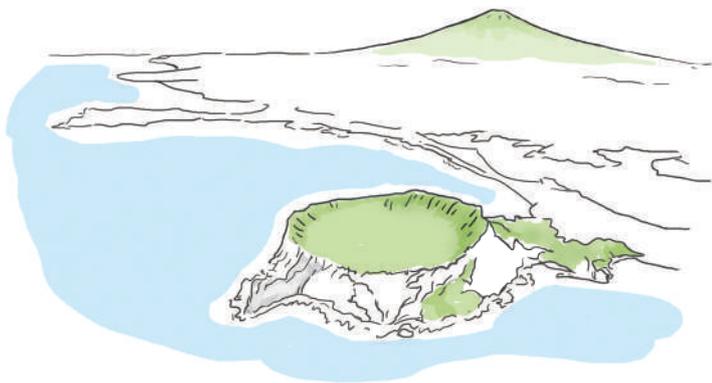


2023 KNS Spring Conference

2023 춘계학술발표회

KOREAN NUCLEAR SOCIETY

2023.5.17(Wed) ~ 19(Fri)
제주 국제컨벤션센터
(International Convention Center JEJU)



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사단
법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

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60	6분과 원자력 안전 (Nuclear Safety)
65	7분과 방사선 방호 (Radiation Protection)
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학회장 인사말



백원필 학회장

2023년 한국원자력학회 춘계학술발표회 참가자 여러분께,

안녕하십니까? 한국원자력학회(KNS)를 대표하여 2023 KNS 춘계학술발표회에 참가하신 여러분을 진심으로 환영합니다. 1,700여 명이 참석했던 작년에 이어 올해는 더욱 풍성한 프로그램으로 여러분을 맞게 되어 기쁘게 생각합니다.

이번 학술발표회에서는 수요일에 16건의 워크숍이 개최되고, 목~금요일에 우리 학회 사상 최다인 704편의 연구논문이 발표됩니다. 이번 워크숍에는 전문 학술·정책 분야의 다양한 주제 외에도 두 건의 국제협력 행사와 우리 학회에서 처음 주관하는 원자력 시민단체 워크숍이 포함되어 있습니다. 학술발표회에 앞선 화요일부터 수요일 오전까지는 OECD/NEA와 우리 학회, 한국원자력연구원이 공동으로 개최하는 원자력 안전 파괴적 혁신기술에 대한 국제워크숍도 진행됩니다. 목요일 만찬 행사 시 진행되는 “가짜 뉴스를 잡아라!” 주제의 학생 경진대회에도 많은 성원을 기대합니다.

이번 학술발표회에서는 해외 저명인사 두 분을 초청강연자로 모셨습니다. Bill Magwood OECD/NEA 사무총장님은 미국 에너지부 원자력실을 이끌면서 많은 업적을 남겼고, 미국 원자력규제위원회 위원 등을 거쳐 2014년부터 OECD/NEA 사무총장으로 재직하면서 기관의 혁신을 이끌고 있습니다. Wade Allison 영국 옥스퍼드대 명예교수님은 입자물리 및 의학물리 분야의 저명한 학자로서, 다양한 저술과 강연을 통해 저선량 방사선의 영향이 지나치게 과대 평가되어 인류에게 유익한 원자력이 이용을 방해하고 있다는 점을 설파하시는 분입니다. 두 분의 초청강연은 우리 모두 인류를 위한 원자력, 우리 자신과 후손을 위한 원자력의 역할에 대한 통찰력과 영감을 줄 것으로 기대합니다.

올해 들어 학회에 신규 가입하는 회원 수가 눈에 띄게 증가하고 있습니다. 회원님들의 기대에 부응하여 저를 비롯한 학회 임원들과 사무국에서는 원자력 중흥에 크게 기여하는 학회가 되도록 더욱 노력하겠습니다.

이번 춘계학술발표회가 에너지 안보 및 기후변화 대응뿐만 아니라 국가경쟁력 강화와 에너지복지에도 필수적인 원자력의 기술기반과 국민 지지기반을 강화하는데 크게 기여할 수 있기를 기대합니다. 아울러 학술발표회 참가자들께서는 아름다운 제주도에서 소속 기관과 전문분야를 넘어 서로 소통하면서 보람되고 행복한 시간을 보내시길 바랍니다. 감사합니다.

한국원자력학회장 백 원 필 拜上

Greetings from the KNS President



Won-Pil BAEK
President of Korean
Nuclear Society

Dear Participants of the 2023 KNS Spring Conference,

On behalf of the Korean Nuclear Society (KNS), it is my pleasure to extend a warm welcome to the 2023 KNS Spring Conference. Following the success of last year's conference with over 1,700 attendees, we are excited to present an even more enriching program this year.

Our conference will host 16 workshops on Wednesday and showcase 704 research papers on Thursday and Friday, which is the largest number in our Society's history. Along with a wide range of topics in specialized academic and policy areas, the workshops include two international collaborative events and the first-ever Nuclear NGO Workshop organized by our Society. The conference will be preceded from Tuesday morning to Wednesday morning by an international workshop on disruptive technologies for nuclear safety applications, co-organized by the OECD/NEA, KAERI, and KNS. We also look forward to the student competition on the theme of "Catch the Fake News!" which will be held prior to the banquet on Thursday evening.

We are honored to welcome two distinguished international speakers to this conference. William D. Magwood, IV, Director General of the OECD/NEA, has served at the OECD/NEA since 2014 after leading the U.S. Department of Energy's Office of Nuclear Energy and serving as a Commissioner of the U.S. Nuclear Regulatory Commission. Director-General, William D. Magwood, IV outstanding contributions has been widely recognized by experts in Korea. Prof. Wade Allison, Emeritus Professor at the University of Oxford in the UK, is a renowned scholar in particle physics and medical physics. has written and lectured extensively on how the effects of low-dose radiation have been grossly overestimated, preventing the use of nuclear energy to benefit mankind. We are confident that their lecture will provide valuable insights and inspiration on the role of nuclear energy.

We are delighted to note an increase in new members joining our Society this year. We, the officers and the secretariat of the Society, will continue to strive to exceed your expectations and make a meaningful contribution to the development and safe utilization of nuclear energy.

It is my earnest hope that this Conference will contribute to strengthening the technological base and public support for nuclear energy, which is essential not only for energy security and climate change response but also for strengthening national competitiveness and energy welfare. I also hope that you will enjoy your time in beautiful Jeju Island while networking with fellow nuclear energy professionals across institutions and specialties. Thank you.

Won-Pil BAEK
President of the Korean Nuclear Society

학술발표회 전체 일정 (Conference Program Overview)

I Registration 5.17(Wed) 12:30~17:00 / 5.18(Thu) 08:00~17:00 / 5.19(Fri) 08:00~12:00

*International Workshop on Disruptive Technologies for Nuclear Safety Applications

Date	Fee	Room
5.16(Tue) 10:00~17:00 [Reception : 17:30~20:00] 5.17(Wed) 08:30~13:00	-	Samda Hall (3F)

5.17(Wed) Workshops (12:50~18:00)

	Program	Fee	Room
A	연구용원자로 기술 개발 및 수출 현황 Status of Research Reactor Technology Development and Export	-	201A (2F)
B	미래형원자로 노심해석을 위한 방법론 및 소형모듈형 원자로노심개발 현황 Advanced Analysis Methods for Future Advanced Reactor Cores and Small Modular Reactor Core Designs	50,000	201B (2F)
C	고준위폐기물 처분부지, 우리나라도 충분히 확보 가능하다. High-Level Waste Disposal Sites can be Secured in Korea	50,000	202B (2F)
D	The 8th Korea-Japan Joint Workshop on Fuel & Material Issues for Advanced Nuclear System	-	203 (2F)
E	원전 적용을 위한 CFD 스케일 해석 기술 및 실험 CFD Scale Analysis Techniques and Experiments for Nuclear Applications	50,000	301 (3F)
F	STAMP/STPA 안전분석을 위한 새로운 관점 STAMP/STPA: A Novel Perspective for the Safety Analysis	50,000	302 (3F)
G	사고관리계획 및 안전연구 Accident Management & Safety Research	-	HallaHall A (3F)
H	미래의료현장 선점 방사선 의·생명기술 신속 실용화 정책 Rapid Practical Use of Radiation Biomedical Technology Targeting the Future Medical Market	-	401A (4F)
I	중성자 및 하전입자 생산, 활용 연구 동향과 전망 Research Trends and Prospects for the Production and Utilization of Neutrons and Charged Particles	50,000	HallaHall B (3F)
J	APR1000 유럽사업자요건(EUR) 인증취득 성과 공유회 Special Session for APR1000 European Utility Requirement Assessment and Certification focusing on Lessons Learned	-	401B (4F)
K	한국의 원자력외교 : 세계 핵비확산체제의 변화와 한국의 리더십 South Korea's Nuclear Diplomacy: Role of South Korea in Global Nuclear Governance	-	402A (4F)
L	원전 정책 변화에 대응하기 위한 통제 법령 개선 An Improvement of Nuclear Control Statutes for Responding to the Changing Nuclear Policies	-	402B (4F)
M	고신뢰도 산업 인적오류 대처기술 개발 및 현황 Status of technologies for preventing human errors in safety-critical infrastructures	50,000	202A (2F)
N	혁신을 주도하는 여성 : Gender Innovation!	-	304 (3F)
O	원자력을 위한 시민운동 그리고 결속! NGO Activities for Nuclear Energy! (For Our Sustainable Partnership!)	-	303 (3F)
P	SMR 안전규제 방향 Policy Statement on the Regulation for SMRs	-	Samda Hall (3F)

참가자 중식 (Participants' Lunch)

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

개회식 및 초청강연 (Opening Ceremony and Invited Lectures)

Date	Room
5.18(Thu) 16:00 ~ 18:15	Halla Hall (3F)

만찬 및 학생 경진대회 (Banquet and Student Competition)

Date	Room
5.18(Thu) 18:20 ~ 20:00	Tamna Hall (5F)

5.18(Thu) ~ 19(Fri) 구두발표 (Oral Presentations)

Session		Room	Date
1A	원자로시스템기술 1 (Reactor System Technology 1)	201A (2F)	5.18(Thu) AM
1B	원자로시스템기술 2 (Reactor System Technology 2)	201A (2F)	5.18(Thu) PM
1C	원자로시스템기술 3 (Reactor System Technology 3)	201A (2F)	5.19(Fri) AM
2A	원자로물리 및 계산과학 1 (Reactor Physics and Computational Science 1)	201B (2F)	5.18(Thu) AM
2B	원자로물리 및 계산과학 2 (Reactor Physics and Computational Science 2)	202A (2F)	5.18(Thu) AM
2C	원자로물리 및 계산과학 3 (Reactor Physics and Computational Science 3)	201B (2F)	5.18(Thu) PM
2D	원자로물리 및 계산과학 4 (Reactor Physics and Computational Science 4)	201B (2F)	5.19(Fri) AM
2E	원자로물리 및 계산과학 5 (Reactor Physics and Computational Science 5)	202A (2F)	5.19(Fri) AM
3A	원자력시설해체 및 방폐물관리 I (Nuclear Facility Decommissioning and Radioactive Waste Management I)	400 (4F)	5.18(Thu) AM
3B	원자력시설해체 및 방폐물관리 II (Nuclear Facility Decommissioning and Radioactive Waste Management II)	202A (2F)	5.18(Thu) PM
3C	원자력시설해체 및 방폐물관리 III (Nuclear Facility Decommissioning and Radioactive Waste Management III)	203 (2F)	5.19(Fri) AM
4A	핵연료 제조/성능/평가 I (Fuel fabrication, performance & test I)	202B (2F)	5.18(Thu) AM
4B	부식 및 조사손상 I (Corrosion and radiation damage I)	203 (2F)	5.18(Thu) AM
4C	부식 및 조사손상 II (Corrosion and radiation damage II)	202B (2F)	5.18(Thu) PM
4D	원자력 신소재 기술/원전 기기 건전성(Nuclear Materials Development/Structural Integrity of Nuclear Components)	203 (2F)	5.18(Thu) PM
4E	핵연료 제조/성능/평가 II (Fuel fabrication, performance & test II)	202B (2F)	5.19(Fri) AM
5A	열교환기 및 히트파이프 (Heat Exchanger and Heat Pipe)	302 (3F)	5.18(Thu) PM
5B	원자로 계통 및 기기 열수력 (Reactor Safety and Component Thermal Hydraulics)	301 (3F)	5.19(Fri) AM
5C	열수력 계산(Computational Thermal Hydraulics)	302 (3F)	5.18(Thu) AM
5D	비등 및 임계열유속: 실험, 모델링, 해석 (Boiling & CHF: Experiments, Modeling, and Simulation)	302 (3F)	5.19(Fri) AM
5E	안전해석 현안 (Safety Analysis Issues)	301 (3F)	5.18(Thu) PM
5F	첨단 원자로 열수력 (Thermal hydraulics for advanced reactors)	301 (3F)	5.18(Thu) AM
6A	확률론적 안전성평가 (PSA)	Samda Hall A (3F)	5.18(Thu) AM
6B	중대사고 1 (Severe Accident 1)	Samda Hall B (3F)	5.18(Thu) AM
6C	화재방호 / PSA (Fire safety in nuclear facility / PSA)	Samda Hall A (3F)	5.18(Thu) PM
6D	안전현안 / 중대사고 (Safety Issues / Severe Accident)	Samda Hall B (3F)	5.18(Thu) PM
6E	중대사고 2 (Severe Accident 2)	Samda Hall A (3F)	5.19(Fri) AM
6F	안전현안 / PSA (Safety Issues / PSA)	Samda Hall B (3F)	5.19(Fri) AM
7A	방사선 방호 (Radiation Protection)	401A (4F)	5.18(Thu) PM
8A	방사선 이용 및 기기 (Radiation Utilization and Instrumentation)	401A (4F)	5.18(Thu) AM
9A	양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion)	401A (4F)	5.19(Fri) AM
10A	원전 운영 및 경년열화 (NPP Operation & Aging Management))	401B (4F)	5.18(Thu) AM
10B	설계 제작 (Design & Manufacturing)	401B (4F)	5.19(Fri) AM
10C	수화학 (Water Chemistry)	401B (4F)	5.18(Thu) PM
10D	내진해석 1 (Seismic Analysis 1)	402A (4F)	5.18(Thu) PM
10E	내진해석 2 (Seismic Analysis 2)	402A (4F)	5.19(Fri) AM
10F	구조해석 (Structural Analysis)	402A (4F)	5.18(Thu) AM
11A	원자력정책, 인력 및 협력 1 (Nuclear Policy, Human Resources and Cooperation 1)	402B (4F)	5.19(Fri) AM
11B	원자력정책, 인력 및 협력 2 (Nuclear Policy, Human Resources and Cooperation 2)	402B (4F)	5.18(Thu) AM
11C	원자력정책, 인력 및 협력 3 (Nuclear Policy, Human Resources and Cooperation 3)	402B (4F)	5.18(Thu) PM
12A	원자력계측제어, 인간공학 및 자동원격 1 (Nuclear I&C, Human Factors, and Automatic Remote Systems 1)	303 (3F)	5.18(Thu) AM
12B	원자력계측제어, 인간공학 및 자동원격 2 (Nuclear I&C, Human Factors, and Automatic Remote Systems 2)	303 (3F)	5.18(Thu) PM
12C	원자력계측제어, 인간공학 및 자동원격 3 (Nuclear I&C, Human Factors, and Automatic Remote Systems 3)	400 (4F)	5.18(Thu) PM
12D	원자력계측제어, 인간공학 및 자동원격 4 (Nuclear I&C, Human Factors, and Automatic Remote Systems 4)	303 (3F)	5.19(Fri) AM
12E	원자력계측제어, 인간공학 및 자동원격 5 (Nuclear I&C, Human Factors, and Automatic Remote Systems 5)	400 (4F)	5.19(Fri) AM

