debris Particles in Nuclear Severe Accidents
Seong Woo Kim, Jae Hwi Cho, and Young Beom Jo(KHU)

PO5K07 Particle-Based Numerical Approaches for Multi-Physics Modeling of Severe Accidents
Eun Sung Kim, Jeong Woo Choi, and Young Beom Jo(KHU)

PO5K08 Development of a Pre-operational Test Evaluation Strategy for SMART100 PRHRS Using the Robustness Assessment Methodology
Jehee Lee and Seong-Su Jeon(FNC Tech.), Ju-Yeop Park(KINS)

PO5K09 On the Low-Pressure Low-FLow Critical Heat Flux: Flow Instability and Spacer Grid Effects
Nhan Hien Hoang, Seong-Su Jeon, and Jehee Lee(FNC Tech.), Ju-Yeop Park(KINS)

P05K10 Analysis of Flashing Model Effects on Containment Pressure and Temperature According to Discharge Flow Energy States
Kum Ho Han, Soon–Joon Hong, and Yeon–Jun Choo(FNC Tech.)

P05K11 Verification of Heat Transfer Models in SAVANNAH Containment Thermal Hydraulic Module and Comparative Analysis with CAP and MELCOR
Kum Ho Han, JeHee Lee, and Yeon–Jun Choo(FNC Tech.)

P05K12 Transient Analysis of Loss of Coolant Accident at Sub-atmospheric Pressure Locations in the KJRR
Dongwook Jang and Jong–Pil Park(KAERI)

P05K13 Molten Salt Rheology of FLiNaK from Molecular Dynamics with Uncertainty Quantification
Minki Kim, Wonjae Lee, and Jaekwang Kim(Hongik Univ.), Yunbum Park and Taewoo Kim(KAERI)

P05K14 Preliminary Safety Assessment of the Methodology and Strategy for DEC-A in APR1000
DONGWI KIM, MINSEOK LEE, and UNGSOO KIM(KEPCO E&C)

5L 열수력 신기술 (Advanced Thermal Hydraulics) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 김태석(Kim, Taeseok), 조영범(Jo, Young Beom) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

P05L01 A High-Fidelity Multiphysics Analysis Method for the MSFR Reactor Using CUPID–PRAGMA Coupling
Seongju Do and Jaeuk Im(KAERI)

P05L02 Development of a SPH-DOM Solver for Radiative Heat Transfer with Complex Geometry
Hoon Chae and Eung Soo Kim(SNU)

P05L03 SST-IDDES Analysis of Vane-Induced Unsteady Mixing in a 4×4 Rod Bundle with Split-Type Mixing Vanes
Chaehyeon Song and Minseop Song(HYU)

P05L04 Preliminary Performance Comparison of CNN and GNN Based Reduced-Order Models for Large-Scale CFD Simulations
Seongmin Oh(JBNU), Minseo Lee and Joongoo Jeon(POSTECH),
Minseop Song, Bumjin Cho, and Chaehyeon Song(HYU)

P05L05 Preliminary Numerical Simulation of Fluid Flow in a Helical Coil Steam Generator: A comparative study of LBM and FVM
Junyong Park(JBNU), Minseo Lee and Joongoo Jeon(POSTECH),
Bumjin Cho, and Chaehyeon Song, Minseop Song(HYU)

P05L06 Integral Effect Test Based Validation of the Passive Auxiliary Feedwater System (PAFS) Condensation Model in the SPACE Code
Jong–Hyuk Lee, Hae–Min Park, and Sung–Won Bae(KAERI)

P05L07 Preliminary Evaluation of Structural Effect on Extended-term Cooling Capability of On-demand Flooding System Using MARS-KS
Jae Hyung Park, Jihun Im, Hyo Jun An, and Sung Joong Kim(HYU)

P05L08 Energy Supply Strategy for an AI Data Center by Integrating SMR with Multi Turbine Cooling System Using Joule-Thomson Expansion
Tae Yang Lee, Yeong Chan Kim, and Jeong Ik Lee(KAIST)

P05L09 Evaluation of CHF Correlation Model Performance in MATRA for Various Rod Bundle Geometries
Seojun Park and Kyung Mo Kim(KENTECH)

PO5L10 Hydrodynamic Feasibility Test of Gravity-Driven Drainage in Cartridge-Type Molten Salt Reactor
Seolhui Kim, Ik Jae Jin, Doyeong Lim, and In Cheol Bang(UNIST)

PO5L11 sCO_2 Brayton Cycle Layout Study on Gas-cooled Reactor for Maritime Propulsion
Chanyong Park and Jeong Ik Lee(KAIST)

PO5L12 Preliminary Analysis of SBLOCA Test for SMART-ITL using the SPACE Code
Yongjae Lee, Hwang Bae, and Jong–Hyuk Lee(KAERI)

PO5L13 Comparative Assessment of Boiling Heat Transfer Predictability of System Codes MARS-KS and TRACE in Helically Coiled Tubes
Seongman Jeong, Yunseok Lee, and Taewan Kim(INU)

PO5L14 Numerical Validation of Molten Salt Spill and Solidification Behaviors using ANSYS Fluent and OpenFOAM
Ye Hwan Chun, Juhyeong Lee, JinHo Song, and Sung Joong Kim(HYU)

PO5L15 Assessment of the Heat Transfer Model of a Helically Coiled Tube in MARS-KS and SPACE Codes
Tae Wook Ha and Jong–Hyuk Lee(KAERI)

제6분과 원자력 안전 (Nuclear Safety)

6A 5.7.(Thu.) 원자력안전1 (PSA for Advanced Reactor)

| 좌장 박진희(Park, Jin Hee), 허균영(Heo, Gyunyoung) | 201A

09:00 MODELICA Simulation-Based Probabilistic Assessment of i-SMR Containment Integrity under PCCS Performance Degradation
Seongjun Hong(RPI|HYU), Riyad Hasan and Hyun Gook Kang(RPI), Yeon Ki Chung(RPI|KINS)

09:20 Human Performance Data Acquisition and Analysis for Multi-Module SMR HRA
Jaeeun Kim, Seong Kyu Park, Dohyeon Kim, and Hongseok Kim(NESS)

09:40 Development and Demonstration of a Local RAG-Based QA System Using an Open-Source LLM for the SMR Level 1 PSA Report
Hyeonho Byun and Hyeonmin Kim(KAERI)

10:00 Considerations for Safety Classification of Structures, Systems and Components of Non-LWRs
Gyunyoung Heo, Geon Kim, Taejoong Kim, Dayoung Jung, Minseok Kim, and Jeongwoo Jae(KHU)

10:20 Assessment of Inherent Safety Features and Pressure Integrity of i-SMR during Anticipated Transient Without SCRAM
Gangmin Kim and Jaehyun Cho(CAU), Jin Hee Park(KAERI)

10:40 Coffee Break

11:00 Determination of Feasible Design Ranges for the Passive Emergency Core Cooling System under LOCA Conditions in a Small Modular Reactor
Juhyeob An and Jaehyun Cho(CAU), Jin Hee Park(KAERI)

11:20 Analysis of Performance Shaping Factors in Multi-Module Operating Environments
Dohun Kwon and Gyunyoung Heo(KHU)

11:40 Quantification of Failure Probabilities for the i-SMR Reactor Vessel Using MELCOR-Based Uncertainty Analysis
Sein Hong and Jaehyun Cho(CAU), Jin Hee Park(KAERI)

12:00 Comparative Analysis of Near-Field Atmospheric Dispersion Models for Nuclear Emergency Planning Zone Sizing
Gibeom Kim and Sung–yeop Kim(KAERI)

6B 5.7.(Thu.) 원자력안전2 (Severe Accident 1)

| 좌장 신상우(Shin, Sangwoo), 김종태(Kim, Jongtae) | 201B

09:00 Comparative Validation of Severe Accident System Codes Through TMI-2 Accident Modeling: Focus on Reflooding Phenomena
Kukhee Lim, Yong Jin Cho, Jeonghyeon Eom, Jun–Soo Lee, Eunho Kim, and Dongju Jang(KINS), Hoon–Goo Oh, Sang–Jin Son, Kyung–Ki Kim, and In–Chul Ryu(KEPCO E&C)

09:20 Comparative Analysis of Mitigation Effects of Improved DPG SAMG SACRG-01
JiEun Oh, MiRo Seo, and JeongMin Shin(KHNP), Su Won Lee and Myeong Kwan Seo(FNC Tech.)

09:40 Scenario-Specific Sensitivity of Uncertain Parameters in OPR1000 LOCA: A Comparative Study Using CINEMA
Ok Hyeon Lee, Cheolwoong Kim, JinHo Song, Joon-Eon Yang, and Sung Joong Kim(HYU)

10:00 Effect of Cavity Flooding Level on the Integrity of APR1400 RPV Using MAAP5
Sangwoo Shin, Miro Seo, Taewoo Kim, and Sun Heo(KHNP)

10:20 Analysis of Uncertainty Parameter Effects on RPV Failure in an MBLOCA Scenario
Tae-woo KIM, Ji-Eun Oh, and Sangwoo Shin(KHNP)

10:40 Coffee Break

11:00 MCCI Analysis under Pre-flooded Cavity Conditions during Severe Accidents
JunSung Choi, MinChan Kwon, EungSoo Kim, and HyunSun Park(SNU)

11:20 Fully Lagrangian Approach of Three-Phase Systems for Debris Bed Formation (Part III: External Shape)
YoungWoo Son, InSoo Seo, and Cheol-O Ahn(Metariver Tech.)

11:40 Fully Lagrangian Approach of Three-Phase Systems for Debris Bed Formation
(Part IV: Self-generated Bubble Condition)
YoungWoo Son, InSoo Seo, and Cheol-O Ahn(Metariver Tech.)

12:00 HYCON3D for Thermal-Hydraulic Behavior in PWR Containment under Early and Late- Phase Severe Accident Conditions
Jongtae Kim(KAERI), Kukhee Lim and Eunho Kim(KINS)

12:20 Hydrogen Flammability Assessment in SMR Containment Using the CAFT Model
Sihyeong Yu and Dosu Park(JBNU), Joongoo Jeon(POSTECH)

6C 5.7.(Thu.) 원자력안전3 (Fire Risk Assessment)

| 좌장 정용훈(Jung, Yong Hun), 이재호(Lee, Jaiho) | 201A

13:30 A Preliminary Analysis of Fire-Related Events in Korean Nuclear Power Plants
Kyungho Jin, Yong Hun Jung, and Dae Il Kang(KAERI)

13:50 Sensitivity Analysis of Fire Risk on Main Control Room Abandonment Scenarios Caused by Main Control Board Fires
Dae Il Kang, Seon Young Choi, and Yong Hun Jung(KAERI)

14:10 Analysis of Cue Availability for LOC Evaluation under MCB Fire Conditions
Sun Yeong Choi, Dae Il Kang, and Yong Hun Jung(KAERI)

14:30 Risk Effects of Damage Assessment Methods in a Fire Probabilistic Safety Assessment
Yong Hun Jung, Kyungho Jin, and Dae Il Kang(KAERI)

6D 5.7.(Thu.) 원자력안전4 (Accident Assessment/Analysis)

| 좌장 함대기(Hahm, Daegi), 임승현(Eem, Seunghyun) | 201B

13:30 Finite Element Modeling and Sensitivity Analysis of Head-Plated M30 CIP Anchor for Nuclear Power Plants
Sangwoo Lee, Yugyeong Jung, Hoyoung Son, and Bu-Seog Ju(KHU)

13:50 Comparative Study of a Zircaloy-based Fuel and Accident Tolerant Fuel for a Design Basis Accident Analysis
Ju Yeop Park(KINS), Yongsik Yang and Changhwan Shin(KAERI)

14:10 Preliminary Assessment For Space-Debris Reentry as an Initiating Event in PSA
Haeun Jo and Gyunyoung Heo(KHU)

6E
5.8.(Fri.)

원자력안전5 (External & Level 2/3 PSA)

| 좌장 조재현(Cho, Jaehyun), 김성엽(Kim, Sung-yeop) | 201A

09:00 A Study of Dynamic Human Reliability Assessment Considering the Effects of Radiation and High-Temperature/High-Humidity Environment
Sunghyon Jang and Yutaka Takizawa(Hokkaido Univ.)