5.18(Thu) ~ 19(Fri) 포스터 게시 및 발표 (Poster Presentations)

Date	Room
5.18(Thu) 13:00 ~ 18:00 [저자 발표시간 13:00 ~ 14:00] 5.19(Fri) 09:00 ~ 12:00	Lobby (3F)

제94차 평의원회

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

역대회장 초청 간담회

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

제35대 임원진 (Officers of KNS)

회장



백원필

수석부회장 직무대행



설광원

부회장



염학기



이기복



정범진



한은옥

감사



남요식



박석빈

총무이사

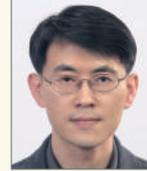


신동호



이유호

학술이사



김진원



허균영

사업이사



김종두



최기용

편집이사



이현철



홍서기

재무이사



최일경

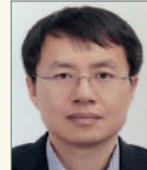


최재돈

홍보이사



신진명



이덕중

국제협력이사



이나영



정원표

대학·청년이사



양진화



오탈석

기획이사



김희령



설영실

특임이사



이유한



정용훈

고급정책연구소



양준언 소장

* 수석부회장 직무대행 (설광원 부회장: 3월 16일 ~ 제35대 수석부회장 보궐 선거(5월 18일 예정)시 까지)

원자력이슈위원회 위원 (Nuclear Issues Committee)

위원장 직무대행



설광원

당연직 위원



권혁중



김종현



김희령



류정수



문명국



박현선



설영실



양재호



윤병조



이태호



임상호



임채영



홍서기

임명직 위원



김금구



김만웅



김용희



김한곤



김현길



노백식



류재수



문주현



박문규



박상덕



박진백



박찬오



백민



송기찬



송인호



송준순



신호철



심형진



윤봉요



윤종일



이우호



이정익



이종호



이주석



임채준



장훈



정범진



정승영



정용훈



정재준



조동건



최득기



최성열

* 이슈위원회 위원장 직무대행 (설광원 부회장: 3월 16일 ~ 제35대 수석부회장 보궐 선거(5월 18일 예정)시 까지)

원자력소통위원회 위원 (Nuclear Communications Committee)

위원장



정범진

당연직 위원



신진명



이덕중

임명직 위원



김지희



노동석



문주현



심형진



이현철



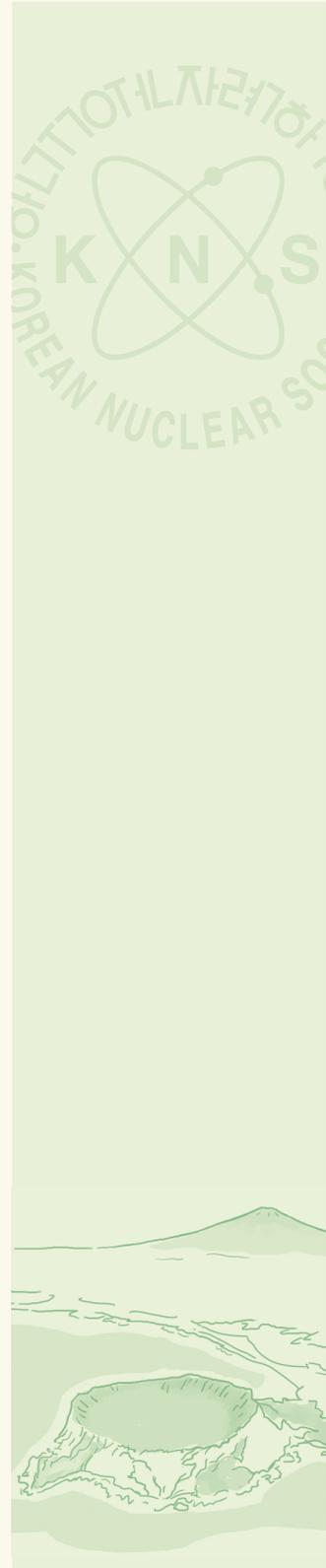
정용훈



정재준



최성민



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

연구부회장/차기연구부회장

원자로시스템기술



이태호



정병렬

방사선 방호



김희령

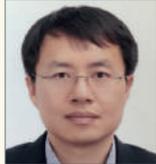


신창호

원자로물리 및 계산과학



홍서기



이덕중

방사선 이용 및 기기



문명국



선광민

국내외 지부장



송종순
광주/전남/전북 지부



이상훈
대구/경북 지부

원자력시설해체 및 방사성폐기물관리



임상호



지성훈

양자공학 및 핵융합기술



권혁중



정경재



김주열
부산/울산/경남 지부



강현국
미국 지부

핵연료 및 원자력재료



양재호



김동진

원전건설 및 운영기술



류정수



김민규

청년지부



손성준 지부장

여성지부



엄영랑 지부장

원자력열수력



윤병조



최기용

원자력정책, 인력 및 협력



임채영



박홍준

학생지부



김윤희 지부장



이지민 지도교수

원자력 안전



박현선



임호곤

원자력계측제어, 인간공학 및 자동원격



김종현



최종균

편집위원회 위원 (NET Editorial Board)

위원장



나만균

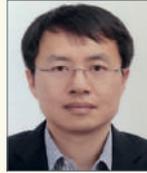
국내 부위원장



선광민



양재호



이덕중



조형규

국외 부위원장



Shinya Nagasaki



Xu Cheng

국내 위원



권준현



김만철



김용균



김용민



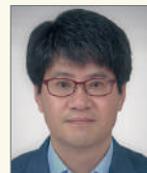
김용희



김윤재



김인중



윤종일



이동원



이현철



정만희



정범진



홍서기

국외 위원



Akio Gofuku



Belle R. Upadhyaya



Dominique Bestion



Elia Merzari



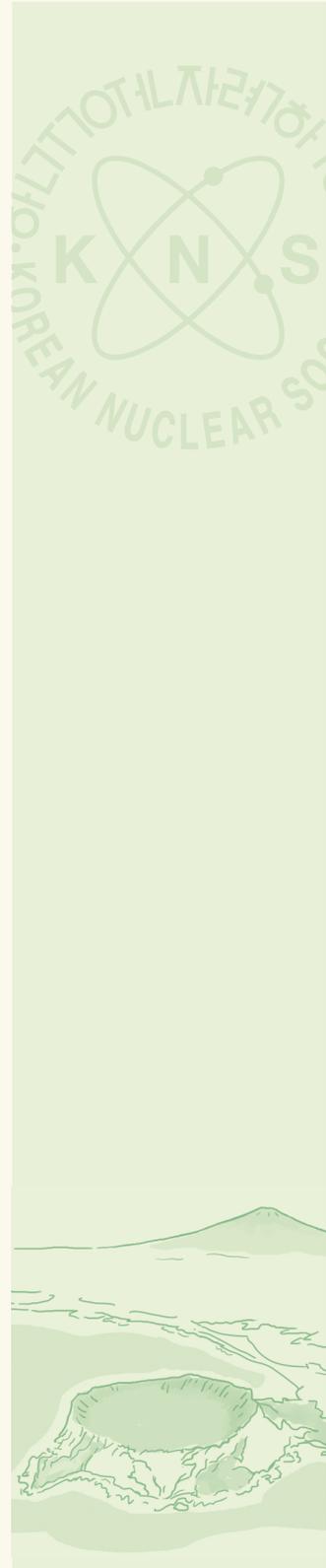
Guanghui Su



Jean Noirot



John C. Jin



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

위원장



염학기

사무총장



정연섭

위원



김종성



김진원



노동석



심재구

실장



민현정



양진화



오탈석



육대식



이희범

팀장



송지현



정재준



조규성



조형규



임채준

대리



이연화



정윤선



정희준



최기용



최일경

대리



유진원



허균영

개회식 및 초청강연 (Opening Ceremony and Invited Lectures)

| 2023.5.18(Thu) 16:00 ~ 18:15

| 한라홀 (Halla Hall, 3F)

Program	
[사회 : 허균영 학술이사] (The Moderator : Gyunyoung Heo, Academics Secretary)	
16:00~16:30	장내안내 및 국민의례
	개회사 : 백원필(한국원자력학회 회장) Opening Remark : Won-Pil Baek(President, Korean Nuclear Society)
	축사 : 이창건(제11대 한국원자력학회 회장) Congratulatory Address : Lee, Chang Kun(11 th KNS President)
	특별강연 : 황주호(한국수력원자력(주) 사장) Special Lecture : Jooho Whang(President & CEO, Korea Hydro & Nuclear Power Co., Ltd.) - 원자력, 다시 보기 (Rethinking Nuclear Power in Korea)
16:30~17:15	초청강연 I (Invited Lecture I) William D. Magwood, IV(Director-General, OECD Nuclear Energy Agency (NEA) - Nuclear Energy : the Future is Now
17:15~18:00	초청강연 II (Invited Lecture II) Wade Allison(Emeritus Prof. of Physics and Fellow of Keble College, Oxford Univ.) - The Acceptance of Nuclear Energy, a Matter for Education
18:00~18:15	감사패 수여 Award of the Appreciation Plaque
	2022 추계학술발표회 우수논문상 시상 Best Paper Awards at 2022 KNS Fall Conference
	2023년도 한국원자력학회 장학증서 수여 KNS Scholarship for 2023 KNS

만찬 및 학생 경진대회 (Banquet and Student Competition)

| 2023.5.18(Thu) 18:20 ~ 20:00

| 탐라홀 (Tamna Hall, 5F)

Program	
[사회 : 양진화 대학청년이사] (The Moderator : Jin-Hwa Yang, Students and Young Members Secretary)	
18:20~20:00	학생 경진대회 Student Competition
	연구부회별 우수포스터 논문 공개 Announcement of Best Poster Paper by Professional Divisions
	경품 추첨 Giveaway Raffle

초청강연 | (Invited Lecture I)

| 일시 2023.5.18(Thu) 16:30 | 장소 한라홀(Halla Hall, 3F)



**William D.
Magwood, IV**

NEA Director-General
since 2014.

Previously served as
Commissioner to the
US Nuclear Regulatory
Commission(NRC)

Director of the
US Government's
civilian nuclear
energy programme
at the US Department
of Energy
(1998 – 2005).

Nuclear Energy : the Future is Now

Overview

Increased use of nuclear energy being explored by many countries around the world as they address both their commitments to reduce carbon emissions and their essential need to assure energy security for their economic and societal well-being. Analysis by the Nuclear Energy Agency (NEA) has highlighted that tripling global nuclear energy capacity provides a practical path toward enabling countries around the world to meet their Net Zero goals by 2050. Reaching 1160 gigawatts of global installed nuclear capacity by 2050 will require a combination of long-term operation, large-scale Generation III, small modular reactors (SMRs), and non-electric applications such as nuclear-produced heat and hydrogen. A new wave of nuclear technology innovation is needed to help provide clean energy baseload power and decarbonize hard-to-abate industrial sectors. The NEA is working with its member country governments and the private sector to help lower barriers to first-in-kind technology deployment as the center of gravity for innovative nuclear technologies shifts towards the private sector. For nuclear energy, the future is now.

Innovation: A Wave of New Nuclear Technologies

Innovation in the nuclear industry has lagged well behind the experience of other technologies and sectors for decades. A time traveler from the early 1990s would find few differences in the maintenance and operations of nuclear power plants (NPP) today even as the internet of things (IOT) and digitization continue to revolutionize the global economy. This is about to change.

Twenty years of international pre-normative research and development (R&D) cooperation, by conducting intensive academic activities across the industry, academia, and various research organizations and international fora such as the Generation IV International Forum (GIF) is nearing commercial deployment. Beyond on-grid baseload power to replace coal fired generation, market demand for zero-emission SMRs and Generation IV reactors in hard to abate sectors continues to grow: off-grid heat and power to replace diesel generators in remote regions for mining operations; high temperature heat to replace fossil fuel cogeneration in heavy industries; marine propulsion to replace heavy-fuel oil for merchant shipping.

Commitment of the NEA

NEA continues to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally sound and economical use of nuclear energy for peaceful purposes. Director-General Magwood will conclude his presentation with a survey of NEA efforts to address four key challenges considering the overall fuel cycle in the development of new nuclear technologies on a long-term perspective: (1) Industrial challenges; (2) Regulatory challenges; (3) Policy, societal, environmental and market challenges; and (4) Infrastructure challenges. This includes work on everything from assessments of new supply chain needs and promoting an inclusive new generation of the nuclear workforce to encouraging adequate regulation that accounts for a safe use of innovative reactor designs, advanced materials and new accident tolerant fuels.

초청강연 II (Invited Lecture II) | 일시 2023.5.18(Thu) 17:15 | 장소 한라홀(Halla Hall, 3F)



Wade Allison

Emeritus Prof. of
Physics and Fellow of
Keble College,
Oxford Univ

Hon. Sec. of SONE,
Supporters Of
Nuclear Energy

Author of four books incl.
'Radiation and Reason'
and 'Nuclear is for Life'

The Acceptance of Nuclear Energy, a Matter for Education

Life has gained access to new forms of energy in a number of major steps. Previous ones brought lessons on waste, the environment, education, fear and personal confidence that we should acknowledge today.

Changes in the environment suggest that the next step, the nuclear step, has started. The need for this step to be nuclear comes from what we know about the physical world – its laws and the options it offers. This knowledge is essentially complete today. Only three possibilities are allowed by natural science: classical energy, electronic energy, nuclear energy. On Earth classical energy, in the form of wind, solar and hydro emanates from the Sun. Electronic energy, also known as chemical, is only available on a large scale on Earth as fossil fuels. It is seated in the quantum kinetic energy of electrons in atoms and molecules. Nuclear energy is similar being the quantum kinetic energy of nucleons in nuclei and is available on Earth as the residual unstable nuclei of uranium, thorium and potassium-40 left over from stellar collapse events that occurred before the Earth was formed.

Natural science tells us that there are no other possibilities. Human-inspired technology can exploit natural science, but not overcome it. The choice between the options is also influenced by our duty of care for the environment and our fellow creatures, and the need maintain a stable economic and political society. Critical is the energy density of the possible options. A careful analysis of these using simple Newtonian Mechanics and basic Quantum Mechanics exposes the impotence of renewables. They are also condemned by History and Economics. So, if combustion of fossil fuels is to be phased out, nuclear energy is the only option.

There are important differences between nuclear energy and radiation, its secondary manifestation. From the start of the 20th C nuclear radiation was exploited for health benefits following the work of Marie Curie. But for the past 70 years the benefits of basic education and the need to distinguish exciting entertainment from objective reality have been ignored. As a result, a general fear of nuclear weapons has become confused with an apprehension of the danger of radiation.

The safety of radiation on living tissue was assessed in 1934. Although the biological mechanisms are still being elucidated, nothing has happened since that date to change that assessment. However, in the 1950s, a period of distrust and secrecy influenced by US Senator Joseph McCarthy, radiation caution was magnified 700 times. The new recommended regulations were justified by false science (the LNT Model) and overseen by committees reporting to the United Nations. Yet data from Hiroshima and Nagasaki, Chernobyl, Goiania, Fukushima, natural high-radiation areas, experiments with laboratory animals and a century of clinical medical treatment, all confirm the 1934 threshold of safety. This contradiction remains today.

The immediate effect of radiation is to incapacitate a small number of cells. In the following hours and days live tissue responds by their reparation and replacement, as has been necessary for life to survive over 3 billion years. The final reaction, unique to humans able to measure radiation but not realise that life is already protected, is one of prolonged fear, even panic.

To be told “you have been irradiated” can be traumatic especially in the absence of understanding. Similar phenomena, like the placebo and nocebo effects, Voodoo, curses and exorcism, have real health effects. Unfortunately, the media and the entertainment industry are always keen to engage such fear and excitement.

The unscientific regulations and political caution inhibit the provision of nuclear power and make it artificially expensive. Young people today need the education and objective confidence to repeal these regulations and build nuclear power, cheap and safe, for all the world.

감사패 수여 (Award of the Appreciation Plaque)

| 시상식 2023.5.18(Thu) 16:00

| 장소 한라홀 (Halla Hall, 3F)



남 장 수

전) 사무총장

남장수 사무총장은 2005년 10월 1일부터 2022년 12월 31일까지 17년 3개월간 재임하였습니다.

늘 새바람을 몰고 오는 17명의 학회장을 보필하면서도 남총장은 학회의 안정적 운영의 버팀돌이 되셨고 학회장들과 함께 학회 발전에 크게 기여했습니다.

2006년 학회회관을 임원들과 힘을 합쳐 매입하고 그 터 위에 사무국의 조직과 행정체계를 구축하여 회원들의 학회 활동을 원활하게 도왔습니다.

우리 학회가 원자력계의 대표 학회로서 회원들의 뜻을 좇아 남총장은 국내외 학회 협회 기관 등의 유관기관과 협력을 강화했고, 국내외에 지부를 확장했으며 국내외 학술행사를 적극적으로 유치하고 후원했습니다.

우리 학회지인 NET의 국제적 영향력과 우리 국민의 높은 원자력 수용성도 남총장의 지원에 힘입은 바가 큼니다.

2022 추계학술발표회 우수논문상 및 2023 KNS 장학생 (Best Paper Awards and KNS Scholarship)

2022 추계학술발표회 우수논문상

성 명	소 속
강준영	한국원자력연구원
김태윤	서울대학교/한국원자력연구원
당정증	한국에너지공과대학교
박진영	부산대학교
변재훈	울산과학기술원
서영찬	서울대학교
신지현	울산과학기술원
오태석	한국과학기술원
유진성	서울대학교
이재호	한국원자력안전기술원
조용흠	한양대학교
차소희	경희대학교
하성국	한국원자력안전기술원
Woei Jer Ng	한국과학기술원

2023년도 한국원자력학회 장학생

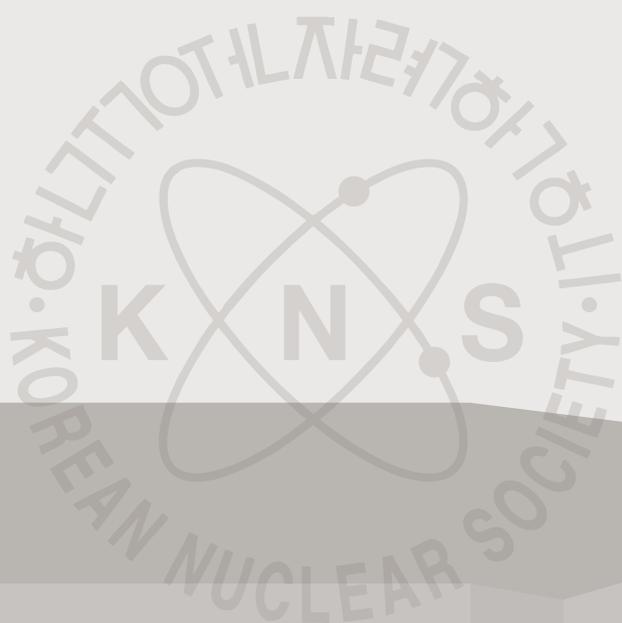
학 교 명	성 명
경북대학교	김태호
경희대학교	강현호, 서영빈, 정병철
동국대학교	이도재, 이승원
부산대학교	장재혁, 이지운
서울대학교	권혁수, 김영진, 이은우
세종대학교	최동주, 강재현
울산과학기술원	허윤영, 강정성
제주대학교	김효리, 양광범
조선대학교	장성현, 김진성
중앙대학교	김준원, 박재형
포항공과대학교	강재은
한국과학기술원	고길영, 김동하, 정우진
한양대학교	윤건우, 김형진, 이은아
한국전력 국제원자력대학원대학교	Edyta Agata Macieja, Sebastian Grzegorz Dzień

KOREAN NUCLEAR SOCIETY

2023 KNS Spring Conference

2023 춘계학술발표회

Workshops



International Workshop on Disruptive Technologies for Nuclear Safety Applications

| **Date** May 16(Tue), 2023, 10:00AM ~ May 17(Wed), 1:00PM

| **Venue** International Convention Center Jeju, Samda Hall, 3F

| **Host** OECD Nuclear Energy Agency(NEA), Korea Atomic Energy Research Institute(KAERI), Korean Nuclear Society(KNS)

Date	Program	
May 16 (Tue)	Opening remarks Chairperson: Veronique ROUYER (NEA) • Tae Seog OH, MSIT 1 st VM • William D. MAGWOOD, IV, NEA DG • Won-Pil BAEK, KNS President • Han Gyu JOO, KAERI President Special Remarks on Regulating Innovation: Rumina VELSHI, CNSC President	
	10:00~10:45	
	10:45~11:00	Break
	Day one: Enhancing Safety with Digital Applications	
	11:00~13:00 (including 20" break at 11:40)	Session 1: Advanced modelling and simulation tools Chairperson: Hyun Sun PARK (SNU) – #1–1 Multi-scale and multi-physics simulation for nuclear reactor safety, Han-Young YOON (KAERI) – #1–2 Development of modelling capabilities for gas-cooled reactors at Canadian nuclear laboratories, Krishna PODILA (CNL) – #1–3 Simulator-integrated 3D immersion for nuclear plants, Michael CHATLANI (L3Harris) – #1–4 Regulatory case and comments, Cinthya ROMAN (US NRC) – Q&A session (20 minutes)
	13:00~14:20	Lunch
	14:20~14:40	Keynote speech #1: Applications of Disruptive Technologies for Nuclear Safety Innovations Ki-Yong CHOI (KAERI)
	14:40~16:40 (including 20" break at 15:40)	Session 2: Data-driven technologies Chairperson: Joon-Eon YANG (KAERI) – #2–1 Role of a reduced order model (ROM) in probabilistic risk assessment, Jinkyun PARK (KAERI) – #2–2 Field operation view on leveraging data for plant performance and safety, Guillaume HORN (Framatome) – #2–3 Transforming the steel industry with ML/AL: real-world application and use cases, Jong-Seok LEE (SKKU) – #2–4 AI technologies for the safety of nuclear power plants in a regulatory perspective, Ku-Young CHUNG (KINS) – Q&A session (20 minutes)
	16:40~17:00	Closing session: Enabling Disruptive Technologies and Innovation in the Nuclear Industry Kasia IZDEBSKA (OPG)
	17:30~20:00	Reception
Day two: Enhancing Safety with Innovations on Hard Components		
May 17 (Wed)	8:30~8:50	Keynote speech #2: NI2050 Update and the Global Forum for Nuclear Innovation Philippe GUIBERTEAU (NEA)
	8:50~10:30	Session 3: Advanced manufacturing Chairperson: Antonio Vaya SOLER (NEA) – #3–1 Additive manufacturing technology for nuclear application, Hyun-Gil KIM (KAERI) – #3–2 Advanced and modular manufacturing for SMR pressure vessels considering safety and economy, Shihong KIM (Doosan Enerbility) – #3–3 Relevant results of NUCOBAM H2020 project on mechanical characterization of 316L fabricated by LPBF for nuclear components, Marta SERRANO (EU NUCOBAM) – #3–4 Regulatory case and comments, Alexandre VIKTOROV (CNSC) – Q&A session (20 minutes)
	10:30~10:40	Break
	10:40~12:20	Session 4: Smart devices and robotics Chairperson: Kasia IZDEBSKA (OPG) – #4–1 Highly Reliable IoT Wireless Communication for Smart Power Plant, Ho-Yong KANG (ETRI) – #4–2 Application of operations of emergency robots for nuclear safety, Dongseok RYU (KAERI) – #4–3 On the path to autonomous robotic use in nuclear power Plants, Andrew MANTEY (EPRI) – #4–4 Regulatory case and comments, Uwe STOLL (GRS) – Q&A session (20 minutes)
	12:20~13:00	Closing Session: Wrap-up & Future Activities Chairperson: William D. MAGWOOD, IV (NEA) – Session summary by each session chair – Discussion on future perspective
13:00	Adjourn	

| **Registration** Free Registration on NEA Website

https://www.oecd-nea.org/jcms/pl_79183/international-workshop-on-disruptive-technologies-for-nuclear-safety-applications

| **Contact** Dr. Kwang Soon HA / 010-3412-2286 / tomo@kaeri.re.kr

A

연구용 원자로 기술 개발 및 수출 현황

Status of Research Reactor Technology Development and Export

| 일시 · 장소 2023.5.17(Wed) 14:00~17:40 · 제주국제컨벤션센터, 201A호 (Room 201A, 2F)

| 주최 한국원자력학회 원자로시스템기술 연구부회

일 정	내 용
14:00~14:10	개회사, 김민환 (수출용신형연구로실증사업단장) Opening Address, Minhwan Kim
14:10~14:40	수출용 신형연구로 (기장연구로) 개발 및 검증, 김성훈 (한국원자력연구원) Development and Validation of KiJang Research Reactor, Seong Hoon Kim (KAERI)
14:40~15:20	연구용 원자로 열수력 실험기술 개발, 박중학 (한국원자력연구원) Development of Thermal-Hydraulic Experimental Technology for Research Reactors, Jong-hark Park (KAERI)
15:20~15:50	가속기능을 갖는 원자로 안전정지장치 개발, 유연식 (한국원자력연구원) Development of a Reactor Shutdown System with Accelerating Function, Yeonsik Yoo (KAERI)
15:50~16:00	휴식 (Break)
16:00~16:30	연구용 원자로 판형핵연료 고정장치 개발, 이진행 (한국원자력연구원) Development of a Plate-type Fuel Locking Mechanism for Research Reactors, Jin Haeng Lee (KAERI)
16:30~17:00	연구용 원자로 판형핵연료 개발 및 실증, 정용진 (한국원자력연구원) Development and Qualification of Plate-type Fuel for Research Reactors, Jeong Yong Jin (KAERI)
17:00~17:30	연구용 원자로 기술 수출 및 해외 협력, 박수기 (한국원자력연구원) Overseas Cooperation and Export of Research Reactor Technology, Suki Park (KAERI)

| 기사사항 - 등록비 : 무료 / 석식 제공 없음

- 문의처 : 박수기 / 한국원자력연구원 / 042-868-8669

B

Advanced Analysis Methods for Future Advanced Reactor Cores and Small Modular Reactor Core Designs
(미래형원자로 노심해석을 위한 방법론 및 소형모듈형 원자로노심개발 현황)