09:20 Development of PSA Model for Super Typhoon-induced External Hazards
SEUNGHYUN JANG and MINKYU KIM(KAERI)

09:40 Establishment of a Site-wide Meteorological Database for Level 3 PSA and EPZ Analysis
Seunghwan Kim and Sung-yeop Kim(KAERI), Sunghyun Park(KHNP)

10:00 Development of Surface Roughness Database for All NPP Sites in Korea to Perform Level 3 PSA and EPZ Evaluation
Sung-yeop Kim(KAERI)

10:20 Evaluation of Cs-137 Release Frequency Exceeding 100 TBq using MPAS Level 2 PSA Model and MELCOR
Gyeongyeol Kim, Hyun-bin Chang, MyeongKwan Seo, Suwon Lee, and Jung Hyun Ryu(FNC Tech.)

10:40 Coffee Break

11:00 Modeling Time-Varying Wind Direction in CFD for Near-Field Radionuclide Dispersion at Nuclear Power Plants
Jemo Ryu and Jaehyun Cho(CAU)

11:20 A Sensitivity Analysis for Dose Exceedance Distances Using MACCS: Application to the OPR1000
Jiyeong Seo and Jaehyun Cho(CAU)

6F
5.8.(Fri.)

원자력안전6 (Severe Accident 2)

| 좌장 이윤희(Lee, Yoonhee), 하광순(Ha, Kwang Soon) | 201B

09:00 Feasibility Study of XAI Application to Severe Accident Uncertainty Analysis – Insights
Mi Ro SEO and Tae Woo KIM(KHNP), Se Min JOO and Jeong Ik LEE(KAIST)

09:20 Feasibility Study of XAI Application to Severe Accident Uncertainty Analysis – Model Development
Semin Joo and Jeong Ik Lee(KAIST), Tae-woo Kim and Miro Seo(KHNP)

09:40 Enhanced High-Resolution Prediction Surrogate Modeling with an Interpretable Attention Mechanism for Severe Accident Analysis
Wonung Jeong and Sangam Khanal(JBNU), Joongoo Jeon(POSTECH)

10:00 A FDM-PINN Hybrid Approach for MELCOR CVHFL Module
Jeesuk Shin, Donggyun Seo, and Joongoo Jeon(POSTECH), Sihyeong Yu(JBNU)

10:20 Fine-Tuned Large Language Model for MELCOR No-Coding: the FLAMENCO Project
Dosu Park(JBNU), Kiho Kim and Sooyoung Lee(CAU), Joongoo Jeon(POSTECH)

10:40 Coffee Break

11:00 Infrared Thermometry for Molten Salt Application
Jun-young Kang, Sung Il Kim, Sang Mo An, Seongho Hong, Keung Sang Choi, and ChangWan Kang(KAERI)

11:20 Eulerian Approach to Preliminary CFD Analysis of an Aerosol Experimental Facility Using AeroSolved
Keun-sang Choi, Jongtae Kim, and Jaehoon Jung(KAERI)

11:40 Preliminary Sensitivity Analysis of Control Rod Absorber Materials on the Chemical Speciation of Fission Products during a Severe Accident
Dowoong Hwang and Serin Kim(JBNU), Yoonhee Lee(KENTECH)

12:00 Validation of the SIRIUS Code for Aerosol Deposition Using the STORM SR-11 Experiment
Dong Hun Shin and Yong Hoon Jeong(KAIST), Jaehyun Ham and Sang Ho Kim(KAERI)

6G 5.8.(Fri.) 원자력안전7 (Risk Assessment Technology & RIDM)

| 좌장 김만철(Kim, Man Cheol), 김동산(Kim, Dong-San) | 202A

09:00 Key Considerations for Probabilistic Safety Assessment under Flexible Operation
Sungmin Han, Ho Seok, and Gyunyoung Heo(KHU)

09:20 A Methodology for ISLOCA Initiating Event Frequency Evaluation Considering Isolation Valve Design Diversity
HyungJun Kim, Jin Hee Park, Sung-Min Shine, Kibeom Son, and JongWoo Park(KAERI)

09:40 DynaScen Framework for Dynamic PSA: Development and Comparative Analysis with Static PSA for Station Blackout
Jong Woo PARK, Sang Hoon HAN, Hyeonmin KIM, and Dong-San KIM(KAERI)

10:00 Automated Fault Tree Generation with a Constraint Driven Large Language Model
Tae yeon Kim and Man cheol Kim(CAU)

10:20 Coffee Break

10:40 Comparative Analysis of PSA Workflows in SAPHIRE and AIMS-PSA: Impact on Quantification Results
ARa Lee and Man Cheol Kim(CAU)

11:00 A Study on the Reliability Assurance Program for Risk Informed Performance Based Regulation in Korea
Kilyoo Kim and Yong Mock Kim(BEES), Hyo Sook Jung and Su Jin Jung(KINS)

6H 5.7.(Thu.) – 8.(Fri.) 리스크/안전성평가/안전현안/재해해석 (Risk/Safety Assessment/Safety Issue/Disaster Analysis) – POSTER

| 좌장 황미정(Hwang, Meejeong), 한상훈(Han, Sang Hoon) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO6H01 Review of SMR Risk Importance for Risk-informed Safety Classification
Sunghyun Park, Chulkyu Lim, Sejin Beak, and Hojun Jeon(KHNP), Sungmin Shin and Jinhee Park(KAERI)

PO6H02 Development of Fire Brigade Drill Scenarios for HANARO
Taeho Kim, Wonho In, and Minsu Kim(KAERI)

PO6H03 Development of an Automated RMSR Calculation Program to Enhance Regulatory Safety and Consistency in Radioactive Material Transport
Jinnyeong Choi, Sujin Kim, Seungeun Jung, Ikgi Mun, and Insu Chang(KAERI)

PO6H04 Development of an Enhanced Uncertainty Analysis for the Level 2 PSA Results
Baehyeuk Kwon, Inchul Ryu, and Changhwan Lim(KEPCO E&C)

PO6H05 Mechanistic Assessment of Droplet-Size-Dependent Spray Thermal Effectiveness for APR Containment Using CAP 3.1
Yongju Cho, Sunhong Yoon, and Jaeyul Kim(KEPCO E&C)

PO6H06 A Comprehensive Review on Heat Release Rate for Fire Modeling in the U.S. Nuclear Power Plant
Dohyun Lim and Yongjae Kim(PNE)

PO6H07 Technical basis of 'Standards for Limitations on Locations of Nuclear Reactor Facility Sites'
Min-ki Cho, Joosuk Lee, Hyungjoo Seo, Ilsuk Lee , Chang-Yong Jin, and Ho Park(KINS)

PO6H08 Methodology for Assessing Safety Stand-off Distances for Postulated Offsite Explosion Accidents at NPP
Younghun Shin, Inchul Ryu, and Kiljung Kim(KEPCO E&C)

PO6H09 Redefining Emergency Planning Zones with Adaptive Protective Action
Bongseok Kim, Kanghyeon Lee, Sohyeon Lee, Chanki Lee, Sol Jeong, and Wi-Ho Ha(KAERI)

PO6H10 Real-Time Meteorological Data Integration in the Safe-KAERI Program for Public Dose Assessment and Protective Action Support
Sohyeon Lee, Eunhan Kim, and Wi-Ho Ha(KAERI)

PO6H11 The Data-Centric MSO Fire Analysis and Data Visualization Based on the Cable Management System in Nuclear Power Plants
Wonsam Kim, Jungman Kim, and Injae Lee(KEPCO E&C)

PO6H12 Preliminary Dispersion Analysis for a Korean Nuclear Power Plant Site Using Realistic Urban–Terrain Modeling
Do Hyun Kim, Juryong Park, and Eung Soo Kim(SNU)

PO6H13 Assessment of Storm Wind Speed at the Shin-Kori Nuclear Power Plant Site using the WRF400 Model in the SSP5-8.5 Scenario
Dongchang Kim, Hyoseung Son, and Seunghyun Eem(KNU), Shinyoung Kwag(HBNU)

6I 중대사고 (Severe Accident) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 서미로(Seo, Mi Ro), 정재훈(Jung, Jaehoon)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO6I01 Two-Phase Flow Instability in Parallel Sloped Channels
Byeonghee Lee, Seokgyu Jeong, and Jun-young Kang(KAERI)

PO6I02 Development of Fission Product Behavior Analysis Code for Molten Salt Reactor under Accident Condition
Jaehyun Ham, Jong Yeob Jung, Kwang-Soon Ha, and Sung Il Kim(KAERI)

PO6I03 Preliminary Analysis on Thermal Margin for IVR-ERVC of i-SMR
Rae-Joon Park, Seokgyu Jeong, Jaehyun Ham, Donggun Son, and Sang Ho Kim(KAERI)

PO6I04 Effect of Spill Out Time on Spreading Distance in Molten Salt Reactor using ANSYS-Fluent
Rae-Joon Park, Sang Mo An, Hyung Tae Kim, and SungIl Kim(KAERI)

PO6I05 Thermohydraulic Behavior of Spilled Molten Salt on a Horizontal Open Channel
Sang Mo An, Jun-young Kang, and Sung Il Kim(KAERI)

PO6I06 Optimizing MISO Architectures for Severe Accident Prediction: A Statistical Candidate Selection Approach to Mitigate Error Propagation
Seok Ho Song and Jeong Ik Lee(KAIST), Seunghyeok Yang(FNC Tech.), Taewoo Kim and Mi Ro Seo(KHNP)

PO6I07 Comparative Analysis of Ex-Vessel MCCI for OPR1000 Using MAAP and CORQUENCH
Yu Hyeon Lee and Hyoung Ki Kim(KEPCO E&C)

PO6I08 Hybrid LS-DYNA and Python-Based Post-Processing for Long-Range SPH Dispersion Prediction in a Micro MSR Explosion Scenario
Hyoung Tae Kim and Sung Il Kim(KAERI)

PO6I09 Code-to-Code Validation of SCORPION Against TEXAS-V for KROTOS K37 with a UO_2-ZrO_2 Oxidic Corium Melt
Ju Bin Kim, Eung Soo Kim, and Hyun Sun Park(SNU), Raja Gopal Vadlamudi Sai(HZDR)

PO6I10 Evaluation of Aerosol Sampling Efficiency for ART Facility using Particle Loss Calculator
Jinhyeok Kim, Byeonghee Lee, and Kwang Soon Ha(KAERI)

PO6I11 Benchmark Analysis of MAAP and CONTAIN Against ISP-35 Experimental Data
Sang Jin Son, Chae Won Seo, and Hyoung Ki Kim(KEPCO E&C)

PO6I12 Benchmarking MELTSPREAD Against Spreading Experiments to Support Simplified Lump Spreading Model Development in the HIPPO Code
Minchan Kwon, Eung Soo Kim, and Hyun Sun Park(SNU)

PO6I13 Experimental Evaluation of Clean Air Delivery Rate for RMRS
Kiwan Jang, Woo Young Jung, and Jihoon Kang(FNC Tech.), Jaehoon Jung(KAERI), Kaphyun Yoo(Century)

PO6I14 Analysis of Corium Cooling Behavior in the APR1400 Reactor Cavity using CORQUENCH Code
Jihyeon Lee and Heehong Chae(KEPCO E&C)

PO6I15 Comparative Investigation on Severe Accident Phenomena between MELCOR and CINEMA for i-SMR Postulated Accidetn
Cheolwoong Kim, Se Hee Kwon, Sanghyeok Kim, JinHo Song, Sung Joong Kim, and Joon Eon Yang(HYU), Sang Ho Kim, Jaehyun Ham, Seokgyu Jeong(KAERI)

PO6I16 Probabilistic Prediction of Nuclear Power Plant Transients via TimeGrad-inspired Diffusion Modeling with Operator Action Timing
Daehyung Lee, Yongju Cho, and Chungwon Seo(KEPCO E&C)

제8분과 방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A 5.7.(Thu.) 방사선 이용 및 기기 1 (Raidation Utilization and Instrumentation 1)

| 좌장 김형택(Kim, Hyoungtaek), 박준식(Park, Junesic) | 300

09:00 Development Progress of the Single Spoke Resonator in High-Energy Linac Front-End at the Rare Isotope Accelerator (RAON)
Eunsol Go, Giyeol Han, Jangwon Han, Yoo Lim Cheon, Jun Woo Lee, Jong Wan Choi, Moo Sang Kim, Hee Tae Kim, Juwan Kim, Seong Min Jeon, Seungjin Lee, Youngkwon Kim, and Jaehyung Lee(IBS)

09:20 Design and RF Conditioning of Superconducting Fundamental Power Coupler for the High-Energy Linear Accelerator at RAON
Yoo-Lim Cheon, Junyoung Yoon, Do-yoon Lee, Youngkwon Kim, Hyojae Jang, Heejin DO, Oh-Ryong Choi, Yongwoo Jo, and Jaehyung Lee(IBS)