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 201B호 (Room 201B, 2F)

| 주최 한국원자력학회 원자로물리 및 계산과학 연구부회

| 후원 한수원중앙연구원

일 정	내 용
14:00~14:10	Opening, Ser Gi Hong (Hanyang University) 개회사, 홍서기 (한양대학교)
14:10~14:40	Status of i-SMR Core Development (Keuk Jong Yu, CRI/KHNP) iSMR 노심개발 현황, 유극중 (한수원 중앙연구원)
14:40~15:10	Status of Fuel Rod-Wise Nuclear Core Analysis Code Development, Joo Il Yoon (KEPCO-NF) 봉단위 핵설계코드 개발현황, 윤주일 (KEPCO-NF)
15:10~15:40	Recent Progress in a GPU-based Monte Carlo Code, PRAGMA for the Next-Generation Reactor Core Analysis, Hyung Jin Shim (SNU), 차세대 원자로해석을 위한 GPU 기반 몬테칼로 코드, PRAGMA 개발현황, 심형진 (서울대학교)
15:40~15:50	Break
15:50~16:20	Status of the SFR Neutronics Code Development and Conceptual Design for the Small Long-cycled SFR Core at KAERI, Jong-Hyuck Won (KAERI), SFR 노심설계코드 소개 및 장주기 소형 SFR 개념설계 현황, 원중혁 (한국원자력연구원)
16:20~16:50	Status of KAIST Molten Salt Reactor Researches and Monte Carlo Code Development for MSR Analysis, Yonghee Kim (KAIST), 카이스트 고속스펙트럼 용융염원자로 (MSFR) 개발현황 및 용융염원자로 몬테칼로 해석 방법 개발, 김용희 (KAIST)
16:50~17:20	Water and non-Water Cooled SMR Core Designs at HYU, Ser Gi Hong (Hanyang University), HYU 경수 및 비경수기반 소형원자로 노심설계 현황, 홍서기 (한양대학교)
17:20~17:50	UNIST Code System for Fast Reactor Analysis, Nguyen Tung Dong Cao (UNIST), 고속로 해석을 위한 UNIST 코드시스템, Nguyen Tung Dong Cao (UNIST)

| 기사사항 - 등록비 : 50,000원 / 석식 제공

- 문의처 : 설세환 / 한양대학교 / 010-2351-1446 / shseol@hanyang.ac.kr

C

고준위폐기물 처분부지, 우리나라도 충분히 확보 가능하다 (High-Level Waste Disposal Sites can be Secured in Korea)

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 202B호 (Room 202B, 2F)

| 주최 한국원자력학회 원자력시설해체 및 방사성폐기물관리 연구부회

| 진행 권장순 (KAERI)

시간	주제	발표자
13:30~14:00	등록 (Registration)	
14:00~14:10	개회 및 인사말 (Opening)	김경수 (IKSNF) 조동건 (KAERI)
Session 1. 고준위 폐기물 심층처분과 해외 부지선정 사례 (Overview of DGR of HLW and site selection processes in leading countries)		
14:10~14:30	고준위폐기물 최종관리방안으로의 심층처분에 대해 (DGR as a final management option for HLW)	손희동 (IKSNF)
14:30~14:50	방사성폐기물의 안전한 심층처분이 가능한 지질학적 특성 (Geologic characteristics that allow for safe DGR of HLW)	이강근 (서울대)
14:50~15:10	해외 심층처분부지의 지질조건 및 부지선정 사례 (Geological conditions and site selection for DGR sites in foreign countries)	민기복 (서울대)
15:10~15:30	휴식 (Break)	
Session 2. 국내 부지선정 절차 및 지질특성 (Site selection process of Korea for DGR of HLW and Geologic characteristics)		
15:30~15:50	고준위 폐기물 최종 관리를 위한 특별법 (Special Act for the final management of HLW in Korea)	지성훈 (KAERI)
15:50~16:10	고준위폐기물 심층처분을 위한 국내 부지선정 절차 (Site selection process of Korea for DGR of HLW)	박익섭 (KIGAM)
16:10~16:30	국내 지질특성 및 처분 가능 지질조건 (Geologic characteristics and preferred geologic conditions for DGR in Korea)	김영석 (부경대)
16:30~16:50	휴식 (Break)	
총괄 질의 응답 및 토론 (Q&A and Discussion)		
16:50~18:00	1. 국내 심층처분 가능성 (Possibility of DGR in Korea) 2. 발표내용에 대한 질의 응답 (Q&A)	참석자
18:00	폐회 (Closure)	

※ 등록자 중 방명록에 연락처(e-mail) 기재 또는 명함을 남긴 회원에게는 발표자료(사전허가 조건) PDF파일로 송부

| 기타사항 - 등록비 : 등록비 50,000원 / 석식 제공

- 문의처 : 박경우 / 한국원자력연구원 / 042-868-8893 / woosbest@kaeri.re.kr

D

The 8th Korea–Japan Joint Workshop on Fuel & Material Issues for Advanced Nuclear System

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 203호 (Room 203, 2F)

| 주최 한국원자력학회 핵연료 및 원자력 재료 연구부회

일 정	내 용
14:00–14:10	Welcoming address, J-H. Yang (KAERI, Korea)
14:10–14:35	Current Status and Future Prospect of Light Water Reactor Accident-Tolerant Fuels (ATF) R&D in Japan, Yamashita (JAEA, Japan)
14:35–15:00	Evolution of Research Reactor Fuel Development at KAERI, Jong Man Park (KAERI, Korea)
15:00–15:25	Development Status on Advanced Fuel for Gen-IV Reactor in KAERI, Jun Hwan Kim (KAERI, Korea)
15:25–15:50	Status of ATF development in KEPCO NF, Kwang-Young Lim (KepcoNF, Korea)
15:50–16:10	Coffee Break
16:10–16:35	Development of ODS alloys for advanced fission and fusion reactors, Kasada (Tohoku Univ., Japan)
16:35–17:00	Hydrothermal Corrosion of SiC Ceramics for LWR Fuel Cladding Application, W-J. Kim (KAERI, Korea)
17:00–17:25	Atomic Simulations on the Chemical Characteristics of Liquid Metals and Molten Salts, T. Oda (Seoul Nat. Univ., Korea)
17:25–17:50	Development of neutron absorbing structural materials for SNF storage applications, Y-B. Chun (KAERI, Korea)

| 기타사항 - 등록비 : 무료 / 석식 제공 없음

- 문의처 : 권준현 / KAERI / 042-868-8588 / jhkwon@kaeri.re.kr

E

원전 적용을 위한 CFD 스케일 해석 기술 및 실험 (CFD Scale Analysis Techniques and Experiments for Nuclear Applications)

| 일시 · 장소 2023.5.17(Wed) 13:25~18:00 · 제주국제컨벤션센터, 301호 (Room 301, 3F)

| 주최 한국원자력학회 원자력 열수력 연구부회

일 정	내 용
13:25~13:30	개회사, 윤병조 (부산대학교) Opening remark, Byong-Jo Yun (Pusan National University)
13:30~14:00	원자력발전소 열수력분야 안전규제를 위한 전산유체역학 활용 연구, 이공희 (한국원자력안전기술원) A Study on the application of computational fluid dynamics for safety regulation in the thermal hydraulic field of nuclear power plants, Gonghee Lee (Korea Institute of Nuclear Safety)
14:00~14:30	상용원전 및 소형모듈원자로 설계를 위한 전산유체역학 해석, 임상규 (혁신형 SMR 기술개발 사업단) Computational fluid dynamics analysis for commercial nuclear reactor and small modular reactor design, Sang Gyu Lim (Innovative SMR Development Agency)
14:30~15:00	CFD 스케일 비등열전달 및 액적인자 실험 연구, 윤병조 (부산대학교) Experimental Study on Boiling heat transfer and droplet parameter for CFD scale application, Byong-Jo Yun (Pusan National University)
15:00~15:30	CFD 해석 기술 향상을 위한 인공지능 활용 전략 논의, 전준구 (전북대학교) Can CFD and AI be good friends for nuclear reactor simulation?, Joongoo Jeon (Jeonbuk National University)
15:30~15:50	휴식 및 사진 촬영 Coffee break (taking photos)
15:50~16:20	원자로계통 고정밀 열수력 실험 및 모델 검증 연구, 김석 (한국원자력연구원) High-precision thermalhydraulic experiments and model validation for nuclear reactor system, Seok Kim (KAERI)
16:20~16:50	원자력 안전 연구를 위한 GPU 기반 고성능 컴퓨팅 및 무격자 CFD, 김응수 (서울대학교) GPU-based High Performance Meshless CFD for Nuclear Safety Research, Eung Soo Kim (Seoul National University)
16:50~17:20	직사각상승관 내 혼합대류 공기유동 가시화 실험 및 CFD 해석, 김신엽 (한국원자력연구원/서울대학교) Airflow visualization experiment and CFD analysis in mixed convection inside a rectangular riser, Sin-Yeob Kim (KAERI/Seoul National University)
17:20~17:50	비압축성 유동장의 분리기법 알고리즘에 기반한 유체-구조 상호작용 문제의 반일체공식화, 최형권 (서울과학기술대학교) Semi-monolithic formulation based on a splitting method for simulating fluid-structure-interaction problems, Hyoung Gwon Choi (Seoul National University of Science and Technology)
17:50~18:00	폐회사, 윤병조 (부산대학교) Closing remark, Byong-Jo Yun (Pusan National University)

| 기타사항 - 등록비 : 50,000원 / 석식 제공

- 문의처 : 김석 / 한국원자력연구원 / 042-868-4657 / seokim@kaeri.re.kr

F

STAMP/STPA*: 안전분석을 위한 새로운 관점

STAMP/STPA: A Novel Perspective for the Safety Analysis

*System-Theoretic Accident Model and Processes/System-Theoretic Process Analysis

| 일시 · 장소 2023.5.17(Wed) 13:00~18:00 · 제주국제컨벤션센터, 302호 (Room 302 / 3rd floor)

| 주최 한국원자력학회 원자력 안전 연구부회 (KNS, Division of Nuclear Safety)

한국원자력연구원 리스크평가연구부 (KAERI, Risk Assessment Research Division)

일 정	내 용
13:00~13:30	Registration
13:30~13:40	Welcome speech (Dong-San Kim / KAERI)
13:40~14:40	STAMP Overview and Use in the U.S. Nuclear Industry (John P. Thomas / MIT)
14:40~15:10	STAMP/STPA-based Research on the Application of the Domestic Nuclear Industry (Sung-Min Shin / KAERI)
15:10~15:30	Coffee break
15:30~16:00	HAZCADS: Hazards and Consequences Analysis for Digital Systems (Mary Presley / EPRI)
16:00~16:30	STAMP/CAST Application Cases of Industrial Accidents in Korea (Dong-Hyun Seo / KOSHA)
16:30~17:00	Introduction of VisualPro SA STPA and its application to VCU(Vehicle Control Unit) System (Bumseok Kim / VWAY Co. Ltd.)
17:10~18:00	Panel discussion

| 기타사항(Note) – The presentations will proceed in English

– 등록비 : 50,000 Won (Dinner will be provided)

– 문의처 : 신성민(Sung-Min Shin) / 042-868-2289 / smshin@kaeri.re.kr

G

사고관리계획 및 안전연구워크숍 (Accident Management and Safety Research)

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 한라홀A (Halla Hall A, 3F)

| 주최 한국원자력학회 원자력안전연구부회

일 정	내 용	
13:30 ~ 14:00	등록(Registration)	
14:00 ~ 14:05	개회사 (Opening address)	최홍중 규제협력처장(KHNP) (Choi Hong-jung, Vice President, Regulatory Cooperation Department, KHNP)
14:05 ~ 14:10	인사말 (Greeting)	이정재 원자력심사단장(KINS) (Lee Jungjae, Director, Division of Reactor Licensing, KINS)
14:10 ~ 14:40	특별강연 (Special lecture)	원전 안전성 연구의 바람직한 방향(정범진 교수, 경희대) Desirable direction for NPP safety research (Chung Bum-Jin, Professor, KHU)
14:40 ~ 15:10	특별강연 (Special lecture)	국내원전 안전성 향상을 위한 리스크정보활용 성능기반 방식 활용방안 (양준언 박사, KAERI) A proposal for the implementation of the Risk-informed/ Performance-based approach to enhance the safety of NPPs (YANG Joon-Eon, Doctor, KAERI)
15:10 ~ 15:30	Coffee Break	
15:30 ~ 16:00	주제발표 (Topic presentation)	사고관리계획서 PSA 규제현황 소개 및 연구방향 제안 (이승우 박사, KINS) Current status of AMP PSA regulation and Future research items (Lee Seung-woo, Doctor, KINS)
16:00 ~ 16:30	주제발표 (Topic presentation)	사고관리계획서 중대사고 규제현황 소개 및 연구방향 제안 (김지훈 박사, KINS) Current status of AMP severe accident regulation and Future research items (Kim Jihun, Doctor, KINS)
16:30 ~ 17:00	주제발표 (Topic presentation)	사고관리계획서 인허가 및 MACST 설비 도입현황 (김범철 부장, KHNP) The status of AMP licensing and MACST equipment (Kim Bum-cheol, General Manager, KHNP)
17:00 ~ 17:30	주제발표 (Topic presentation)	사고관리계획서 사고별 대응전략 및 평가 결과 (윤봉요 그룹장, KHNP) Accident response strategies and evaluation result of AMP (Yun Bong-yo, Group Leader KHNP)
17:30 ~ 18:00	질의응답(Q & A) 및 폐회(Close)	

| 기타사항 - 등록비 : 무료(석식제공 없음) / Registration fee : Free

- 문의처 : 김주홍 과장 / 한국수력원자력(주) 규제협력처 고리새울규제협력부 / 054-704-6125 /
chaum1031@khnp.co.kr

H

미래의료현장 선점 방사선의·생명기술 신속 실용화 정책(워크숍) (Rapid Practical Use of Radiation Biomedical Technology Targeting the Future Medical Market)