09:40 Development of High-throughput Multi-detector System for Rapid Clearance Verification of Decommissioned Soil Waste
Junyoung Lee, Geoun Lee, Taehyeon Eom, Jaeho Cho, Sehyun Jang, and Chan Hyeong Kim(HYU)

10:00 Measurement of Electron Mobility in a Planar CZTS Detector Using Charge-Sensitive Preamplifier
Jihwan Boo and Geehyun Kim(SNU), Beomjun Park(NIFTEP)

10:20 Decoding the Life History of Iron Oxides in Archaeological Materials: A Mössbauer Spectroscopy Approach
Young Rang Uhm(KAERI)

8B 5.7.(Thu.) 방사선 이용 및 기기 2 (Raidation Utilization and Instrumentation 2)

| 좌장 김지수(Kim, Jisoo), 한보영(Han, Bo-Young) | 300

13:30 Quantification of Radiative Heat Loss for Accurate Thermoelectric Module Efficiency Measurement in RTG Applications
Euna Koo, Dahye Kim, Kilyoung Ko, Jin Kim, Jinjoo Kim, Jong-bum Kim, Jintae Hong, and Sunjin Kim(KAERI)

13:50 Thermal Design Optimization of a Compact 120 Wth PbTe-Based Radioisitope Thermoelectric Generator
Da-hye Kim, EunA Koo, Sunjin Kim, Jong-Bum Kim, Jin-Joo Kim, Kilyoung Ko, Jin Kim, and Jintae Hong(KAERI)

14:10 ESR Study on the N+ Beam-Irradiated ZnO Thin Films on the Al_2O_3 Substrate
Jun Kue Park, Junhyeok Seo, In Mok Yang, and Gi Wan Jeon(KAERI(KOMAC)), Weon-Sik Chee(KBSI), Jong-Soo Lee(DGIST)

14:30 Coffee Break

14:50 Validation of Monte Carlo Neutron Transport Simulations for the HANARO CG2B Cold Neutron Guide with Experimental Flux Measurements
Kyung Min Kim, Dong Hyuk Lee, and Jinhwan Kim(KAERI), Kyung Taek Lim(Sejong Univ.)

15:10 Monte Carlo Evaluation of Radiation Dose Distribution in a 10 MeV Electron Beam Irradiation Facility
Banyapha Ubonsa-ard and Juyoul Kim(KINGS)

15:30 Design and Operational Verification of an Agentic AI System for SSTR2-Binding Peptide Candidate Screening
Dongju Kim, Soyeon Kim, Yonggyun Yu, and Yujong Kim(KAERI),
Minkyu Kim, Kibum Ahn, and Hoseong Seo(KAERI(ARTI))

8C 방사선 이용 및 기기 (Raidation Utilization and Instrumentation) – POSTER

5.7.(Thu.) – 8.(Fri.)

| 좌장 이재기(Lee, Jaegi), 윤석원(Youn, Sukwon) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO8C01 Design of a Robust Frequency Stabilization Circuit using Ring Oscillator for Therapeutic Ultrasound Systems
Il hyung Cho and Inyong Kwon(Yonsei Univ.)

PO8C02 Genetic-Algorithm Optimization of Birk's Law-based Response Functions for a Stilbene Scintillation Detector
WONKU KIM, KILYOUNG KO, SUNJIN KIM, JONG–BUM KIM, JIN–JOO KIM, DEOKSEONG KIM,
and JINTAE HONG(KAERI)

PO8C03 $CsPbBr_3$ Quantum Dot-PMMA Composite Coatings for Spectroscopic Performance Improvement in GAGG:Ce Scintillation Detector
Jae Hyung Park, Sangjun Lee, and Seunghyeon Kim(CAU), Bongsoo Lee(KHNP RHI)

PO8C04 Chloride Profile Development in Cement Paste under Immersion and Wet–Dry Cycling Determined by Neutron Activation Analysis
Hyunkyung Choi, Seong Pyo Hong, Seoeun Jang, Young Rang Uhm, and Gwang–Min Sun(KAERI)

PO8C05 Signal Performance Comparison for Background Compensation wire SPND Type and SPND-background Detector Type
Kyung Gun Kim, DoYean Kim, and Yu Sun Choi(KHNP)

PO8C06 Radiological Safety Evaluation of Internal Structure Activation in Transportable Micro Reactors
Hyuk Han, BeomKyu Kim, Suk–Hoon Kim, and JaeSeon Jo(FNC Tech.)

PO8C07 A Preliminary Study on the Conceptual Design and Response Analysis of a Long Counter for High Energy Neutron Monitoring at RAON NDPS
Jae Chang Kim, Gyu Hyun Sim, and Yong Kyun Kim(HYU)

PO8C08 Benchmark Study of PHITS for High-Energy Neutron Spectrum Using Activation Foil Method at NDPS
Jinhong Kim and Hyungjin Shim(SNU),
Sinchul Kang, Kyoungho Tshoo, Jaesung Kim, Danhye Gil, Young–Ouk Lee, and Cheolmin Ham(IBS)

PO8C09 A Study on Standardization of Neutron Activation Analysis for Geologically Based Artifacts
: Evaluation of Applicability to Goryeo Celadon
Seoeun Jang, Seongpyo Hong, and Gwang– Min Sun(KAERI), GyuHo Kim(Kongju National Univ.)

PO8C10 Adaptive Robotic CT Trajectory Selection: An Object-dependent Data-driven Approach
Seungjun Yoo, Seokwon Oh, Junho Lee, Yoonsang Hong, Seongbin Bae, and Ho Kyung Kim(PNU)

PO8C11 Comparative Beta-ray Spectroscopic Performance of Identically Grown CdZnTe and CdZnTeSe Crystals
Beomjun Park(NIFTEP), Younghak Kim and Mee Jang(KAERI), Jiwon Seo(KFE), Jung–Yeol Yeom(Korea Univ.)

PO8C12 Design and Simulation of Low Noise CMOS Operational Amplifier for Radiation Measurement
Habin Kim and Inyong Kwon(Yonsei Univ.)

PO8C13 Development of a High-resolution X-ray 3D Imaging System for Inspection of High Bandwidth Memory
Jaeyoung Im, Minjun Kim, and Sung Oh Cho(KAIST)

PO8C14 Physics-Informed SDE-Based Diffusion for X-ray Image Deblurring
Seokwon Oh, Seungjun Yoo, Junho Lee, Yoonsang Hong, Jeonghyeon Kim, and Ho Kyung Kim(PNU)

PO8C15 Mesh-Based Iterative Reconstruction for Computed Tomography
JUNHO LEE, YOONSANG HONG, SEUNGJUN YOO, SEOKWON OH, and HO KYUNG KIM(PNU)

PO8C16 Emergency Mode of Personal Safety Interlock System (PSIS)
Ye–eun Lee, Yi–Sub Min, and Dong–in Lee(KAERI(KOMAC))

PO8C17 Establishment of Selection Criteria and Identification of Target Radionuclides for Off-site Radation Monitoring Algorithms
Dongseong Shin and Seop Hur(KAERI)

PO8C18 Assessment of a Dynamic Flat-panel Detector for Low-energy Limited-Angle Tomography
Yoonsang Hong, Junwoo Kim, Junho Lee, Seungjun Yoo, Seokwon Oh, and Ho Kyung Kim(PNU)

PO8C19 Comparative Study of Spent Nuclear Fuel Characterization Methods based on the Non-destructive Assay
Wooseong Hong, Beomkyu Kwon, and Geehyun Kim(SNU)

PO8C20 A Study on the Design of the Capture Unit of a Combustion Sysyem for Precision Analysis of Radiocarbon(C-14)
Jeong–Min Park and Yi–Sub Min(KAERI(KOMAC)), Sang–Hun Lee(KNU)

PO8C21 Achieving High Performance Consistency in $Cs_3Cu_2I_5$ Perovskite Single Crystals via Vacuum-Assisted Solvent Evaporation
Jiwon Seo(KFE), Seungho Song and Jung–Yeol Yeom(Korea Univ.), Younghak Kim and Mee Jang(KAERI), Beomjun Park(NIFTEP)

PO8C22 Neutron-Induced Free Volume Evolution in Cyanate Ester Resin Characterized by Positron Annihilation Lifetime Spectroscopy
Youngsu Jeong, Jaegi Lee, Seongpyo Hong, and Gwang–Min Sum(KAERI)

PO8C23 Radiation Dose Evaluation for Crew members in Nuclear-Powered Ship under Severe Shield Degradation Scenarios
Hyeonjun Kim, SeungJae Jo, and Jaehyun Cho(CAU)

PO8C24 Low-temperature CdZnTe Detector for Quantification of Ni-59 in Radioactive Waste
Jiwon Seo(KFE), Younghak Kim, Jaehyeon Seo, and Mee Jang(KAERI), Jung–Yeol Yeom(Korea Univ.)

PO8C25 Proton Radiation Effects in Tin Oxide Thin-Film Transistors with Different Device Structures
Seonchang Kim and Dong–Seok Kim(KAERI(KOMAC)), Roy Byung Kyu Chung(KNU)

PO8C26 Effect of Anode Structure on Performance of GaN PIN Betavoltaic Cells
Dong–Seok Kim(KAERI(KOMAC)), Jaewon Park, Huiyun Jung, Sung–Bum Bae, and Hyung–Seok Lee(ETRI), Hongsik Park(KNU)

PO8C27 Optimization of Irradiated Proton Energy Window for High-purity Actinium-225 Production from Thorium-232 Target
J.H. Kim, B.S. Park, Y. Yeon, H.W. Jung, B. Baek, I.S. Hong, D.H. Gil, H. Yim, J. Lee, and T. Shin(IBS)

PO8C28 Current Status of R&D and Futrure Role of the Radioisotope Research Center
kanghyuk Choi, kangmin Lee, Euntae Kim, Junsuk Kim, and Dongen Lee(KAERI)

PO8C29 Improvement of Large-Scale Production System and Automation Program for Lu-177
Euntae Kim, Kanghyuk Choi, and Kangmin Lee(KAERI)

PO8C30 Development of a Chromatographic Process for Large-Scale Production of No-Carrier-Added 177Lu
Kangmin Lee, Kanghyuk Choi, and Euntae Kim(KAERI)

PO8C31 Environment Monitoring in Radioisotope Production Facility
Dong–In Lee, Yi–Sub Min, Jeong–Min Park, and Ye–Eun Lee(KAERI(KOMAC))

PO8C32 Thermal Simulation of a Water-cooled ThO_2 Target for Actinum-225 Production at IRIS
Bum–Sik Park and Jaehong Kim(IBS)

PO8C33 Ni-63 Electroplating for Random Number Generators
GUJIN KANG, JUNGHO CHAE, JONGBUM KIM, JIN KIM, JINJOO KIM, KILYOUNG KO, SUNJIN KIM, and JINTAE HONG(KAERI)

PO8C34 A Systematic Study on Uranium Purification from Seawater Matrices for Alpha Spectrometry
Dayeong Lee and Mi Jang(KAERI)

PO8C35 Evaluation of Neutron Activation in the Bio-Shield Concrete of APR1400 Reactor Core as a Function of Boron and Hydrogen Content
Bo–Young Han(KAERI), Seonghee Park, Woo Yong Kim, and Jung Ho Song(BRNC Inc.)

PO8C36 Exploring the Potential Configurations of Fast Neutron Imaging System Based on the Compact Neutron Source
Hanna Lee(UST), Pilsoo Lee and DongWon Lee(KAERI), Soobin Lim and Bongki Jung(Q–BEAM SOLUTION)

PO8C37 Feasibility Study of a Scintillator-based Neutron Spectrometry using GEANT4
Hyunha Shim and Seong Hee Park(Korea Univ.(Sejong))

PO8C38 Evaluating Linear Attenuation Coefficient for Bio-Shield Concrete using Thermal Neutron Beam Facility at KAERI
Jinyu Kim, Bo–Young Han, and Gwang–Min Sun(KAERI)

PO8C39 Quantitative Determination of Fluorine Using INAA at the HANARO Research Reactor
Seongpyo Hong, Sung Hyo Lee, Kishore B Dasari, Bo Young Han, and Gwang Min Sun(KAERI)

PO8C40 Investigation of Alanine Response to 100 MeV Proton Beam Irradiation
Gi Wan Jeon, Young Seok Hwang, Yu–mi Kim, Jun Kue Park, Junhyeok Seo, Gwang–il Jung, Jeonghyeon Kim, Seonggu Kim, Jaehyun Lee, Dong–Seok Kim, and Myung–Hwan Jung(KAERI(KOMAC))

PO8C41 Analysis on Effects of Ion Implantation on Cathode Materials
Seunguk Cheon, Songi Yu, and Sung Oh Cho(KAIST)

PO8C42 Statistical Evaluation of Alanine Dosimeter Response for Linac and CyberKnife Photon Beams
HyoJin Kim, Yong UK Kye and Yeong–Rok Kang(DIRAMS)

제9분과

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

9A
5.7.(Thu.)