– 제40차 방사선의학포럼 공동개최 –

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 401A호 (Room 401A, 4F)

| 주최 한국원자력학회 방사선방호 연구부회, 한국원자력의학원 전략기획실

| 방송 YouTube (예정)

일 정	내 용
14:00~14:10	개회사: 김희령 (방사선방호 연구부회장) ※ 사회자: 김경민 (한국원자력의학원) Opening address : KIM, Hee Reyoung (President, Professional division of radiation protection)
제1부 난치질환 극복 미래기술 소개 좌장: 김희령 (UNIST), 최승진 (방사선보건원)	
Part 1. Introduction of the future technologies to overcome incurable diseases Chairperson : KIM, Hee Reyoung (UNIST), CHOI, Seung Jin (KHNP RHI)	
14:10~14:30	[RI] 의료 방사성동위원소의 미래, 이교철 (대한방사성의약품학회) Future of medical radioisotopes, LEE, Kyo Chul (KSRAMP)
14:30~14:45	[신약] 방사성의약품 신약 개발, 김희섭 ((주)퓨처켄) Development of new radiopharmaceuticals, KIL, Hee Seup (Futurechem co.)
14:45~15:00	[영상] 영상의학기술의 현재와 미래, 이종민 (경북대학교병원) Present and future of radiology technologies, LEE, Jongmin (KNUH)
15:00~15:10	[입자] 입자치료기술의 진화, 김경수 (서울대학교병원) Evolution of recent particle therapy, KIM, Kyung Su (SNUH)
15:10~15:30	기념 촬영 및 휴식 Commemorative photo time & coffee break
제2부 신속 실용화 전략 좌장: 박종국 (한국원자력의학원), 조일성 (한국원자력의학원)	
Part 2. Strategy of rapid practical use Chairperson : Park, Jong Kuk (KIRAMS), CHO, Ilsung (KIRAMS)	
15:30~15:50	[사업] 의료기기 사업화 사례, 이재성 ((주)브라이토닉스이미징) Commercialization case of medical devices, LEE, Jae Sung (Brightonix Imaging co.)
15:50~16:10	[지원] 국가라디오이소토퍼 센터의 역할, 김경민 (한국원자력의학원) Role of the Korea Radioisotope Center for Pharmaceuticals, KIM, Kyeong Min (KIRAMS)
16:10~16:30	[실증] 의과학기술의 신속 실용화 사업, 김건하 (한국원자력의학원) Project for rapid practical use of medical-scientific technologies, KIM, Gun-ha (KIRAMS)
16:30~16:50	[제도] 방사선의학 발전을 위한 규제 개선, 염기수 (규제혁신추진단) Regulatory improvement for advances in radiology, YUM, Kisoo (Bureau of Regulatory Innovation and Reform)
제3부 전문가 토의 및 발전전략 사회자: 김경민 (한국원자력의학원)	
Part 3. Radiation medicine forum of new research projects Chairperson : KIM, Kyeong Min (KIRAMS)	
16:50~17:30	[포럼] 발표자 중심 지정토론 및 청중과 문답 Presenter-centered discussion and Q&A with audience
17:30~	실무자 회의 Working-level meeting

| 기타사항 – 등록비 : 무료 /석식 제공 없음

– 문의처 : 김정영 / 한국원자력의학원 / 010-9073-8387 / jkim@kirams.re.kr

중성자 및 하전입자 생산, 활용 연구 동향과 전망

Research Trends and Prospects for the Production and Utilization of Neutrons and Charged Particles

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 한라홀B (Halla Hall B, 3F)

| 주최 한국원자력학회 양자공학 및 핵융합기술 연구부회, 방사선 이용 및 기기 연구부회, 기초과학연구원 중이온가속기연구소

일 정	내 용
14:00~14:10	개회사
중성자 및 하전입자 생산 Production of neutrons and charged particles	
14:10~14:30	중이온가속기 핵반응도플분광장치(KoBRA)의 구축 현황 및 계획 연사: 추경호 (기초과학연구원 중이온가속기연구소) Current status and future plans of KoBRA Speaker: Kyoung-ho Tshoo (IBS)
14:30~14:50	중이온가속기 중성자 시설 NDPS의 구축 현황 및 계획 연사: 함철민 (기초과학연구원 중이온가속기연구소) Current status and future plans of neutron facility NDPS Speaker: Cheolmin Ham (IBS)
14:50~15:10	한국원자력연구원 양성자과학연구단 입자빔 시설 현황 및 계획 연사: 권혁중 (한국원자력연구원) Current status of particle beam facilities at KOMAC Speaker: Hyeok-Jung Kwon (KAERI)
15:10~15:30	재료 전용 중이온가속기 (KAHIF) 및 중성자원 개발 현황 (KCANS 활동 현황 포함) 연사: 이동원 (한국원자력연구원) Current status for the development of heavy ion accelerator KAHIF and neutron source (including KCANS activities) Speaker: Dong-Won Lee (KAERI)
15:30~15:50	핵융합 증식블랭킷 컴포넌트 시험용 중성자원 입자가속기 현황 연사: 정모세 (울산과학기술원) Overview of an Accelerator-based Neutron Source for Breeding Blanket Components Test Speaker: Moses Chung (UNIST)
15:50~16:10	질문 및 토론 Discussion
16:10~16:30	Break
중성자 및 하전입자 활용연구 Utilization of neutrons and charged particles	
16:30~16:45	KAERI 핵데이터 연구 현황 연사: 김도현 (한국원자력연구원) Nuclear Data Research Activities at KAERI Speaker: Do Heon Kim (KAERI)
16:45~17:00	열 중성자 및 고속 중성자를 이용한 핵물리 연구 연사: 김용희 (기초과학연구원 희귀핵연구단) Study of nuclear physics using slow and fast neutrons Speaker: Yung Hee Kim (CENS, IBS)
17:00~17:15	소형가속기 기반 중성자영상을 위한 모사환경 구축 및 중성자 영상 특성 연사: 문명국 (한국원자력연구원) Characteristics of low-flux neutron imaging for compact accelerator-based neutron facilities Speaker: Myungkook Moon (KAERI)
17:15~17:30	전자소자 방사선 내성 및 평가 기술연구 연사: 이남호 (한국원자력연구원) A Study on the Radiation Hardening and Evaluation Technology of Electronic Devices Speaker: Nam-Ho Lee (KAERI)
17:30~17:45	우주용 반도체 부품에 대한 중이온 싱글이벤트 시험 연사: 이우준 (항공우주연구원) Heavy-ion single event testing for space semiconductor components Speaker: Woojun Lee (KARI)
17:45~18:00	질문 및 토론 Discussion

| 기타사항 - 프로그램은 사정에 따라 일부 변경될 수 있습니다.

The workshop program might be changed depending on circumstances.

- 등록비 : 5만원 (석식 제공)

- 문의처 : 함철민 / 기초과학연구원 / 010-2987-7679 / cmham@ibs.re.kr

이영욱 / 한국원자력연구원 / 010-5649-5530 / yolee@kaeri.re.kr

J

APR1000 유럽사업자요건(EUR) 인증취득 성과 공유회 Special Session for APR1000 European Utility Requirement Assessment and Certification focusing on Lessons Learned

| 일시 · 장소 2023.5.17(Wed) 14:00~18:00 · 제주국제컨벤션센터, 401B호 (Room 401B, 4F)

| 주최 한국원자력학회 원전건설 및 운영기술 연구부회

일 정	내 용
14:00~14:05	참석자 소개, 오지용 (한수원 중앙연구원) Welcome, OH Jiyong (KHNP CRI)
14:05~14:10	개회사, 신호철 (한수원 중앙연구원 원장) Opening Speech, SHIN Hocheol (KHNP CRI)
14:10~14:30	유럽사업자요건 심사 및 APR1000 개요, 오지용 (한수원 중앙연구원) APR1000 EUR Assessment: Project General and Lessons Learned, OH Jiyong (KHNP CRI)
14:30~15:30	APR1000 EUR 인증심사 결과, Roberto Dones (TRACTEBEL, 벨기에) Conclusion of EUR Assessment and Lessons Learned, Roberto Dones (TRACTEBEL)
15:30~15:50	휴식 Coffee break
15:50~16:10	APR1000 BOP Design and EUR Assessment, 강상호 (한국전력기술) APR1000 BOP Design and EUR Assessment, KANG Sangho (KEPCO E&C AE)
16:10~16:30	APR1000 NSSS Design and EUR Assessment, 송명준 (한국전력기술) APR1000 NSSS Design and EUR Assessment, SONG Myoung Joon (KEPCO E&C SD)
16:30~16:45	APR1000 Reactor Core Design and EUR Assessment, 정동원 (한전원자력연료) APR1000 Reactor Core Design and EUR Assessment, JUNG Dong Won (KNF)
16:45~17:00	APR1000 Major Components Design and EUR Assessment, 박건우 (두산에너지빌리티) APR1000 Major Components Design and EUR Assessment, PARK Gunwoo (Doosan)
17:00~17:15	APR1000 PAFS Performance Evaluation and EUR assessment, 홍순준 (미래와도전) APR1000 PAFS Performance Evaluation and EUR assessment, HONG Soon Joon (FNC)
17:15~17:50	패널 토의 (발표자), 진행: 황도현 (한수원 중앙연구원) 주제: APR1000 노형 개선점 및 수출전략 Panel discussion (all presenters) facilitator HWANG Do Hyun (KHNP CRI) Subject: APR1000 design improvements. Best strategies and insights for successful international business
17:50~18:00	행사 마무리, 이후 일정 소개, 황도현 (한수원 중앙연구원) Wrap up, HWANG Do Hyun (KHNP CRI)

| 기타사항 - 등록비: 무료 (석식제공 없음)

- 문의처: 황도현 / 한국수력원자력 / 010-3385-5515 / crihwang@khnp.co.kr

K

한국의 원자력 외교: 세계 원자력계의 변화와 한국의 리더십

South Korea's Nuclear Diplomacy: Role of South Korea in Global Nuclear Governance

| 일시 · 장소 2023.5.17(Wed) 14:00-18:00 · 제주국제컨벤션센터, 402A호 (Room 402A, 4F)

| 주최 한국원자력학회 원자력 정책, 인력 및 협력 연구부회, 카이스트 핵비확산교육연구센터

일 정	내 용
14:00-14:30	개회식 Opening Ceremony 환영사, 백원필 (한국원자력학회장) Opening Remarks, Won-Pil BAEK (President, Korean Nuclear Society) 기조연설, 장순홍 (부산외국어대학교 총장) Keynote Speech, Soon-Heung CHANG (President, Busan University of Foreign Studies)
14:30-14:40	Break 단체 기념촬영 Group Photo
14:40-16:00	1세션 Session 1 주제: 세계 원자력계의 변화와 한국의 전략적 포지셔닝 Competitive Strategies of South Korea in the Changing Global Nuclear Landscape 좌장: 하재주 (한국원자력연구원) Chaired by Jae-Joo HA (KAERI) (1) 에너지 안보와 세계 원자력 동향과 전망, 강기식 (KINGS) Energy Security and Global Nuclear Power: Its Current Status and Prospects, Ki-Sik KANG (KINGS) (2) 국가 에너지 백년대계와 원자력의 역할, 정범진 (경희대학교) National Energy Master Plan and the Role of Nuclear Power, Bum-Jin CHUNG (Kyunghee University) (3) SMR 기술개발 춘추전국시대 속 한국의 승전전략, 김한곤 (iSMR 기술개발사업단) How to Win the Global Competition for SMR Development, Han-Gon KIM (Innovative SMR Development Agency) (4) 한-미 원자력협력, 진단과 발전방향, 이광석 (한국원자력연구원) Advancing U.S.-ROK Cooperation on Nuclear Energy, Kwang-Seok LEE (KAERI) 토론 Discussion
16:00-16:10	휴 식 Break
16:10-17:20	2세션 Session 2 주제: 한국 원자력/비확산 외교의 현재와 미래 South Korea's Nuclear/Nonproliferation Diplomacy: Present and Future 좌장: 문유현 (고려대학교) Chaired by Yu-Hyeun MOON (Korea University) (1) 외교안보 관점, 장성화 (외교부) National Security and Diplomacy, Sung-Hwa JANG (Ministry of Foreign Affairs, ROK) (2) 연구계의 관점, 전은주 (한국원자력연구원) Research Institute, Eun-Joo JUN (KAERI) (3) 규제기관의 관점, 이나영 (한국원자력통제기술원) Regulation Agency, Na-Young LEE (KINAC) (4) 학계의 관점, 임만성 (카이스트) University, Man-Sung YIM (KAIST)
17:20-17:50	종합토론 Panel Discussion 토론자: 전봉근 (국립외교원), 염학기 (한전기술) Panelists: Bong-Geun JUN (Korea National Diplomatic Academy), Hak-Gi YEOM (KEPCO E&C)
17:50-18:00	폐회식 Closing Ceremony 폐회사, 임만성 (카이스트) Closing Remarks, Man-Sung YIM (KAIST)

| 기타사항 - 등록비: 무료 / 석식 제공 없음

- 문의처: 최지은 / 카이스트 핵비확산교육연구센터 / 042-350-8115



원전 정책 변화에 대응하기 위한 통제 법령 개선

An Improvement of Nuclear Control Statutes for Responding to the Changing Nuclear Policies

| 일시 · 장소 2023.5.17(Wed) 14:00~16:00 · 제주국제컨벤션센터, 402B호 (Room 402B, 4F)

| 주최 한국원자력학회 원자력정책, 인력 및 협력 연구부회

일 정	내 용
14:00 ~ 14:10	연구부회장 환영사, 임채영(한국원자력연구원) Welcoming Address, Chae-Young Lim(KAERI)
14:10 ~ 14:30	SMR 핵안보 규제 및 법령 개선 방안, 조성연(한국원자력통제기술원) How to improve SMR regulations and laws in terms of nuclear security, Seong-Youn Jo(KINAC)
14:30 ~ 14:50	원자력수출통제이행을 위한 원자력안전법 개정방안, 박언경(경희대) Revision of the Nuclear Safety Act for Nuclear Export Compliance, Eon-Kyung Park (Kyung Hee Univ.)
14:50 ~ 15:10	국제사회의 요구와 국내 안전조치의 적용, 정상근(영산대) Applying Domestic Safeguards to Comply with the Demands of the International Community, Sang-Geun Jung (Yeongsan Univ.)
15:10 ~ 15:30	물리적방호 및 사이버보안 규제의 공백과 신규규제 수요 대응, 박지현(영산대) Measures to Cope with Regulatory Gaps and New Regulatory Demands in Physical Protection and Cyber Security, Ji-Hyun Park (Yeongsan Univ.)
15:30 ~ 16:00	종합토론 Panel Discussion 좌장: 최준영(법무법인 율촌), Chaired by Jun-Young Choi(Yulchon Law Firm) 토론자 : 유준구(국립외교원), 정우식(세종대), 발표자들 Panelists: Jun-Ku Yoo(Korea National Diplomatic Academy), Woo-Sik Jung(Sejong Univ.), including presenters

| 기타사항 - 등록비 : 무료 / 석식제공 없음

- 문의처 : 형상철 / KINAC / 010-3935-5079 / wakendragon@kinac.re.kr

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고신뢰도 산업 인적오류 대처기술 개발 및 현황 (Status of Technologies for Preventing Human Errors in Safety-Critical Infrastructures)

| 일시 · 장소 2023.5.17(Wed) 14:00~17:10 · 제주국제컨벤션센터, 202A호 (Room 202A, 2F)

| 주최 한국원자력학회 계측제어, 인간공학 및 자동원격 연구부회
(Division of Nuclear I&C, Human Factors, and Automatic Remote Systems), 인적오류연구회(SIG-HERA)