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

| 좌장 김한성(Kim, Han-Sung), 최수석(Choi, Sooseok) | 303A

14:00 Proton Linac Energy Upgrade Plan at KOMAC
Seunghyun Lee, Sungbin Park, Seok Ho Moon, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI(KOMAC))

14:20 International Progress and Korean Strategy on Codes and Standards Development for Fusion Energy under a Sub-project of the Global TOP Research Lab
Dong Won Lee(KAERI), Na-Hyeon Heo, Sung-Jae Lee, and Seung-Hyun Kim(KEA), Sungjin Kwon(KFE)

14:40 Activation Analysis of Fusion Divertors based on K-doped W and Low-activation Materials (V, ARAA)
Seonghee Hong and Sungjin Kwon(KFE)

15:00 Preliminary Structural Stress Evaluation of HCS Piping for HCCP Breeding Blanket
Seok-Kwon Son, Myungho Kim, Yonghee Lee, Youngmin Lee, and Mu-Young Ahn(KFE), Chang Wook Shin(KAERI)

15:20 Material-Constrained Deployment Modeling of Compact Tokamak Fusion Power Plants Using the Nuclear Fuel Cycle Simulator Cyclus
Taesuk Oh, Mohammad Amer Allaf, Paul Wilson, Zachary Thomas, Morgan Edwards, and Ben Lindley(Wisconsin-Madison Univ.)

9B
5.7.(Thu.) – 8.(Fri.)

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

| 좌장 정봉기(Jung, Bongki), 성충기(Sung, Choongki) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO9B01 Design and Simulation of Auto-Freqyency Tracking Digital LLRF Control Logic for Pulsed Operation of KAHIF RFQ
Sangbeen Lee, Seunghyun Lee, Min Wook Kim, Kihyun Lee, Dae-Sik Chang, Sung-Ryul Huh, and Dong Won Lee(KAERI)

PO9B02 Operation Status of Beam Test Stand at KOMAC
SeokHo Moon, Dong-Hwam Kim, Seung-Hyun Lee, Sung-Bin Park, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI(KOMAC)), Emre Cosgun(KEK)

PO9B03 A Preliminary Study on Beam Loss Monitor Calibration for KOMAC DTL Tanks
Gyuhaeng Jo, Sang-Pil Yun, Jae-Ha Kim, Young-Gi Song, Dong-Hwan Kim, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI(KOMAC))

PO9B04 Fabrication of New 3-MeV Radio Frequency Quadrupole for KOMAC
Han-Sung Kim, Kyung-Hyun Kim, and Hyeok-Jung Kwon(KAERI(KOMAC))

PO9B05 Parametric Study for Enhancing Ferrocene Vapor Pressure in an ECR Ion Source of KAHIF with Molecular-Flow Simulation
Kihyun Lee, Seunghyun Lee, Sangbeen Lee, Dae-Sik Chang, and Dong Won Lee(KAERI), Min Wook Kim(Gachon Univ.)

PO9B06 Enhancement of Surface Hardness using Nitrogen and Helium Ion Implantation
Jaekwon Suk, HyeRan Jeon, Chorong Kim, In Mok Yang, Jun Mok Ha, Sunmog Yeo, Chan Young Lee, and Myung Hwan Jung(KAERI(KOMAC))

PO9B07 Multi-physics Analysis on 6-cell Separated Drift Tube Linac Tank
Sungbin Park, Seunghyun Lee, Han–Sung Kim, and Hyeok–Jung Kwon(KAERI(KOMAC))

PO9B08 Implementation of PASTA for RF Phase Scan Optimization at KOMAC
Myeong–Jin Jung, Seunghyun Lee, Jae–Ha Kim, Sung–Yun Cho, and Young–Gi Song(KAERI(KOMAC))

PO9B09 Development of the Data Acquisition System for the Beam Current Monitoring System at the KOMAC Proton Linac
Young–Gi Song, Jae–Ha Kim, Sung–Yun Cho, Nam–Hoon Lee, and Hyeok–Jung Kwon(KAERI(KOMAC))

PO9B10 HPRF System for Injector Section of RAON SCL3
Kyungtae Seol, Kitaek Son, Sangyoon Bae, and Hyungjin Kim(IBS)

PO9B11 Development of an Integrated Diamond-DAQ Module for High-Count-Rate Fast Neutron Measurements in the KSTAR Tokamak
Youngseok Lee, Jinseok Ko, and Yong–Un Nam(KFE)

PO9B12 Development of HCCP TBM Shield Manufacturing Procedures and HCCP TBM-set Assembly Procedures
Jae Sung Yoon, Seong Dae Park, Suk–Kwon Kim, and Dong Won Lee(KAERI), Hyoseong Gwon(KFE)

PO9B13 Integrated Operational Testing of a Helium Circulator for Fusion Helium Cooling Systems
Changwook Shin, Suk–Kwon Kim, Dae–Sik Chang, HyungGon Jin, and DongWon Lee(KAERI), Myungho Kim, Seok–Kwon Son, Youngmin Lee, and Mu–Young Ahn(KFE)

PO9B14 Structural Design Assessment of the HCCP TBM-set Attachment
SeongDae Park, Suk–Kwon Kim, Dong Won Lee, and Jae–Sung Yoon(KAERI), Hyoseong Gwon(KFE)

PO9B15 Service Status of a KAERI Heavy-ion Irradiation Facility (KAHIF) in 2025 and Future Plans for Nuclear Fusion/Fission Material Irradiation Experiments
Seunghyun Lee, Dong Won Lee, Dae–sik Chang, Sangbeen Lee, Kihyun Lee, Min–wook Kim, and Sung–Ryul Huh(KAERI)

PO9B16 Experimental Investigation of Magnetic Field Geometry Effects on Magnetoplasmadynamic Thruster Performance
Haewon Shin and Kil–Byoung Chai(KAERI), Jeongho Kim, Jaeyeon Hwang, and Holak Kim(PNU)

PO9B17 Electron Temperature and Density Determination of Xenon Plasma using Collisional-Radiative Model and Optical Emission Spectroscopy
Sakshi Patwal and Kil–Byoung Chai(KAERI)

PO9B18 Particle Flux Enhancement using In-vessel Electromagnet in Particle Flux Irradiation Facility at KAERI
Cheolwan Park and Kil–Byoung Chai(UST|KAERI)

PO9B19 Loss of Heat Sink Accident Analysis for PD-2 HCCR-TBS
Hyung Gon Jin, Seong Dae Park, Jae–Sung Yoon, Dong Won Lee, Chang Wook Shin, Suk–Kwon Kim, and Mu–Young Ahn(KAERI)

PO9B20 Remote Monitoring and Control of the KAHIF RFQ LLRF System Using EPICS-Integrated Instrumentation
DaeSik Chang, SangBeen Lee, Seunghyun Lee, Kihyun Lee, and Dong Won Lee(KAERI)

PO9B21 Ion Beam Extraction Optics Study for KAIMIR Neutral Beam Injector
Tae–Seong Kim and Kihyun Lee(KAERI), SengHo Jeong and Bongki Jung(Qbeamsolution)

PO9B22 Plasma-Driven Surface Engineering of $LiFePO_4$ Cathode and Implication for LIB Electrochemical Performance: A Mini Review
Dornum Katusiime, Seunguk Cheon, Jaeyoung Im, Md Amir Sohel, and Sung Oh Cho(KAIST)

PO9B23 Extension of NuBDeC to Mirror Configuration
Tongnyeol Rhee(KFE), Jisung Kang(Tokamak Energy), Dami Jung and Choongki Sung(KAIST)

PO9B24 Characterization of the RFT-30 Neutron Source Using Multi-Sample Neutron Activation Analysis
Junsik Kim, Joo Yub Lee, and Kyoung–Jae Chung(SNU), Soobin Lim(QBS), Jeong–jeung Dang(KENTECH)

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

10A 5.7.(Thu.) 지진 (Seismic)

| 좌장 김정한(Kim, Jung Han), 박동희(Park, Donghee) | 400

09:00 Multi-Modal Deep Learning-Based Seismic Damage Identification for Nuclear Power Plant Structures
Jongha Joo, Jaehwan Jeon, and Junho Song(SNU)

09:20 A Comparative Study on AI-based Surrogate Models for Predicting Seismic Response of Nuclear Power Plants
Sangyun Song, Sangil Na, Gichun Cha, and Seunghee Park(Sungkyunkwan Univ.),
Seungryong Han and Choongyo Seo(KEPCO E&C)

09:40 Nonlinear Response Prediction of MDOF System using Window-Recurrent-Fourier Neural Operator
Jingoo Lee and Young–Joo Lee(UNIST)

10:00 Development of Machine Learning-Based Ground Motion Models for South Korea Using Stochastic Simulations with Quaternary Fault Scenarios
Hwanwoo Seo, Jeong–Gon Ha, and Minkyu Kim(KAERI)

10:20 Damage-State-Based Bouc–Wen Approach for RC Structures in Nuclear Power Plants and Its Experimental Validation
Sanghyung Kim, Wonhui Goh, and Yunbyeong Chae(SNU)

10:40 Coffee Break

11:00 Economy and Standardization Applying Seismic Isolation for a Microreactor, BeSMART
BONG YOO, Tae–Young RYU, Yun–Hwan MAENG, Jun–Hyeok CHOI, Sangjin JEONG, and Chang–Hun HYUN(BEES),
Jae–Han LEE(KAERI)

11:20 Evaluation of Floor Response Spectra at Unmeasured Degrees of Freedom in Nuclear Power Plant Auxiliary Buildings via Seismic Response Reconstruction
Namsu Jeon, Chanwoo Lee, and Hyung–Jo Jung(KAIST)

11:40 Review of Non-Ergodic Ground Motion Model Development for Site-Specific Seismic Hazard Assessment
Yoon–Ah Kim, Jeong–Gon Ha, and Min Kyu Kim(KAERI)

12:00 Seismic Fragility Analysis of a Containment Building in Nuclear Power Plants Considering Concrete Voids and Material Degradation
Hyeonung Nam and Kee–Jeung Hong (Kookmin Univ.)

10B 5.7.(Thu.) 수화학 및 건설 (Plant Water Chemistry and Construction)

| 좌장 심희상(Shim, Hee Sang), 권혁철(Kwon, Hyuk Chul) | 401A

09:00 A Review of Reactor Coolant Chemistry Behavior during Flexible Reactor Operation of PWR NPP
Seungho Lee, HyukChul Kwon, ChoRong Kim, YongSang Cho, and Wook Sohn(KHNP CRI)

09:20 Effect of Altered Antifreeze to Component Materials of Cooling Water System for an Emergency Diesel Generator
Hyuk–Chul Kwon, Yong–Sang Cho, and Wook Sohn(KHNP CRI)

09:40 Development of a Testing Loop System for Simulating CRUD Behavior Under Flexible Reactor Operation Condition
Jun Heo, Jin–Ju Park, Hee–Sang Shim, and Soon–Hyeok Jeon(KAERI)

10:00 Influence of Dissolved Hydrogen Concentration of PWR Primary Coolant on Corrosion of Fuel Cladding Deposited by CRUD
Sieun Baek, Min–gyo Seo, Do Haeng Hur, and Hee–Sang Shim(KAERI), Hyo–Sik Chang(CNU)

10:20 Method of Evaluating the Contribution of Corrosion Product Deposit on Fuel Cladding for Its Corrosion Acceleration
Hee–Sang Shim, Sieun Baek, Seong–Jun Ha, Soon–Hyeoik Jeon, Sang–Yeob Lim, and Do Haeng Hur(KAERI)

10:40 Coffee Break

11:00 Role of Hydrazine Control in a Steam Generator Management Program and Basis for Revising EPRI Chemistry Guidelines
Jeoh Han, Kuk–Hee Lee, and Seung–Jae Kim(KHNP CRI)

11:20 Assessment of CRUD Deposition on Fuel Cladding in a Boron-Free Coolant Environment
Junhyuk Jeong and Ji Hyun Kim(UNIST), Yunju Lee(KIMS)

11:40 Strategic Modularization for Efficient i-SMR Construction and Deployment
Wonki Chai(DAEWOO E&C), Wooyong Jung(KINGS)

10C 외부재해 (External Hazard)

5.7.(Thu.) | 좌장 함대기(Hahm, Daegi), 이세현(Lee, Sei-Hyun) | 400

13:30 Reassessment of Wind-borne Missile Fragility Incorporating Site-Specific Local Wind Field and CFD-FSI-Based Impact Velocity
Jae–Wook Jung and Daegi Hahm(KAERI)

13:50 An Integrated Bayesian Network Approach for Predictive Seismic Risk Assessment of Nuclear Power Plants
Changuk Mun, Daegi Hahm, and Minkyu Kim(KAERI), Shinyoung Kwag(HBNU)

14:10 Effects of Typhoon Parameters on Storm Surge Response at Nuclear Power Plant Site Using the ADCIRC Model
Seokhyeon Jang, Beom–jin Kim, and Minkyu Kim(KAERI)

14:30 Coffee Break

14:50 A Review of External Event Probabilistic Risk Assessment for NuScale SMRs
Seung Jae Lee and Jung Han Kim(PNU)

15:10 Comparative Analysis of Wave Overtopping at a Coastal Nuclear Power Plant using EurOtop, Deltares Model, and FLOW-3D Modeling
Jaehwan Yoo, Jiyun Jeon, and Byunghyun Kim(KNU)

15:30 Substructure-Based Damage Detection Using an Unscented Kalman Filter in the Time Domain
Wonhui Goh and Yunbyeong Chae(SNU)

15:50 Experiment on the Shear Capacity of M12 Concrete Expansion Anchors Installed in Low Strength Uncracked Concrete with Various Torque
Sung Gook Cho, Gihwan So, and JeongHun Oh(Innose Tech.), Hongpyo Lee(KHNP CRI)

10D
5.8.(Fri.)

운전/정비/열화 및 구조 (Operation/ Maintenance/Aging Management and Structural Analysis)

| 좌장 이홍표(Lee, Hongpyo), 권태현(Kwon, Tae-Hyun) | 400

09:00 Case Study on the "4:1 Rule" Applied to Conformity Assessment for Signal Generator Calibration based on ASME NQA-1 Requirement 12, Section 302
Jinhong Joo(KoFONS)

09:20 A Study on Mitigation Strategies for Thermal Loads on Piping Systems Induced by Thermal Stratification in Nuclear Power Plants
Sung–in Jung(KHNP), Youn–ho Cho(PNU)

09:40 Improvement Measures for Power System Reliability through the Analysis of Loss of Offsite Power Events
Jungmin Choi(KHNP–HRDI)

10:00 Study on Fuel Handling System in Innovative Small Modular Reactor
Ho Jung Lee, Hyun Jeong Kim, Joohee Lee, and Dae Heon Lim(KEPCO E&C)

10:20 Numerical Evaluation of Reinforced Concrete Shear Walls under Bi-Axial Loading for Nuclear Auxiliary Buildings
HyeonKeun Yang and JunHee Park(KAERI)

10:40 Coffee Break

11:00 Flow Rate Prediction for Concrete Cracks Incorporating Surface Roughness
Donghwi Eum, Yuntaek Lee, and Tong–Seok Han(Yonsei Univ.)

11:20 Development of a Fracture Energy Regularized Continuum Damage Model for Tensile Cracking in Concrete with Crack Width Evaluation
Habeun Choi and Tae–Hyun Kwon(KAERI)

11:40 Detailed Modeling of Containment Building Liner Plate for XFEM-based Crack Analysis Under Ultimate Internal Pressure
Do–Yeon Kim, Jinbok Choi, and Tae–Hyun Kwon(KAERI)

12:00 Preliminary Assessment of Permeability in Large-Scale RC Structures with Cracks for NPP Containment Applications
Yousang Lee, Jihun Kim, and Hong–gun Park(SNU)

10E
5.7.(Thu.) – 8.(Fri.)

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

| 좌장 최진복(Choi, Jinbok), 이진호(Lee, Jin Ho) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO10E01 Sensitivity Analysis of Seismic Hazard for Nuclear Power Plant Sites Considering Double-Counting Corrections of Fault Sources
Jeong–Gon Ha and Minkyu Kim(KAERI)

PO10E02 Study of Thermal Stratification in Piping Systems for Operating Nuclear Power Plants Based on MRP-146 Rev.2
DAEGEON LEE, YEONTAE LEE, KYUNGCHUN PARK, HYEONGWOOK KIM, CHANKYO LEE, and BEOMJU BAE(KEPCO E&C)

PO10E03 Development of a Large-scale Test Program for Investigating Concrete Breakout Strength in Deeply Embedded Anchors
Gyeonghee An, Jin–Young Park, and Junhee Park(KAERI)

PO10E04 Design Considerations for Battery Maintenance Cost Reduction in Small Modular Reactor In-Plant Electrical Systems
Seunghyun Choi and Gyuhyeon Ryu(KHNP CRI)

PO10E05 Economic Optimization of EQ Equipment Replacement using WAT-based Thermal Aging Life Reassessment in Nuclear Power Plants
kiho Park, ByoungHun Park, and JeoungHuen Kim(Hanvit Power)

PO10E06 A Study of NRC RG 1.89 Revision 2 and Its Applicability to Environmental Qualification for Long-Term Operation
Byoung Hun Park, Jeong Heun Kim, and Ki Ho Park(Hanvit Power)

PO10E07 Evaluation Study on Electrical Cable Life Extension for Nuclear Power Plant
Jeong Heun Kim, Byoung Hun Park, and Ki Ho Park(Hanvit Power)

PO10E08 A Comparative Study on the Quality of Domestic and Overseas Nuclear Power OE Reports: Focusing on Quality Factors
Bongho Cho(KHNP CRI)

PO10E09 Challenges for CGD Implementation
kweonwoo SOHN, changwhan CHO, and sungjong KIM(MIRAE-EN)

PO10E10 REDiX® Model using Multi-agentic AI
kweonwoo SOHN, sanghwa YOON, and migyeong YANG(MIRAE-EN)

PO10E11 Synthetic Typhoon Simulation-Based Estimation of the 100-Year Return-Period Wind Speed at the Shin-Kori Site under the SSP5-8.5 Scenario
Gungyu Kim, Yeonwoo Choi, Seojun Kim, and Seunghyun Eem(KNU), Shinyoung Kwag(HBNU)

PO10E12 Strategy for Ensuring Non-Safety Related DC Power Supply Integrity on i-SMR
gyuhyeon Ryu and seunghyun Choi(KHNP CRI)

PO10E13 A Review of Secondary System Water Chemistry Behavior during Flexible Reactor Operation in PWRs
Cho-Rong Kim, Seung-Ho Lee, Hyuk-Chul Kwon, and Yong-Sang Cho(KHNP CRI)

PO10E14 Experimental Plan for Tensile Behavior of Cast-in-Place Anchors with Surface and Anchor Reinforcement
Jin-Young Park, Gyeonghee An, and Junhee Park(KAERI)

PO10E15 Analysis of an Optimization-Based Reinforcement Effect Assessment for Flood Fragility Structures in NPPs
Beom-Jin Kim, Jae-Wook Jung, and Minkyu Kim(KAERI)

PO10E16 Evaluation of Seismic Slope Fragility near Nuclear Power Plants and GIS-Based Mapping via Small-Scale 1g Shaking Table Tests and Newmark Method
Kyeongjae Park, Chaeyeon Go, and Shinyoung Kwag(HBNU), Seunghyun Eem(KNU), Daegi Hahm(KAERI)

PO10E17 Development of Event Tree-Fault Tree Model and Mapping to a Bayesian Network Model for High-Wind PSA
Chaeyeon Go and Shinyoung Kwag(HBNU), Seunghyun Eem(KNU), Daegi Hahm(KAERI)

PO10E18 Structural Response and Damage Evaluation of Major Primary- and Secondary-System Components under Steam Explosion Loads during ERVC Conditions
Seong-Kug Ha, Sang-Lyul Cha, and Jae-Chan Park(KINS), Yeo-Hoon Yoon and Kyoung-Teak Lee(KOSTECH)

PO10E19 Evaluation of Shear Performance and Load-Carrying Capacity of RC Shear Walls with Concrete Voids via Cyclic Loading Tests
Yongmoon Hwang, Hyeon-Keun Yang, Jae-Wook Jung, and Junhee Park(KAERI)

PO10E20 Hydrogen Explosion Assessment Procedure, Criteria and Qualification for SMR Steel Containment Vessels (SCVs)
Jinbok Choi(KAERI)

PO10E21 Conservative Evaluation of ASME BPVC Sec. III Stress Indices for Elbows with Circumferential Defects through Numerical Analysis of Bending Angles
Sang-Jin Lee, jin-ha Hwang, and gi-ho Seong(PKNU)

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

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

5.7.(Thu.) | 좌장 장선영(Chang, Sunyoung), 서영아(Suh, Young A) | 401B

09:00 Feasibility Demonstration of SAMEVAL and MUFEVAL for National Safeguards Inspection
Haneol Lee, Sang Hyeok Lee, Hyun Ju Kim, Jung Youn Choi, and Jinho Ryu(KINAC)

09:20 Proposal for Amending Regulatory Requirements for SDA Applications
Jong Chull Jo and Hiwon Lee(TIUM solutions)

09:40 International Regulatory Frameworks for Nuclear Fuel Cycle Facilities: Institutional Features and Implications for Korea
YoungA Suh, KyunTae Kim, and Sujin Jung(KINS)

10:00 Improving Licensing and Regulatory Frameworks for Factory Manufacturing of Facilities and Components for Small Modular Reactors
Manwoong KIM(POSTECH, NSI), Byungsoon KIM and Sukho LEE(NSI)

10:20 A Study on Legal and Institutional Improvements for the Deployment of Small Modular Reactors
Soovin Choi and Haejin Kim(Hongik Univ.)

10:40 Coffee Break

11:00 International Licensing Trends and Regulatory Harmonization for Small Modular and Advanced Reactors
Sukho LEE(NSI), Manwoong Kim(POSTECH)

11:20 Development of Issues and Response Measures on the Inspection of Suppliers for SMRs
Bok Ryul Kim, Se–Won Kim, and Sukho Lee(NSI)

11:40 International Regulatory Frameworks for AI in Nuclear Power Plants and Implications for Domestic Policy Development
Seungsu Han and Hyungdae Kim(KHU), Joongoo Jeon(POSTECH)

12:00 Methodology for Identifying Optimal Misuse Scenario for Decommissioning Nuclear Power Plants
Ickhyun Shin, Myungtak Jeong, and Hyun Jin Kim(KINAC)

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

5.7.(Thu.) | 좌장 이지민(Lee, Ji-Min), 이영우(Lee, Youngwoo) | 401A

13:30 Consistency Verification of the 2035 NDC: Effects of the IPCC Guidelines Transition on the Reduction-Rate Calculation
Joo Hyung Moon, Youngwoo Lee, and Jai Oan Cho(KAERI)

13:50 A Study on a Korea-Specific Nuclear PPA Model Based on the Analysis of Overseas Nuclear PPA Cases
Youngwoo Lee, Joo Hyung Moon, Jai Oan Cho, Gisol Nam, and Young Joon Lee(KAERI)

14:10 Changes in Household Electricity Prices Following the Expansion of Renewable Energy
Samuel Park, Kyungsoo Yoon, JooHyung Moon, and Youngjoon Lee(KAERI)

14:30 Coffee Break

14:40 Scenario-based Economic Analysis with Electricity Mix Simulation Model from 2024 to 2045 Based on the Korean 11th Basic Plan for Electricity Supply and Demand
Pilhyeon Ju and Ji Eon Kim(SNU), Jongho Lee(NIFTEP), Sungyeol Choi(IOER SNU|NIFTEP|SNU)

15:00 Feasibility of the 2035 NDC Power Sector: A Quantitative Assessment of Renewable Expansion and Nuclear Generation Targets
Joo Hyung Moon, Youngwoo Lee, and Jai Oan Cho(KAERI)

15:20 Dynamic Analysis of Compressor Surge Aggravation under Low-Flow Operating Conditions
Seokjun Oh and Jeongik Lee(KAIST)

15:40 Strategies for Commercializing Neighboring SMRs (N-SMRs): Groundbreaking Service Quality Improvement of Data Centers
Tae Ho Woo, and Chang Hyun Baek(Korea Cyber Univ.), Kyung Bae Jang(Kangwon National Univ.)