일 정	내 용
13:30~14:00	등록 (Registration)
14:00~14:10	개회 (Opening), 김종현 (조선대학교)
14:10~14:40	특강: 인적오류 대처를 위한 심리학적 접근, 이종현 대표, 세이프티온 솔루션 (Special Lecture: Psychological Approach to Human Error Prevention)
14:40~15:10	공군 인적오류 현황 및 대처기술 개발 현황, 김대호 박사, 공군항공안전단 (Human Error Prevention in Air Force)
15:10~15:40	철도산업 인적오류 분석, 평가, 예방 기술 개발 현황, 박찬우 박사, 한국철도기술연구원 (Human Error Prevention in Railway Industry)
15:40~16:00	휴식 (Break)
16:00~16:30	원자력산업 인적오류 현황 및 인적행위개선 방안, 조선봉 차장, 한국수력원자력 (Human Errors and Human Performance Enhancement in Nuclear Industry)
16:30~17:00	원자력산업 위반오류 대처기술 개발 현황, 이용희 박사, 한국원자력연구원 (Prevention of Violation in Nuclear Industry)
17:00~17:10	폐회 (Closing)
17:10~	석식 (Dinner)

| 기타사항 - 등록비 (Registration Fee) : 50,000원 / 석식 제공 (Dinner will be included in the registration fee.)
- 문의처 : 김효진 / 조선대학교 / 010-3157-1632 / kim05140@chosun.kr

N

혁신을 주도하는 여성 : Gender Innovation!

| 일시 · 장소 2023.5.17(Wed) 12:50~14:20 · 제주국제컨벤션센터, 304호 (Room 304, 3F)

| 주최 한국원자력학회 여성지부

일 정	내 용
11:30~12:35	지부총회 및 네트워킹 (장소: ICC 2층 델리지아)
12:35~12:50	등록 (Registration) 사회: 엄영랑 박사 (한국원자력연구원) Young Rang Uhm (Korea Atomic Energy Research Institute)
12:50~13:00	개회사(Opening Remark) : 사회자 환영사 (Welcome address) : 백원필 회장 (한국원자력학회) Won Pil Baek (President of KNS)
13:00~13:40	기조강연 : 다양성 관점으로 과학과 기술 다시 보기 Keynote lecture : Reconsidering Science and Technologies through a Diversity Perspective 배유경 박사 (서울대학교 다양성위원회) Yookyung Bae (Seoul National University Diversity Council)
13:40~14:00	질의 응답 (Q/A) : 사회자
14:00~14:20	자유토론 (Discussion) : Underrepresentation of Women in Science and Technology

| 기타사항 - 지부총회 중 중식제공 (e-mail신청 必, hkchoi@kaeri.re.kr, 5월10일마감), 석식없음.
- 등록비 : 무료
- 문의처 : 이귀림 / 한국원자력연구원 / 010-3049-0479 / kllee@kaeri.re.kr

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원자력을 위한 시민운동 그리고 결속!

NGO Activities for Nuclear Energy! (For Our Sustainable Partnership!)

| 일시 · 장소 2023.5.17(Wed) 14:30~17:30 · 제주국제컨벤션센터, 303호 (Room 303, 3F)

| 주최 여성지부 (Women's Chapter, KNS), WiN Korea, NGOs,

일 정	내 용
14:20~14:30	등 록(Registration)
14:30~14:35	개회사(Opening Remark) : 엄영랑 사회: 이숙경 (WiN Korea 회장) Lee Sook-Kyung (President of WiN Korea)
14:35~14:40	환영사 (Welcome address) : 백원필
14:40~14:50	울진지역 원자력 주요 이슈와 활동 (Issues of Nuclear Power and NGO Activities in Uljin) : 장유덕 (울진군의회 의원)
14:50~15:00	고리지역 원자력 주요 이슈와 활동 (Issues of Nuclear Power and NGO Activities in Kori) : 윤정미 (기장군 원전특위 위원장)
15:00~15:10	월성지역 원자력 주요 이슈와 활동 (Issues of Nuclear Power and NGO Activities in Wolsong) : 김경희 (환경운동실천협의회 사무총장)
15:10~15:20	영광지역 원자력 주요 이슈와 활동 (Issues of Nuclear Power and NGO Activities in Yeonggwang) : 최영대 (사실과 과학 네트워크 대표)
15:20~15:30	원자력 주요 법적 이슈와 활동 (Legal Issues of Nuclear Power and Activities) : 강창호 (에너지홍사단 단장)
15:30~15:40	대국민 원자력 주요 이슈와 활동 (Issues of Nuclear Power to the People and Activities) : 박상덕 (서울대 원자력정책센터 수석위원)
15:40~15:50	질의 응답 (진행 : 사회자)
15:50~16:00	Coffee Break 탈원전 시기의 시민사회 주요 활동과 향후 협력 방안은? : Major Activities of NGOs during Nuclear Phase-Out Policy. What is the future cooperation plan? 좌장: 한은옥 (원자력학회 부회장) Han Eunok (Korea Academy of Nuclear Safety)
16:00~16:40	- 이종재 (원자력정책연대 의장) - 박상덕 ((사)원자력국민연대 부이사장) - 이영일 (원자력살리기 국민연대 사무총장) - 도청향 (여성원자력미래 회장) - 하경숙 ((사)아침 사무총장) - 윤영미 ((사)안전생활실천시민연합 회장) - 신정옥 ((사)대구여성단체협의회 회장)
16:40~17:30	패널토론 - 도청향, 박상덕, 신정옥, 윤영미, 이영일, 이종재, 하경숙(가나다순)

| 기타사항 - 등록비: 무료 / 식식 제공 없음

- 문의처: 김종선 / WiN Korea / 042-866-4201 / wink@winkorea.or.kr

이귀림 / 한국원자력연구원 / 010-3049-0479 / klee@kaeri.re.kr

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SMR 안전규제 방향 (Policy Statement on the Regulation for SMRs)

| 일시 · 장소 2023.5.17(Wed) 14:00~16:00 · 제주국제컨벤션센터, 삼다홀(Samda Hall, 3F)

| 주최 한국원자력학회 원자력정책, 인력 및 협력연구부회

| 후원 원자력안전위원회, 한국원자력안전기술원, 한국원자력통제기술원

일 정	내 용
14:00~14:30	SMR 안전규제방향 (Policy Statement on the Regulation of SMRs) (손화중, 원자력안전위원회)
14:30~14:50	경수형 SMR 설계특성을 반영한 설계검토방향 (Design Review Guidance based on LWR-SMR design features) (서영아, KINS)
14:50~15:10	SMR 개발을 위한 3S (3S for SMR Development) (조성연, KINAC)
15:10~15:40	혁신형 SMR 개발현황 및 계획 (Development status and plan of i-SMR) (하선, i-SMR 기술개발 사업단)
15:40~16:00	질의응답

| 기타사항 - 등록비 : 무료 / 석식 제공 없음

- 문의처 : 김정영 / 원자력안전위원회 / 02-397-7307 / oceans@korea.kr

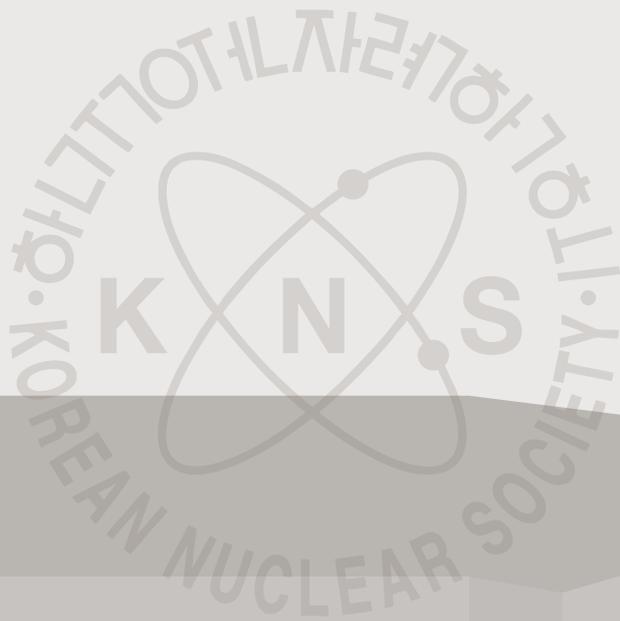
KOREAN NUCLEAR SOCIETY

2023 KNS Spring Conference

2023 춘계학술발표회

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분과별 논문 발표 (Technical Sessions)



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

I 이진행(Jin Haeng Lee), 이근우(Kunwoo Yi)

I 201A (2F)

09:00 Thermodynamic Analysis of Various Electrolysis Methods Integrated to Small Modular Reactor for Hydrogen Production
Yong Jae Chae, Jung Hwan Park, and Jeong Ik Lee(KAIST)

초청발표

09:20 Feasibility on the Use of Quantitative DID Information for the Design of a New NPP
Lim Ho Gon and Park Jin Hee(KAERI)

09:50 PX : Asymmetric Two-Step Thermosiphon for the Containment Cooling of SMR
Sung-Jae Yi, Jin-Hwa Yang, Byong Guk Jeon, Hwang Bae, Hyun-Sik Park, Sung-Uk Ryu, and Sun-Il Lee(KAERI)

10:10 Packed Bed Thermal Energy Storage for Nuclear Power Plant
Jung Hwan Park and Jeong Ik Lee(KAIST)

10:30 Coffee Break

11:00 Validation of GAMMA+ Code Using Reactivity Insertion Tests of MSRE
Seung Hyun Yoon, Nam-il Tak, and Hong Sik Lim(KAERI)

11:20 Numerical Investigation of Heat Transfer Characteristics in Wire-Wrapped 19-pin Fuel Assembly
Yohan Jung, Jongtae Kim, and Jonggan Hong(KAERI)

11:40 Benchmark Tests of GAMMA+ Using EBR-II BOP Experiments
Hyeonil Kim, Nam-il Tak, and Jonggan Hong(KAERI)

12:00 Feasibility Evaluation of the Passive Molten Salt Fast Reactor (PMFR) Concept: A Parametric Sensitivity Analysis of Helical Coil Heat Exchangers and Supercritical Carbon Dioxide Power Conversion Systems
Jihun Im, Jea Hyung Park, Juhyeong Lee, Won Jun Choi, Yun Sik Cho, and Sung Joong Kim(HYU)

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

I 류은현(Eun Hyun Ryu), 임성원(Sung Won Lim)

I 201A (2F)

13:30 Gap Material and Radial Geometry Modeling Dependency on a T/H Analysis in a Channel of CANDU6 Reactor
Eun Hyun Ryu and Jong Yub Jung(KAERI)

13:50 Preliminary Safety Analysis of CANDU Irradiated Fuel-Bay Using MARS-KS code: Part (I). Hypothetical Loss-of-Coolant-Accident
Jun-young Kang, Dong Gun Son, Yong Mann Song, Jong Yeob Jung, and Jun Ho Bae(KAERI)

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- 14:10 Preliminary Safety Analysis of CANDU Irradiated Fuel-Bay Using MARS-KS code: Part (II). Hypothetical Loss-of-Cooling Accident
Jun-young Kang, Dong Gun Son, Yong Mann Song, Jong Yeob Jung, and Jun Ho Bae(KAERI)
 - 14:30 Coffee Break
 - 14:50 Residual Stress and Intergranular(IG) Crack of Feeder Pipe in CANDU Reactor
SungSoo Kim and Jong Yeop Jung(KAERI)
 - 15:10 Consideration of Water Leak through Concrete Wall Cracks in CANDU Spent Fuel Pool
Jong Yeob Jung, Jun-young Kang, and Jun Ho Bae(KAERI), Sunil Nizahwan(Prolet Inc.)
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1C
5.19(Fri)

원자로시스템기술 3
(Reactor System Technology 3)

I 손성민(Seongmin Son), 이성남(Sung Nam Lee)

I 201A (2F)