11C 원자력정책, 인력 및 협력 3 (Nuclear Policy, Human Resources and Cooperation 3)

5.8.(Fri.) | 좌장 이은제(Lee, Eun Je), 고한석(Ko, Hansuk) | 401A

09:00 User-Centered Design and Development of the Nuclear Safety Information Sharing Portal : A Case Study from Phase II of the Nuclear Safety Information Sharing Framework
Ji-Yoon Shin, Jin-A Jeong, Young-Sik Park, Kye-Hee Lee, Ji-youn Lee, and Byeong-Hyeon Chae(KINS)

09:20 Who Accepts and Who Protests Urban SMR Siting? A Risk–Benefit Perspective
Gaeul Choi, Sungyeol Choi, and Taehyon Choi(SNU), Yool Choi(CAU)

09:40 Public Acceptance of Small Modular Reactors in the Artificial Intelligence Era: Interaction between Social Norm and Knowledge
Jisong Jeong, Byung-je Kim, Philseo Kim, and Young Bae(POSTECH)

10:00 Development of an LLM-Based Framework for Research–Regulatory Alignment and Integrated Technology Mapping: A Case Study on TRU Fuel Deployment in Small Modular Reactors
SunWoo Park and Ho Jin Ryu(KAIST)

10:20 Development and Implications of 10 CFR Part 53 as a Regulatory Framework for Advanced Reactors in the United States
Gisol Nam, Ji-Min Lee, Joo Hyung Moon, Youngwoo Lee, and Young Joon Lee(KAERI)

10:40 Coffee Break

11:00 Domestic Commercial Uranium Enrichment in the Republic of Korea: Investigating Institutional Gaps and Economic Feasibility
Changhyun Jo, Junhee Lim, Junseo Park, Hyeongtak Kang, Dongki Lee, and Youho Lee(SNU)

11:20 A PEST Analysis Based on the U.S.–Japan Nuclear Cooperation Agreement: Policy Implications for Korea–U.S. Nuclear Cooperation
Jiyoung Kim, Dong Hoon Lee, Keonhee Lee, Jihwan Lim, and Eunju Jun(KAERI)

11:40 An Economic Analysis of the South Korean Nuclear Fuel Cycle Options using Dynamic Mass Flow Model
ChaeRin Lim, Ji Eon Kim, Pilhyeon Ju, and Sungyeol Choi(SNU), Min Baek(POSTECH)

11D
5.7.(Thu.) – 8.(Fri.)

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

| 좌장 정원표(Jeong, Won Pyo), 우태호(Woo, Tae Ho) | Lobby (3F)

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO11D01 Several Considerations for National Human Resource Development in Nuclear Newcomer Coutries with the IAEA Milestones Approach and Korea Experience
HANSUK KO(KAERI)

PO11D02 International Trends in Nuclear Safety Leadership and Future Tasks in Korea
Kyung Joo Yi and Su Jin Jung(KINS)

PO11D03 Case Study of Risk-Based Quality Management for On-time Delivery of i-SMR Licensing Documents
GILIM KIM, JINSOO CHOI, UIJU JEONG, and TAEHOON KIM(KHNP)

PO11D04 Restructuring of Nuclear and Radiation Education under the 2022 Revised Curriculum in the Era of Carbon Neutrality
Jinmyeong Shin and Seungah Yang(KAERI)

PO11D05 A Study on Improving a Writing System based on Writing Purpose and Event Severity Level for Enhancing the Quality of NPPs Operating Experience Report
Seonghun LEE(KHNP)

PO11D06 Review of Research on the Effects of Nuclear Power and Radiation Education on Students
HyunJun Na, YeBin Lim, and InKyung Lee(KHNP RHI)

PO11D07 Literature Review on Radiation Communication and its Implications: 40 years after the Chernobyl Accident
HyunJun Na, YeBin Lim, and Inkyung Lee(KHNP RHI)

PO11D08 Determinants of Public Acceptance by Spent Nuclear Fuel Management Strategy : Direct Disposal Versus Pyroprocessing
Eunok Han(SNEPC), Min Baek(POSTECH)

PO11D09 Institutional Challenges for Implementing Security Cooperation Under the 2025 ROK-U.S. Joint Statement
Yonhong Jeong, Byungmarn Kho, Minsoo Kim, and Gayeon Ha(KINAC)

PO11D10 Intelligent Data Tiering Design for Optimizing Data Availability and System Load in Nuclear Activity Detection Platforms
Sueyeon Lee, Gayeon Ha, and Yonhong Jeong(KINAC)

PO11D11 Review on International Practices of Cross-Cutting Area Frameworks: Implications for Korean Nuclear Security Regulation
Ha–Neul Na, So Eun Shin, Youngsuk Bang, Yong Suk Lee, and Heung Gyu Park(FNC Tech.)

PO11D12 Policy Proposals for Safety and Security Interface(SSI)
Jung Soo Kim, Gee Man Lee, and Woo Sik Jung(Sejong Univ.)

PO11D13 Development on a Regulatory Frameworks of the Remote Inspection System for Nuclear Safeguards
Jeemin Han and Seung Min Woo(KHU)

PO11D14 NuScale-Based Comparative Analysis of 10 CFR Part 52 Design Approval Frameworks (SDC vs. SDA) and Licensing Strategy Implications for i-SMR
Chul–Kyu Lim and Sunghyun Park(KHNP)

PO11D15 Nuclear Compliance: Assessing the Utility of LLMs with RAG
Isak Hwang(HYU), Yoon Pyo Lee(Illinois Urbana–Champaign Univ.)

P011D16 Analysis of the UK Nuclear Licensing Framework and Generic Design Assessment (GDA) for SMR Export Strategies
Soyoung Kim and Yunbum Park(KAERI)

P011D17 A Study on EUR Technical Requirements to Enhance Export Competitiveness of SMR
Soyoung Kim, Seungyeob Ryu, and Yunbum Park(KAERI)

P011D18 Study on Identifying Safety Regulatory Issues for Domestic Gas-Cooled Reactors Based on the GIF VHTR SDC Methodology
Jeongbeen Lee, Yeeun Choi, Donggyu Lee, and Hongjune Park(Doungguk Univ.)

P011D19 Multi-Criteria Evaluation of Small Modular Reactors for Nuclear Newcomer Countries: A Case Study of Nigeria Using Integrated IAEA-Based Assessment Tools
Muhammad Mashi Hassan and Juyoul Kim(KINGS)

P011D20 Domestic and International Changes in the Nuclear Environment and Considerations for Establishing Nuclear Safety Regulatory Policy Directions
YoungA Suh, Youngil Lee, and Sujin Jeong(KINS)

P011D21 Establishing a National Isotope Program for Supply Chain Resilience in Korea
Gyu Hyeon Sim, Jae Chang Kim, Joo Hyung Kim, and Yong Kyun Kim(HYU)

P011D22 A Study on the Development of Supplementary Nuclear Energy Teaching Materials for Teachers Based on the Analysis of the National Curriculum and Textbooks
Seungah Yang and Jinmyeong Shin(KAERI)

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

12A 5.7.(Thu.) 계측제어 및 인간공학·자동원격 1 (Nuclear I&C, Human Factors and Automatic Remote Systems 1)

| 좌장 김찬호(Kim, ChanHo), 최정훈(Choi, JeongHun) | 402A

09:00 Verification of a Design Change to Remove PPS Signal Simulation Equipment Using an MMIS Digital Twin
Min-seok Kim and Sangwoo An(KHNP)

09:20 Effect of State-Constrained Supervisory Prompt Design on Routing Stability in LLM Agent
Seungjin Baek, Gayeon Kim, Joowon Cha, Yonggyun Yu, and Seung Geun Kim(KAERI)

09:40 Developing a Robust Multi-agent Reinforcement Learning Framework for Autonomous SMR Abnormal Operations using Abstraction Hierarchy
Gwanwoo Kim, Hee-Jae Lee, and Jonghyun Kim(KAIST)

10:00 Empirical Evaluation of Single-Agent and Multi-Agent LLM Systemsfor Nuclear Reactor Control
Joowon Cha, Soyeon Kim, and Yonggyun Yu(UST|KAERI), Seung Geun Kim(KAERI)

10:20 Control-Rod Position Prediction for Load-Following Operation via a Reinforcement Learning Platform with a Pre-trained CVAE
Junhyeong Bang and Jonghyun Kim(KAIST)

10:40 Coffee Break

11:00 A Comprehensive Review on Solenoid-type In-vessel Control Rod Position Indicators (IV-CRPI) for i-SMR
Dongyeong Heo and Hwasung Yeom(DANE. POSTECH)

11:20 Development of ADS-based Operator Action Support System for Abnormal Operation
Hee-Jae Lee and Jonghyun Kim(KAIST)

11:40 Radiation Hardened by Design of LC-VCO in 28 nm FDSOI Process with Auxiliary Varactor Pair
Muhammad Adeel Anwar and Kyung Suk Suh(UST), Habin Kim and Inyong Kwon(Yonsei Univ.)

12:00 Characterization of Neutron-Induced Displacement Damage Mechanisms and Leakage Current Degradation in Si MOSFETs
Jin-Seok Oh(UST), Chan-Ho Kim(KAERI), Inyong Kwon(Yonsei Univ.)

12B 5.7.(Thu.) 계측제어 및 인간공학·자동원격 2 (Nuclear I&C, Human Factors and Automatic Remote Systems 2)

| 좌장 손광섭(Son, KwangSeop), 승민욱(Seung, Minuk) | 401B

13:30 A Low-Area, High-Performance FPGA-Based ENFMS Using Fixed-Point Arithmetic
Heehun Yang and Hoyoung Yoo(CNU)

13:50 Autonomous Normal Operation in SMRs: A Conceptual Design Integrating Models and HMI
Ji Woo Hong, Ji Hun Park, Ji Hyeon Shin, and Seo Ryong Koo(KAERI)

14:10 Adaptive Reward Shaping via Meta Reinforcement Learning Applications in NPP Operations
Yoo Joon Seoung and Seung Jun Lee(UNIST)

14:30 Coffee Break

14:50 FPGA-Based JTAG Interface Gating with Hardware Key and Device DNA Authentication for Secure Maintenance of Nuclear I&C Control Modules
Chan Yeong Woo, Je Seok Lee, Min Hyuk Yoon, Yeong Ik Son, Gi Ho Cho, and Dong Yeon Lee(SOOSAN ENS)

15:10 Compensated Switching Technique for Linearity Improvement of R-2R DACs in High-Radiation Environments
Duckhyun Kim(KAERI), Gyuseong Cho(KAIST), Inyong Kwon(Yonsei Univ.)

15:30 PINN-Based Digital Twin and Safe Reinforcement Learning for Autonomous SMR Load-Following Control
Il Hoon Park(GNP SYSTEM)

12C
5.7.(Thu.)

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

| 좌장 신호철(Shin, HoCheol), 류동석(Ryu, DongSeok) | 402A

13:30 Constrained Dynamics Solver for Robotic Simulation via Augmented Lagrangian
Sunkyung Park, Jinhee Yun, and Dongjun Lee(SNU)

13:50 Development of a Linear Actuator-Based Transformable Wheel-Based Bipedal Robot for Enhanced Mobility in Nuclear Facilities
Sunhyuk Jee and Jeakweon Han(HYU)

14:10 Position-Based Impedance Control of a Hydraulic Manipulator for Nuclear Accident Response without Pressure Sensors
Seongjin Park and Jongwon Park(UST), Jinyi Lee and Ki Hong Im(KAERI)

14:30 Coffee Break

14:50 Development of a Tracked Mobile Platform with Adaptive Locomotion Capability for Operations in Nuclear Facilities
Wonseo Lee, Jongwon Park, Dongjun Hyun, and Dongseok Ryu(KAERI)

15:10 Safety-Embedded Control Architecture for 3-DOF Lifts of Mobile Manipulators in Nuclear Maintenance Tasks
Hyeokbeom Kwon and Jongwon Park(UST|KAERI), Jinyi Lee(KAERI)

15:30 Operational Reliability and Tip-over Prevention for Mobile Manipulators in High-Radiation Environments
Jaehee Park(UST|KAERI), Jinyi Lee and Jongwon Park(KAERI)

15:50 Performance Evaluation and Enhancement of a Miniature Hydraulic-Power-Unit for Mobile Hydraulic Robots
Gaeun Shin(UST|KAERI), Jinyi Lee and Jongwon Park(KAERI)

12D
5.8.(Fri.)