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- 09:00 Passive Frequency Control Characteristics of S-CO₂ Direct-Cycle Micro Modular Reactor
Seongmin Son(KNU), Jeong Yeol Baek(KAIST)
 - 09:20 Verification and Validation of Aerosol Analysis Module in the MENTAS Code
Nam-il Tak, Sung Nam Lee, and Tae Young Han(KAERI)
 - 09:40 Application of Open-air Brayton Cycle to sCO₂-cooled KAIST Micro Modular Reactor
Yeongchan Kim, Sungwook Choi, and Jeong Ik Lee(KAIST)
 - 10:00 Peak Overpressure Predictions for a SRI Test by Correlation Methods and a CFD Analysis
Hyung Seok Kang and Keun Sang Choi(KAERI), Sang Dough Park(SNU)
 - 10:20 Load Following Capability of KAIST-MMR for Marine Application
Jeong Yeol Baek and Jeong Ik Lee(KAIST)
 - 10:40 Coffee Break
 - 11:00 Experimental Study on the High-Temperature Steam Supply System Using Helium Loop for Reliable Steam Generation Control
Sin-Yeob Kim, Sung-Deok Hong, Kyung-Jun Kang, and Chan-Soo Kim(KAERI)
 - 11:20 A Bendable Liquid Metal Heat Pipe: Numerical Assessment and Experimental Validation
Byung Ha Park, Ho Sik Kim, and Chan Soo Kim(KAERI)
 - 11:40 MELCOR Analysis of Fission Product Adsorption on Graphite Dust in the Gas Cooled System
Sung Nam Lee, Nam-il Tak, Young Min Kim, Tae Young Han, and Chan Soo Kim(KAERI)
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1D

5.18(Thu)
– 5.19(Fri)

원자로시스템기술 (Reactor System Technology)– POSTER 1

| 배영민(Youngmin Bae), 김대희(Dehee Kim)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- PO1D01 Transient Impact Analysis for Input Sensor Malfunction of Main Feedwater Common Header Pressure for APR1400
Seulbin Park, Jihong Min, and Ungsoo Kim(KEPCO E&C)
- PO1D02 Study on the Verification of Control Logic Code of NSSS for Integral Reactor
June Woo Kee and Seungyeob Ryu(KAERI)
- PO1D03 Equilibrium Core Design for 170MWe PWR-Type SMR Applying a Two-Batch Fuel Management Concept
Dokyun Kim and Hyung Jin Shim(SNU)
- PO1D04 The Effect of Carbon Pricing in Alberta in Terms of Deployability of Small Modular Reactor
Joo Hyung Moon, Jongwook Kim, and Hyeon Park(KAERI)
- PO1D05 Concept Development of Marine Charging Station Using SMR
Eun Sang Yun and Jeong Ik Lee(KAIST)
- PO1D06 Structural Integrity Evaluation of Intermediate Heat Exchanger for the Service Level-A Condition
Sung-Kyun Kim and Chang-Gyu Park(KAERI)
- PO1D07 Preliminary Safety Analysis on 100MWe Long Fuel Cycle Sodium-Cooled Fast Reactor Under the Unprotected Loss of Single IHTS Pump
Ji-Woong Han, Hyunwoo Lee, Yong Bum Lee, Seungjoon Baik, and Hyeon-Youl Ye(KAERI)
- PO1D08 Integrated Fluid-Structure Modeling and Analysis of a Long-cycle SFR Using Open-source Codes
Dehee Kim, Jinhaeng Lee, and Jonggan Hong(KAERI)
- PO1D09 Design Change and Feasibility Analysis of SALUS Reactor Internal Structures
Jong-Bum Kim and Chang-Gyu Park(KAERI)
- PO1D10 Preliminary GAMMA+ Modeling on Passive Decay Heat Removal System of SALUS
Hyun-Sik Park, Sun-Rock Choi, Seung-Hyun Yoon, Nam-Il Tak, Byung-Ha Park, Jung Yoon, and Jonggan Hong(KAERI)

1E

5.18(Thu)
– 5.19(Fri)

원자로시스템기술 (Reactor System Technology)– POSTER 2

| 이재준(Jaejun Lee), 박수기(Suki Park)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- PO1E01 Comparison of Isothermal and Isentropic Thermo-Electric Energy Storage Systems with Trans-Critical CO₂ cycle Coupled to Nuclear Energy
Nayoung Kim and Jeong Ik Lee(KAIST)
- PO1E02 Steady-state Analysis of the SALUS IHTS using GAMMA+ code
Junkyu Han, Nam-il Tak, and Jonggan Hong(KAERI)

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- P01E03 Gas Mixture Separation and Cooling System for 800°C High-Temperature Steam Electrolysis Experimental Facility
Kyung Jun Kang, Sin Yeob Kim, Sung Deok Hong, and Chan Soo Kim(KAERI)
- P01E04 Summary of KAIST Research Works on S-CO₂ Power Cycle
Moon Hyeok Kang and Jeong Ik Lee(KAIST)
- P01E05 Preliminary Evaluation of Turbulent Pressure Drop Correlations' Applicability on Narrow Rectangular Channel Flow
Hyung Min Son and Jonghark Park(KAERI)
- P01E06 Validation of KAIST-TMD with Recent Supercritical CO₂ Turbine-Alternator-Compressor Test Data
Seungkyu Lee and Jeong Ik Lee(KAIST)
- P01E07 Power Profile for Plate-type Fueled Research Reactor Core Thermal Margin Analysis
Hyung Min Son, Kiwon Song, Huiyung Kim, and Jonghark Park(KAERI)
- P01E08 Parametric Study for Fix Bolts of a Research Reactor
Yonghee Ryu, Jinsung Kwak, and Jinho Oh(KAERI)
- P01E09 Coil Spring Design for Spring Balancer of a Research Reactor
Hwanho Lee and Jinho Oh(KAERI)
- P01E10 A Study on Licensing Requirements for a Non-Light Water Micro-Reactor in Korea
Kilyoo Kim(KAERI)

원자로 물리 및 계산과학 (Reactor Physics and Computational Science)

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

5.18(Thu)

| 박호진(Ho Jin Park), 윤주일(Joo il Yoon)

| 201B (2F)

- 09:00 Activation Calculation and Verification in BESNA for Reactor Problems
Duy Long TA, Seung Il JEONG, and Ser Gi HONG(HYU)
- 09:20 Estimation of Control Rod Worth of CNP1000 Reactor using the Modified Neutron Source Multiplication Method
Jiahe Bai(XJTU|HYU), Ser Gi Hong(HYU), Chenghui Wan(XJTU), and Yunzhao Li(XJTU)
- 09:40 Development and Stability Analysis of a Simulation Model for Small Modular Reactors using Padé Approximant
Ye-ji Kim and Moon-Ghu Park(Sejong Univ.)
- 10:00 Analysis of Reactivity Insertion Accident with the Multi-group Pin Homogenized SP3 Code SPHINCS
Hyun Ho Cho(KAERI), Junsu Kang(University of Michigan)
- 10:20 MCS Monte Carlo Simulation of APR1400 Benchmark
Fathurrahman Setiawan and Deokjung Lee(UNIST)
- 10:40 Coffee Break
- 11:00 Development of Multicycle Capability in Multiphysics Coupling Framework MPCORE
Awais Zahur, Muhammad Rizwan Ali, and Deokjung Lee(UNIST)
- 11:20 Effect of two Way Thermal Hydraulic-Fuel Performance Coupling on Whole Core Depletion
Awais Zahur, Muhammad Rizwan Ali, Murat Serdar Aygul, and Deokjung Lee(UNIST)
- 11:40 A Study on the Applicability of Simplified GET Theory to MSFR with Local Moderator
Sungtaek Hong(KAERI), Yonghee Kim(KAIST)
- 12:00 First Criticality and Uncertainty Analysis of the HTR-PM using MCS
Tino Umbar and Deokjung Lee(UNIST)

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

5.18(Thu)

| 최지원(Jiwon Choe), 원종혁(Jong Hyuck Won)

| 202A (2F)

- 09:00 Feasibility Study of an Explainable AI-based Anomaly Detection for Nuclear Reactor Core Operation in PWRs
Hanjoo Kim and Deokjung Lee(UNIST), Sang-Rae Moon(KHNP)
- 09:20 Neutron Sensitivity Calculation of a Cobalt Self-Powered Neutron Detector Using with Monte-Carlo Method
Hyuk Han, Kyoong Ho Cha, and Chang Je Park(Sejong Univ.)
- 09:40 Development of BEPU Methodology using Multi-Physics Coupling Code based on RAST-K
Jinsu Park and Deokjung Lee(UNIST)
- 10:00 GPU-based Method of Characteristics with CMFD Acceleration in Unstructured Mesh Geometry
Kyung Min Kim, Han Gyu Lee, and Han Gyu Joo(SNU)
- 10:20 Application of Iterative Correlated Sampling to Estimate Real Variance in the iDTMC Method
Inyup Kim and Yonghee Kim(KAIST)

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- 10:40 Coffee Break
 - 11:00 Resolution of Self-Intersection Issue in Monte Carlo Simulations Employing Graphics Ray Tracing Technology
Sung Joon Kwon, Jaeuk Im, and Han Gyu Joo(SNU)
 - 11:20 Development of a Resonance Calculation Scheme Involving Exact Scattering Kernels
Han Gyu Lee and Han Gyu Joo(SNU)
 - 11:40 GMDH-based 3-D Reactor Power Reconstruction for Increment of Operation Margin of MDNBR Calculation in Core Monitoring System
Dongmin Yun and Deokjung Lee(UNIST)
 - 12:00 Application of Modified 2D/1D Decoupling Method in the Pin-wise Core Analysis
Hwanyeal Yu, Hyunsik Hong, and Joo-ill Yoon(KEPCO NF)
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2C 5.18(Thu)

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

I 조유권(YuGwon Jo), 손승범(Seung-beom Son)

I 201B (2F)

-
- 13:30 Whole-core Neutronic Analysis of MOX-1000 MW th in NEA-SFR Benchmark Using MCS Code
SAISUNDAR MOHANTY, TUAN QUOC TRAN, TUNG DONG CAO NGUYEN, and DEOKJUNG LEE(UNIST)
 - 13:50 Transient Analysis for the SPERT III E-Core Benchmark with STREAM/RAST-K Code System
Jihyeon Lee, Jinsu Park, Wonkyeong Kim, and Deokjung Lee(UNIST)
 - 14:10 Assessment of Fission Product Migration in Molten Salt and Metal Reactor (MSMR)
Eunhyug Lee, Taesuk Oh, Jaehyun Ryu, and Yonghee Kim(KAIST)
 - 14:30 A Study on Breakeven Feasibility in Molten Salt Fast Reactors
Eunhyug Lee, Taesuk Oh, and Yonghee Kim(KAIST)
-

2D 5.19(Fri)

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

I 이경훈(Kyunghoon Lee), 이환수(Hwan-soo Lee)

I 201B (2F)

-
- 09:00 A Novel Burnable Absorber for Small Modular Reactors: Gadolinium (III) Nitride Coating
Sung Hyun Cho and Ser Gi Hong(HYU)
 - 09:20 A Comparative Physics Study on Very Small Reactor Cores (vSMRs) Having Different Coolants for Ultra-Long-Life Operation
Seung Nam Lee, Yu Yeon Cho, and Ser Gi Hong(HYU)
 - 09:40 Nuclear Conceptual Design for a Micro, Autonomous, and Transportable Energy Generator (MATE)
Chul Gyo Seo, Chan Bock Lee, Sung-Deok Hong, Chungchan Lee, Wang-kee In, and Dae-Hyun Hwang(KAERI)
 - 10:00 Neutronic Analysis of an Up-rated Soluble-Boron-Free ATOM Core Design Based on the Centrally-Shielded Burnable Absorber
Steven Wijaya, Yunseok Jeong, and Yonghee Kim(KAIST)
 - 10:20 Multiphysics Simulations for Heat Pipe Cooled Micro Reactors Using PRAGMA-OpenFOAM-ANLHPT
Jaeuk Im, Myung Jin Jeong, Namjae Choi, Kyung Min Kim, Hyoung Kyu Cho, and Han Gyu Joo(SNU)
 - 10:40 Coffee Break
 - 11:00 Innovative-SMR Design with CIMBA using Two-step Code STREAM2D/RAST-K
Wongyu Lee, Wonkyeong Kim, Jinsu Park, Yunki Jo, Jaerim Jang, Eun Jeong, Yeongseok Kang, Kyeongwon Kim, and Deokjung Lee(UNIST)
-

- 11:20 Benefits of Inverted Fuel Geometry Implementation to Fast Reactor
Muhammad Farid Khandaq and Deokjung Lee(UNIST)
- 11:40 Performance of Burnable Poison in ZrH1.6 Moderated Driver Zone of a Long-Cycle Fast-Spectrum SMR
Yanuar Ady Setiawan and Douglas Fynan(UNIST)
- 12:00 A Study on LEU+ APR1400 Using ATF Clad and CSBA
Husam Khalefih and Yonghee Kim(KAIST)

2E 원자로물리 및 계산과학 5 (Reactor Physics and Computational Science 5)
5.19(Fri) | 육승수(Seungsu Yuk), 공치동(Chidong Kong) | 202A (2F)

- 09:00 Monte Carlo Fission Source Convergence Diagnosis by Skewness and Kurtosis Estimation Method for Various Benchmark Problems
Seung-Ah Yang and Ho Jin Park(KHU)
- 09:20 Local Power Tally Bias and Error Autocorrelation from Exceeding Random-Number Stride in Monte Carlo-Fixed Source Simulation of Multiplying Medium
Arief Rahman Hakim and Douglas A. Fynan(UNIST)
- 09:40 Transient Capabilities of Deep Learning Assisted Code RAST-AI
Siarhei Dzianisau and Deokjung Lee(UNIST)
- 10:00 Application of a Vision Transformer for Prediction of Peaking Factors and Cycle Lengths in OPR1000
Seongjin Jeong and Hyunchul Lee(PNU), Howon Lee(SNU)
- 10:20 Preliminary Study on the Effect of Control Rod Depletion for the Operation of SMR using STREAM/RAST-K
Yeongseok Kang, Jinsu Park, Wonkyeong Kim, and Deokjung Lee(UNIST)
- 10:40 Coffee Break
- 11:00 Improvement of Axial Shape Index Prediction of STREAM/RAST-K by Considering the Moderator Temperature History
Yeongseok Kang, Jinsu Park, Wonkyeong Kim, and Deokjung Lee(UNIST)
- 11:20 Two different Approaches for Evaluating Dynamic Reactivity for Predictor-Corrector Quasi-Static Monte-Carlo Simulation
Taesuk Oh, Inyup Kim, and Yonghee Kim(KAIST)
- 11:40 Implementation of Iterated Fission Probability Method for Calculating Effective Kinetic Parameters and Adjoint Flux Distribution in the iMC Monte Carlo Code
Taesuk Oh, Inyup Kim, and Yonghee Kim(KAIST)