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

| 좌장 이승준(Lee, Seung Jun), 구영도(Koo, YoungDo) | 401B

09:00 Development of a Built-in Automatic Testing Method for Digital Protection Logic
Tae Young Jhee, Tae Ryoun Kim, and Jonghyun Kim(KAIST)

09:20 Conceptual Design of Plant Limitation System for Mitigating Moisture-Induced Degradation in High-Temperature Gas-Cooled Reactors
Hyeongseok Eun, Kwang–Il Jeong, Dae–Il Lee, and Joon–Ku Lee(KAERI), Eunkyoung Jee(KAIST)

09:40 Integrated Overview Display Concept for Multi-Module SMR Supervisory Control
Jung Sung Kang, Inseok Jang, and Seo Ryon Koo(KAERI)

10:00 Development of a New Methodology for Function Allocation in Small Modular Reactors
Huijeong Kim and Jonghyun Kim(KAIST)

10:20 RS-015-aligned Windows Kiosk Wrapper for Secure Operation of Engineering Toolchains
Tae–Gyu Kang, Ki–Ho Cho, and Dong–Yeon Lee(SOOSAN ENS)

10:40 Coffee Break

11:00 Time Margin Analysis of Reactor Trips Using Operating Experience
Yoonsoo Lee and Man Cheol Kim(CAU)

11:20 Deploying AtomicGPT for Real Time Meeting Summarization: A Comparative Analysis of Local Processing Strategies
Inhye Park, Janghwan Kim, and Hogeon Seo(KAERI)

11:40 A Study on Human Factors Evaluation of Control Room Staffing Based on NUREG-1791
Young Do Koo, Tongil Jang, and Sa Kil Kim(KAERI)

12E
5.8.(Fri.)

계측제어 및 인간공학·자동원격 5
(Nuclear I&C, Human Factors and Automatic Remote Systems 5)

| 좌장 탁태우(Tak, TaeWoo), 김재민(Kim, JaeMin) | 402A

09:00 Introduction to Intelligent Counter Drone System for Nuclaer Facilities
Taewoo Tak, Yonggu Lee, and Seongyeol Oh(KAERI)

09:20 A TF-IDF based Retrieval Method for Entry of Actions of LCO Cases
Nokyu Seong and Sangwon Oh(KHNP)

09:40 Operator Assistance Framework for Heat Pipe Cooled Microreactor using Domain-Specific Language Model
Ik Jae Jin and In Cheol Bang(UNIST)

10:00 Mitigating Spurious Correlations for Nuclear Power Plant Fault Diagnosis Using Adversarial Debiasing
Ji Hyeon Shin, Jae Min Kim, and Seo Ryong Koo(KAERI)

10:20 Physics-Based Dynamic Data Synthesis Enabling Uncertainty-Aware RUL Prediction of Nuclear Digital Input Cards
Ji Hun Park and Chang Hwoi Kim(KAERI)

10:40 Coffee Break

11:00 A Data-Driven Approach to Estimating Capacitor Degradation in Reactor Protection Systems
Hye Seon Jo, Ho Jun Lee, Dong Geon Jang, Jin Seong Kim, and Man Gyun Na(CSU)

11:20 Development of a Proactive Alarm Prediction Model to Enhance Operator Situation Awareness
Eon Sang Jeon, Se Heon Lee, Young Hun Kim, and Man Gyun Na(CSU)

12F 5.7.(Thu.) – 8.(Fri.)

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

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

| 게시시간 5.7.(Thu.) 13:00 ~ 14:00 / 5.8.(Fri.) 09:00 ~ 12:00

| 저자 발표시간 5.7.(Thu.) 13:00 ~ 14:00

PO12F01 The Refurbishment of I&C Systems of TRIGA Research Reactors
Yong Suk Suh, Hagtea Kim, Dane Baang, Sang Mun Seo, and Jonghark Park(KAERI)

PO12F02 Research on Transfer Learning of Neural Network-based Thermal-Hydraulic Code Surrogate Model
Hyojun Yi and Seunghyoung Ryu(Sejong Univ.), Hyeonmin Kim (KAERI)

PO12F03 Research on Surrogate Model for Thermal-Hydraulic Codes using LightGBM
Jiwon Han, Hyojun Yi, and Seunghyoung Ryu(Sejong Univ.), Hyeonmin Kim(KAERI)

PO12F04 Design Modification of Steam Bypass Control System to Maintain Reactor Power during Turbine Load Reduction Operation
Myung Jun Song, Ji Hong Min, and Ung Soo Kim(KEPCO E&C)

PO12F05 Agentic Frameworks for Physics-Informed Neural Networks Evaluating Planner Architectures
Byeonghha Jo, Jaejun Lee, Yonggyun Yu, and Hogeon Seo(UST|KAERI)

PO12F06 Pre-Execution Dual-Gate Verification and Dynamic Procedure Reconfiguration for LLM Agent System in Nuclear Reactor Operation
Gayeon Kim, Seungjin Baek, Joowon Cha, Yonggyun Yu, and Seung Geun Kim(KAERI)

PO12F07 Application-Specific SRAM for On-Chip Pixelized Histogramming in Multi-Channel Radiation Detectors
Seungwon Park and Inyong Kwon(Yonsei Univ.)

PO12F08 Structural Considerations for SMR Information Processing System Architecture
Soonae Lee and Yunuk Park(KHNP)

PO12F09 Reliability Improvement of TC Input Module of Nuclear Power Plant Safety-Grade PLC through Cold Junction Voting Algorithm
Chi–Uk An, Kwan–Woo Yoo, and Dong–Yeon Lee(SOOSAN ENS)

PO12F10 Internal Diversity Strategy in Digital I&C Systems for CCF Mitigation
Hangyu Kim(KHNP)

PO12F11 Design Experience for Realtime Simulator of SMART(System integrated Modular Advance Reactor)
Joonku Lee, Daeil Lee, Hyeongseok Eun, and Kwangil Jeong(KAERI)

PO12F12 Preliminary Assessment of Control Strategy for a MSR Coupled with TES and OTSG
Sangjin Kim, Seulbin Park, Woonho Jeong, Hyunwoong Lee, and Jihwan Kim(HDEC)

PO12F13 Development of an Innovative Reactor-Safety System for Multi-module Small Modular Reactors (SMRs)
Hee–Taek Lim(KHNP)

PO12F14 Surface Defect Detection of HANARO Fuel: A Review of Machine Learning-Based Methods
Yuntaek Im, Namkyeong Kim, Yonghwi Kim, Sangjin Kim, Kyunghwan Lim, Hoonjo Cho, and Wonho In(KAERI)

PO12F15 Extended Testing Strategies for Enhancing Reliability of an Intelligent Decision Support System Prototype in Nuclear Power Plants
Gwi–sook Jang and Seo–Ryong Koo(KAERI)

PO12F16 Design of a Parallelized Pulse Generation Algorithm
Daeil Lee, Joon–ku Lee, Kwang–il Jeong, Hyeongseok Eun, and Younhee Choi(KAERI)

PO12F17 Intelligent Signal Classification for False Alarm Reduction via Multi-domain Feature Transformation
Dong Hyeon Shin(Korea Univ.), Hee–Jae Lee and Jonghyun Kim(KAIST)

PO12F18 Radiation Detector Compensation System for Extreme Environments
Junseong Hwang and Jung–Yeol Yeom(Korea Univ.), Chanho Kim(KAERI)

PO12F19 Hybrid Temperature Compensation System Using Active Voltage Control and Deep Learning for Scintillation Detectors
Dae yang Oh, Junseong Hwang, Geon Kim, and Jung–Yeol Yeom(Korea Univ.), Chanho Kim(KAERI)

PO12F20 Design of a Memory Integrity Test System for the Safety Grade PLC(POSAFE-Q)
karam Park, minhyuk Yoon, kwanwoo Yoo, and dongyeon Lee(SOOSAN ENS)

PO12F21 Design Strategy of an Integrated Safety Protection System with Diverse System for Sodium-cooled Fast Reactor
Kwang Il Jeong, Dae Il Lee, Hyeong Seok Eun, and Joon Ku Lee(KAERI)

PO12F22 Development of a Realistic Gamma-ray Spectrum Database using Geant4 and Deep Learning-based Sim-to-Real Translation
Geon Kim, Junseong Hwang, Dae yang Oh, and Jung–Yeol Yeom(Korea Univ.), Chanho Kim(KAERI)

PO12F23 A Study on the Design of i-SMR MMI Considering Human Performance Issues
Sung Kon Kang, Ho Sun Ryu, and Hee Taek Lim(KHNP)

PO12F24 Operator Workload Results in Integrated Control Room for i-SMR
Chanho Sung, Kyungmin Kim, and Jungho KIM(KHNP)

PO12F25 Redefining the Role of the ARO in the 1st Staffing Plan Validation
Kyungmin Kim, Chanho Sung, and Jungho Kim(KHNP)

PO12F26 Human Factors Review on the Implementation of AI-Based Autonomous Operation in Nuclear Power Plants
Kun–Young Han and Sa–Kil Kim(KAERI)

PO12F27 A New Safety Paradigm Required for the Successful Next Generation Nuclear Systems Incorporating AI and Automation - For Sustaining the Pioneering Leadership in Safety Realization
Yong–Hee Lee(KAERI)

PO12F28 Human System Interface Design Considerations for Adding an Operator Support System to the Digital Control Room of Nuclear Power Plants
Hyun–Chul Lee(KAERI)

PO12F29 Ontology-Driven Knowledge Graph Construction from Text Using Large Language Models: A Nuclear Domain Case Study
Bokyeong Kim and Yonggyun Yu(KAERI|UST)

PO12F30 Timeline-based Task Analysis for Multi-module SMRs
Gayoung Park, Chanho Sung, and Jungho Kim(KHNP)

PO12F31 Effect of Pixel Pitch on Neutron-Induced White Pixel Generation in CMOS Image Sensors
Jihun Jeong and Inyong Kwon(Yonsei Univ.)

PO12F32 The Method of Requirements Traceability Analysis for Third-Party Auditors
Jang–Yeol Kim and Jong–Gyun Choi(KAERI)

P012F33 A Multi-Level Memory Integrity Verification Method for Safety-Grade PLC CPU Modules(POSAFE-Q)
Jeong-Chan Lee, Myeong-Jun Jeon, Jae-won Choi, Tae-Kang Yeo, Jun-Won Lim, Soo-Hyun Lim, and Ji-Hyun Hwang(SOOSAN ENS)

P012F34 KAERI-GPT: Extending a Nuclear Domain LLM to Secure Institutional Environments
Seungdon Yeom and Yonggyun Yu(KAERI)

P012F35 Implementation of a Spatio-Temporal Data Registration System for Real-time Monitoring of Surface Defects in Nuclear Power Plant Structures using Multi-sensor UAVs
Keun-Chan Cho and Joo-Hyung Kim(Inha Univ.), Ho-Cheol Shin(KAERI)

P012F36 Experiments on Degeneracy of LiDAR based Localization in an Underground Disposal Facility
Sugon Shim, Wonseo Lee, Jonghui Han, Hocheol Shin, and Dongseok Ryu(KAERI)

P012F37 Development of a 4-Wheel Elevated Mobile Robot for High-Position Valve Manipulation
Sangryeong Seo, Jeongheon Ryu, Dongseok Ryu, and Hocheol Shin(KAERI)

P012F38 Evaluation System for Recognition Accuracy of Gauge Reading in Nuclear Facility
Yongho Cho, Wonseo Lee, Hocheol Shin, and Dongseok Ryu(KAERI)

P012F39 An Integrated Decision Support Structure for Technical Specifications in Nuclear Power Plants
SANG WON OH(KHNP)

P012F40 Preliminary Study on Energy-Guided Diffusion for Leakage Signal Augmentation in Nuclear Power Plant Secondary Systems
DongYun Cho(UST), You-Rak Choi(KAERI)

P012F41 A Preliminary Study on the Locations of Distributed Fiber Optic Sensors in High-radiation Environments of Nuclear Power Plants
Dongjin Kim, Hee Kwon Ku, Subin Kim, and Sang Hun Shin(FNC Tech.),
Jongyeol Kim, Youngwoong Kim, Gukbeen Ryu, and Wookjin Jeong(KAERI), Young Ho Kim(KPTI)

P012F42 Physics-Informed Intelligent Prognostic and Diagnostic Framework for Nuclear Power Plant Safety System Signal Processors
SANGJUN PARK and CHANG HWOI KIM(KAERI)

P012F43 Comparative Study of Cybersecurity Frameworks for Ensuring Integrity of Nuclear I&C FPGA Controllers: Focusing on MITRE ATT&CK for ICS and ESTM 3.0
Jae Hwan KIM, Kwang Seop SON, Jae Gu SONG, Se Hoon LEE, Seung Oh SEO, and Young Jun LEE(KAERI)

지부 활동결과 및 계획발표회

| 일 시 2026. 5. 8.(Fri.) 10:00 ~ 11:00
| 장 소 제주국제컨벤션센터, 303A(3F)

시간계획	내 용	
	[사회 : 황태석 부회장]	
10:00~10:05	인사말	최성민 학회장
10:05~10:45	[지부 활동결과 및 계획 발표]	
	광주 · 전남 · 전북 지부	송종순 지부장
	부산 · 울산 · 경남 지부	이덕중 지부장
	여성지부	정윤선 지부장
	학생지부	조영범 학생지부 지도교수
10:45~10:55	종합토의	
10:55~11:00	마무리	

학술발표회 회의장 배치도 (Floor Plan)

2F

① 201 A, B
② 202 A, B
③ 203

3F

① 301 ② 302 ③ 300 ④ 303 A, B ⑤ 304
⑥ 삼다홀(Samda Hall) A, B ⑦ 한라홀(Halla Hall) A, B
⑧ 델리지아(Delizia) ⑨ 델리뷰(Deli View)

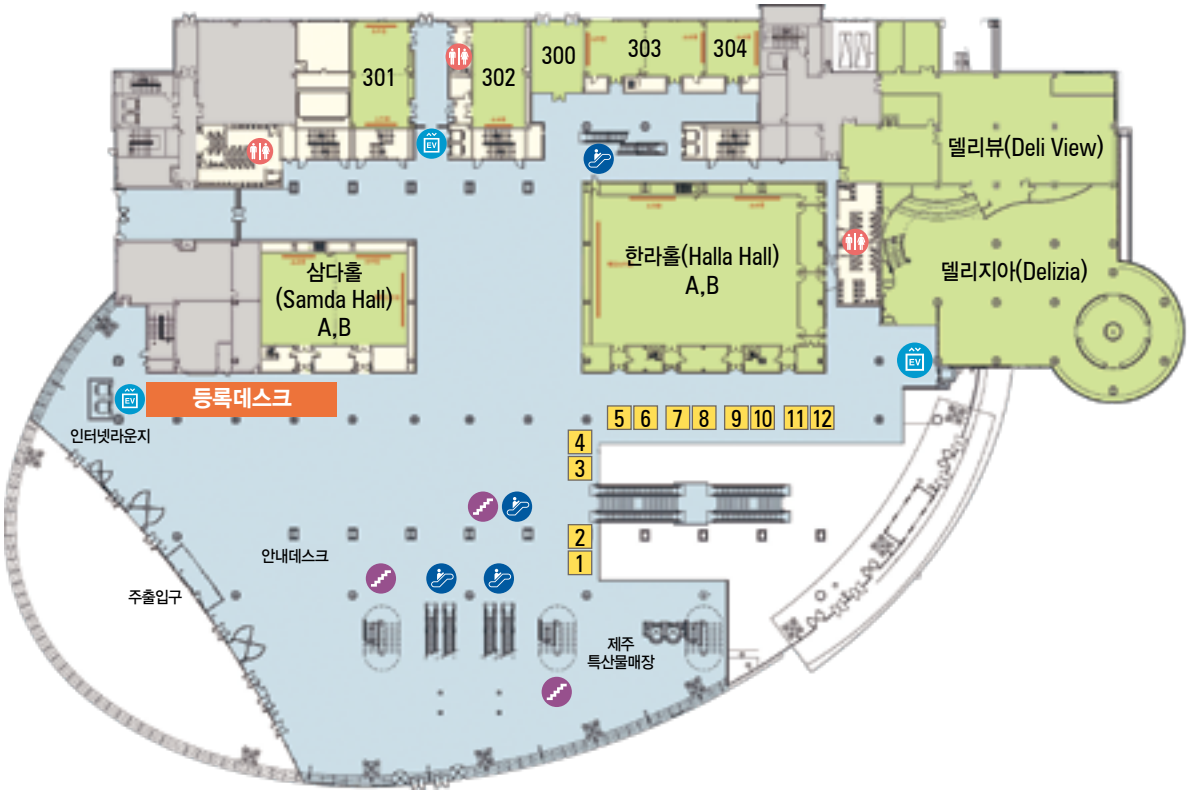
4F

① 401 A, B
② 400
③ 402 A, B

5F

① 탐라홀(Tamna Hall)
② 오션뷰(Ocean View)

전시 (Exhibition)



위 치	기 업 명
1	ALTSOFT
2	KAERI 한국원자력연구원 Korea Atomic Energy Research Institute
3	MADD
4	한국원자력안전재단
5	DONG YANG Energy & Power Technology
6	원자력안전정보공유포털

위 치	기 업 명
7	LINC
8	3M Science. Applied to Life.™
9	한국원자력통제기술원 KINAC KOREA INSTITUTE OF NUCLEAR NONPROLIFERATION AND CONTROL
10	
11	anflux (주)안플럭스
12	한국원자력의학원

교통편 (Transportation)

| 제주 국제컨벤션센터 | 제주특별자치도 서귀포시 중문관광로 224(중문동) Tel. 064-735-1000

공항리무진 버스안내 (600번 제주공항 ↔ 중문관광단지)

운행표	공항 → 한라병원 → 동광환승정류장 → 중문관광단지입구 → 호텔(그랜드조선제주, 파르나스호텔, 신라호텔, 스위트호텔, 블룸호텔, 롯데호텔, 켄싱턴리조트,씨에스호텔) → 제주국제컨벤션센터(ICC JEJU) → 제주월드컵경기장 → 파라다이스호텔 → 서귀포칼호텔
제주국제공항 출발 (06:00 ~ 21:25)	공항정문 1층 5번 게이트 왼쪽 리무진 버스 승차장 (삼영교통 600번)
ICC JEJU	리무진 버스 안내멘트에 따라 컨벤션센터 로터리 정류장에 하차 (600번 제주공항 ↔ 서귀포)
이용요금	공항에서 ICC JEJU까지 편도(성인) 4,500원 매 16~40분 간격 ICCJEJU까지 소요시간 약 1시간

택시안내 (제주공항 ↔ 중문)

거 리	소요시간
약 42㎞	약 50분

렌터카 이용시 (제주공항 → ICC JEJU)

경로	소요시간	이용노선
1코스 (1135번 도로 평화로)	차량 50분 소요 리무진 60분 소요	공항 → 신제주 → 제주경마장 → 평화로 → 중문관광단지 → ICC JEJU
2코스 (1139번 도로 1100도로)	차량 45분 소요 (초행길, 눈길, 안개조심)	공항 → 신제주 → 한라수목원 → 신비의 도로 → 어리목 → 탐라대학교 → ICC JEJU
3코스 (1131번 도로 516도로)	차량 1시간 10분 소요 (초행길, 눈길, 안개조심)	공항 → 삼성혈 → 제주대학교 → 성판악 → 돈내코유원지 → 16번도로 → 중문관광단지 → ICC JEJU

Ⓟ 주차 유료화 안내

- 최초 입차후 1시간 무료
- 1시간 이후~ 매 30분당 : 1,000원
- 1일 최대 요금 : 5,000원 (일반차량 기준, 대형 10,000원) / 재입차시 신규차량으로 간주되어 과금됨
- 주차정산 : 센터내 사전정산기 이용 결제 혹은 출차시 무인 정산(카드 결제)
- 주차권 구입처 : 하이파킹 김성훈 소장 070-7119-2036 (제주국제컨벤션센터 2층)

한국원자력학회 특별회원 (Special Members)

한국수력원자력(주)	DOOSAN	KAERI 한국원자력연구원 Korea Atomic Energy Research Institute	한국전력공사	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	Westinghouse
KFE 한국핵융합에너지연구원	DL E&C	(주)삼영유니텍	HYOSUNG HEAVY INDUSTRIES	KORAD 한국원자력환경공단	한국원자력의학원
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대한방사선방어학회
The Korean Association for Radiation Protection

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| 홈페이지 https://karp.or.kr
| 연 락 (02) 2297-9775 / webmaster@karp.or.kr

■ 학회 소개

1975년에 창립한 (사)대한방사선방어학회는 방사선 안전 및 방호에 관한 공학 및 의학계 전문가들의 학술단체로서 국내외 관련 학술단체와의 상호협력 등을 통해 국가 과학기술의 발전을 도모하고 있으며, 학문적 전문성을 바탕으로 방사선 사고 및 관련 현안 이슈에 대한 객관적이고 과학적인 사실에 기반하여 국민의 방사선 이해를 증진하고 있다.

- 주요 행사 : 학술대회(연 2회) 및 워크숍(연 2회) 개최

■ 발행물

– 국제학술지

「Journal of Radiation Protection and Research」 연 4회 발행
: ESCI 및 SCOPUS, KCI 등재, 3개국(한국, 일본, 호주) 공동 발행
(https://jrpr.org)

– 카페레터 (KARPe-Letter)

: 학회 소식지(연 4회 발행)

학술지 JRPR 표지

■ 학회 행사 일정

– 2026년 하계워크숍
일 시 : 2026년 8월 27일(목)~28일(금) | 장 소 : 스카이베이 경포

– ICRS15-RPSD2026 국제학술대회
일 시 : 2026년 10월 25일(일)~29일(목) | 장 소 : 롯데호텔 제주

– 2026년 추계학술대회 및 정기총회(50차)
일 시 : 2026년 10월 29일(목)~31일(토) | 장 소 : 롯데호텔 제주

주요사업 영역

에너지는 삶의 필수 기반이며 사회적 선택과 갈등의 중심이 되기도 합니다. 이해는 공감으로, 공감은 참여로 이어져야 우리 모두의 에너지 미래가 더 건강해집니다.

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- 에너지와 일상을 잇는 정보 소통 활성화

2 국민의 에너지 소양 제고

에너지를 사회적 책임과 참여의 문제로 인식하는 사회적 환경을 조성합니다.

- 에너지소양 교육 전문가 양성
- 에너지소양을 갖춘 미래세대 교육
- 에너지 교육자료 및 강좌 접근성 제고

3 상생의 소통기반 조성

다양한 생각이 만나는 대화의 장을 마련합니다.

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- 정책 설명 및 의견수렴을 위한 토론회·설명회
- 국민인식조사, 글로벌 에너지 동향 파악

기관 소개

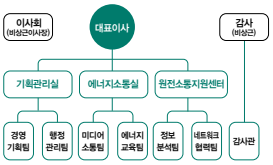
1 연혁

- 1992 한국원자력문화재단 설립
- 2002 전력산업 기반기금 출연시행
- 2005 사옥 마련 (이전)
- 2007 에너지체험관 개관 (사옥1층)
- 2010 기타공공기관 변경지정
- 2017 한국에너지정보문화재단 (명칭변경)
- 2025 에너지정보관 리뉴얼 (체험형전시)

2 설립목적

설립 근거	민법 제 32조(비영리법인의 설립과 허가) ※기관유형 : 기타공공기관
설립 목적	에너지에 대한 올바른 이해 증진
주요 기능	온·오프라인 매체를 통한 에너지 정보제공 각계각층 대상 세미나, 문화사업, 시설견학, 전시회 학생, 교사, 학부모 대상 에너지 교육 에너지문화 진흥을 위한 국제협력 및 이해증진 정부 및 에너지 관련 기관으로부터의 수탁사업 등

3 조직



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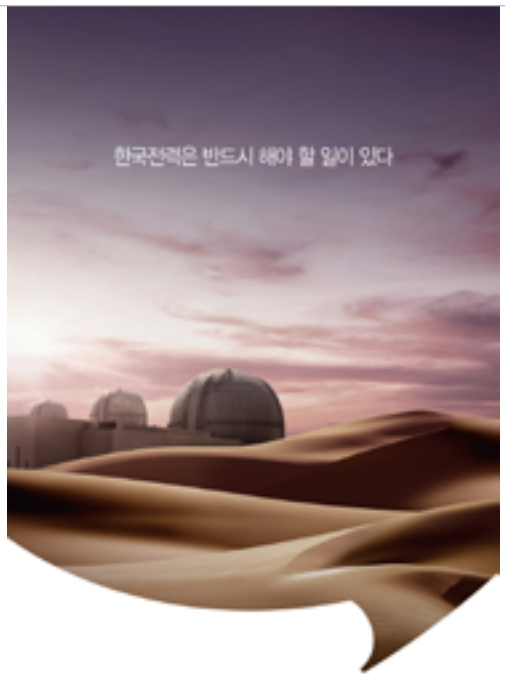

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