2F 원자로물리 및 계산과학 (Reactor Physics and Computational Science) – POSTER
5.18(Thu) – 5.19(Fri) | 한태영(Tae Young Han), 김경오(Kyung-O Kim) | Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P02F01 Preliminary Result of Three-dimensional Single Assembly by STREAM3D and CUPID Coupling System Code
Kyeongwon Kim, Wonkyeong Kim, Woonghee Lee, and Deokjung Lee(UNIST), Jae Ryong Lee(KAERI)

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- P02F02 Calculation of Displacement per Atom (DPA) in STREAM
Nhan Nguyen Trong Mai, Kyeongwon Kim, and Deokjung Lee(UNIST)
- P02F03 Evaluating the Feasibility of Improving Operational Scenario Accuracy through Long-term ASI Search
Sung Ju Kwon, Yoon Duk Nam, Gun Ho Seo, and Joo Il Yoon(KEPCO NF),
Jongsun Lee and Dae-Hee Cho(KHNP)
- P02F04 Validation of Transient Module in RAST-F Code for Fast Reactor Analysis
Tuan Quoc Tran and Deokjung Lee(UNIST)
- P02F05 Investigation of the Shadowing Effect among Control Rods in China Experimental Fast Reactor Start-up Test
Min Jae Lee and Jae-Yong Lim(KAERI)
- P02F06 Few Group Structure Optimization based on Perturbation Theory for VHTR
Tae Young Han(KAERI)
- P02F07 Focusing Multi-layer Guide for Cold Neutron Instrument
Yongsik Jang and Sang-Jin Cho(KAERI)
- P02F08 High-fidelity Coupled Neutron Transport, Thermal-Hydraulic and Fuel Performance Simulations using
STREAM3D/CTF/FRAPCON
Wonkyeong Kim and Deokjung Lee(UNIST)
- P02F09 Development Status of MCS as Cross-section Generation Tool for Fast Reactor Analysis
Tung D.C. Nguyen, Tuan Q. Tran, and Deokjung Lee(UNIST)
- P02F10 A New Conceptual Core Design of Mobile Thorium based Small Modular Reactor for the Medical
Applications
Keonil Cha and ChangJe Park(Sejong Univ.)
- P02F11 A Study of MSR Depletion Behavior based on Molten Salt Type
Jae Uk Seo, Seongjun Yoon, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.), Sang Ji Kim(KAERI)
- P02F12 Preliminary Design of a Control Drum System for a Transportable Microreacto
Seongjun Yoon, Jae Uk Seo, Sung-Kyun Zee, and Tongkyu Park(FNC Tech.), Sang Ji Kim(KAERI)
- P02F13 The Preliminary Analysis of the Reactivity Parameters and Fuel Performance Evaluation on a Long-term
Sustainable Small Modular Reactor, SALUS
Jong-Hyuck Won, Min Jae Lee, and Jae-Yong Lim(KAERI)
- P02F14 A Study on Effect of Assembly Power History to Gamma Dose Rate in Spent Fuel Pool at a Short Cooling Time
Yunki Jo and Deokjung Lee(UNIST)
- P02F15 Effect of U-235 Enrichment on Depletion Characteristics of Gadolinia Burnable Absorber
YuGwon Jo and Jae-Yong Lim(KAERI)
- P02F16 A Sensitivity Study on Nuclear Criticality According to NJOY Processing Options for Thermal Neutron
Scattering Data of H-in-ZrH
Do Heon Kim, Choong-Sup Gil, and Hyeong Il Kim(KAERI)
- P02F17 Generation of Thermal Neutron Scattering Library for Light Water Using Molecular Dynamics Simulation
Code, GROMACS
Haelee Hyun and Do Heon Kim(KAERI), Ser Gi HONG(HYU)
- P02F18 Development of the Program to Produce Independent Fission Yield Data using the GEF Code Calculations
And Nuclear Data Libraries
Jounghwa Lee, Do Heon Kim, and Choong-Sup Gil(KAERI)
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원자력시설해체 및 방사성폐기물관리 (Nuclear Facility Decommissioning and Radioactive Waste Management)

3A
5.18(Thu)

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

I 조용흠(Yongheum Jo), 윤석본(Suk Bon Yoon)

I 400 (4F)

- 09:00 The Current Status of Electrolytic Reduction Process in Pyroprocessing Development
Eun-Young Choi, Sang-Kwon Lee, Jong-Kwang Lee, and Jae Soo Ryu(KAERI)
- 09:20 Low Temperature Sintering for the Immobilization of BiO-rGO Iodine Wastes
Chee Tien Shee Ng Yuen Hing and Ho Jin Ryu(KAIST)
- 09:40 Analyzing Crystal Structure of Consolidated Zeolite 13X
Sujeong Lee and Ho Jin Ryu(KAIST)
- 10:00 Analysis of Arrangement of Domestic High Burn-up PWR Spent Nuclear Fuel in Deep Geological Disposal
Gisu Lee, Namhyeong Kim, Myeonggi Cha, and HangJin Jo(POSTECH)
- 10:20 Strontium-90 Immobilization Via Coprecipitation with Respect to Calcite in Various Disposal Site Conditions
Nara Jeong, Jaeun Kang, Donghun Pak, and Wooyong Um(POSTECH)
- 10:40 Coffee Break
- 11:00 The Effect of Isosaccharinic Acid on the Mobility of Nickel in the Near- and Far-Field Repository Conditions
Soojeong Ji, Donghun Pak, and Wooyong Um(POSTECH)
- 11:20 Copper Effects on the Retention of Mobile Iodine in a Compacted Bentonite
Seung Yeop Lee, Seok Yoon, and Jang-Soon Kwon(KAERI)
- 11:40 Sorption of Isosaccharinic Acid (ISA) by Hydrated Cement Paste and C-S-H Phases
Yongheum Jo(HYU), Nese Cevirim-Papaioannou, Iuliia Androniuk, Marcus Altmaier, and Xavier Gaona(KIT),
Benny DeBlochouse(ONDRAF/NIRAS)

3B
5.18(Thu)

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

I 권장순(Jang-Soon Kwon), 한종희(Jonghui Han)

I 202A (2F)

- 13:30 Ethanol Effect in Soil Decontamination Process Using Supercritical Carbon Dioxide
Seungil Ha, Kwangheon Park, and Jinhyun Sung(KHU)
- 13:50 Performance of Modular Design-based Mobile Air-cleaning Unit for Removing Radioactive Aerosol from Decommissioning of Nuclear Power Plant
Min-Ho Lee, HyunChul Lee, WooYoung Jung, and DooYong Lee(FNC Tech.), DaeWon Cho(KIMM)
HyunJin Boo, SuHyeon Lee, and ByungGi Park(SCHU), DeokHee Lee(SOLTI), KapHyun Yoo(Century)
- 14:10 A Study On Real-Time Radiation Map Generation System that Combines LIDAR and Survey Meter
BoHyun Ryu, Eun-seop Yu, Pyeongwon Park, and Choong-Sub Yeom(IAE)

- 14:30 Coffee Break
- 14:50 A 3D Model-based Estimation Method of Radiation Source Activity from Dose Rates Measured in the Field
Hyong Chol Kim, Jae Hee Roh, Seok Ki Lee, and Young Jin Lee(NSE)
- 15:10 Preliminary Study for Evaluation of Spent Nuclear Fuel Failure Probability
Yeongjun Son, Seyeon Kim, and Sanghoon Lee(KMU)

3C
5.19(Fri)

**원자력시설해체 및 방폐물관리 III
(Nuclear Facility Decommissioning and Radioactive Waste Management III)**

I 차완식(Wansik Cha), 임상호(Sang Ho Lim)

I 203 (2F)

- 09:00 Simulation of Bending Behavior of High Burnup Spent Fuel Rod Considering Breakage of Interfacial Bonding
Bongjun Kim, Jiyeong Park, and Sanghoon Lee(KMU)
- 09:20 Development of Fracture Prediction Model for Spent Nuclear Fuel Cladding under Pinch Load Based on Continuum Damage Mechanics
Seyeon Kim, Jaeho Lee, and Sanghoon Lee(KMU)
- 09:40 Development of Model for Radionuclides Release Rate Calculation from A Transport Cask Submerged in the Deep Sea
Guhyeon Jeong, Jaeho Lee, and Sanghoon Lee(KMU)
- 10:00 Effects of BSS Corrosion Behavior on Neutron Absorption Performance in an Accelerated Environment in a Spent Nuclear Fuel Wet Storage
Daehyeon Park, Yunju Lee Lee, Junhyuk Ham, and Ji Hyun Kim(UNIST),
Seung Chang Yoo(KINS), Kiyong Kim, Donghee Lee, and Yongdeog Kim(KHNP CRI)
- 10:20 Interference of Toluene in Two-Phase Capture Solution on Determination of Iodine Concentration
Jei-Won Yeon and Minsik Kim(KAERI)
- 10:40 Influence of Vibration on the Measurement in High Temperature Molten Salt Electrochemical System
Seungmin ohk, Galam seo, Hyeonjune Noh, and Jaeyeong Park(UNIST)

3D

5.18(Thu)
- 5.19(Fri)

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

I 윤영상(Young-Sang Youn), 이동우(Dong Woo Lee)

I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P03D01 Electrochemical Removal of Cobalt Ions from Aqueous Solution Via Capacitive Deionization System
SangHun Lee, ByungSeon Choi, WangKyu Choi, SungWook Kim, JongYun Kim, and SangHo Lim(KAERI)
- P03D02 Requirements for the Application of Cement Solidification Process Control Program: Review on the Effects of Radioactive Waste, Cement, and Additive Composition
Naon CHANG, Hee-chul EUN, SangMo HWANG, Duckha KIM, and Donsu KIM(KAERI)

-
- PO3D03 Derivation of Thermal Treatment Process Conditions for Volume Reduction of Dry Active Waste
Jihyun Yu, Byungchae Lee, Jonghoa Kim, and Jangsoo Suh(SAETEC)
- PO3D04 Strategies for Development of an Integrated Treatment System for Decontamination Wastewater Generated during Nuclear Power Plant Dismantling
Dukwon Kang, Seongwoo Lee, and Moonjo Han(WOOJIN)
- PO3D05 Simulation of Xe Adsorption into UiO-66 Crystal by Grand Canonical Monte Carlo Method
Jeongho An and Kunok Chang(KHU)
- PO3D06 Evaluation of Applicability of 100kW Plasma Torch Melting Facility for Radioactive Waste Treatment
Sunghoon Hong, Jeongsu Jeong, and Seoyong Choi(KHNP CRI)
- PO3D07 A Case of Improving the Plasma Torch of Radioactive Waste
JEONGSU JEONG and SUNGHOON HONG(KHNP CRI)
- PO3D08 Study on Behavior of Radionuclides during the Melting of a Radioactive Metal Waste
Naon CHANG, San Chae, and WonHyck Jang(KAERI)
- PO3D09 Trend Analysis of Domestic and Foreign Liquid Scintillation Counter (LSC) Cocktail Waste Treatment Technology
So Yun Jeong, Kyu Tae Park, Wook Jae Yoo, Sung Ryul Kim, Jung Min Oh, Ba Ro Lee, Ji Ung Kim, Hye Jin Kim, and Hyun Young Shin(Orbitech)
- PO3D10 A Study on the Timeframe for Mitigating Radiological Risk of Spent Nuclear Fuel from Direct Disposal Perspective
In-Young Kim, Jung-Woo Kim, and Dong-Keun Cho(KAERI)
- PO3D11 Evaluation of Leaching Test Method for Gyeongju Low- and Intermediate Level Waste Repository
Youjin Oh, Hyeongjin Byeon, and Jaeyeong Park(UNIST)
- PO3D12 Copper Alloy Design for Suppressing Sulfur Diffusion and Mitigating Embrittlement
Minkyu Ahn, Jinwoo Park, Gyeongsik Yu, Sangeun Kim, and Chansun Shin(MJU)
- PO3D13 Development of Contamination Evaluation and Classification System for Radioactive Soil and Concrete Waste from NPP Decommissioning
Yun-Ho CHO(BNS), Dae-Seok HONG(KAERI), Sojung SHIM and Young-Ku CHOI(NDRI)
- PO3D14 Thermal Management Methods for High-Efficiency Geological Disposal of High Level Waste
Jongyool Lee, Heujoo Choi, and Dongkeun Cho(KAERI)
- PO3D15 Estimation of Regulatory Clearance for Contaminated Soil Stored in KAERI
Kyungmin Kim, Il-Sik Kang, Dae Seong Nam, Jong Hwa Pack, Sung Jin Han, Yun Gun Jung, Heung-Ju Cho, Dong-Ju Lee, and Hongrae Jeon(KAERI)
- PO3D16 Statistical Hypothesis Test for Decommissioning Site Release using Integrated Site Characterization Code: COSMOS
Hyungi Byun, Jong Dae Park, Juyub Kim, and Doo Yong Lee(FNC Tech.), Sihyun An(Yonsei Univ),
- PO3D17 Occupational Radiation Exposure of Workers during the Dismantling of VVER-440 Reactor Pressure Vessel
Dalibor Kojecky and Juyoul Kim(KINGS)
- PO3D18 Development of a Methodology for Evaluating the Waste Amount of Activation Components in Pressurized Heavy Water Reactor
gangwoo Ryu, hyunmin Kim, youngil Na, junki Baik, and minchul Kim(KHNP CRI)
gilyong Cha, and minhye Lee(RADCORE)
- PO3D19 The Validation of Radiochemical Analysis Results for NPP Dismantling Radwastes
Chang Heon Lee, Seungsu Shin, Sojung Shim, and Young-Ku Choi(NDRI)
- PO3D20 Development of Procedures for Dismantling Tanks Used in NPP
Dong-Yeon Kim, Sung-Hyeon Kim, Eun-Kyoung Cho, Chung-Hee Lee, and Sang-Woon Shin(NILEPLANT)
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- P03D21 **Review of Contingency Infrastructure for Project Management in NPP Decommissioning**
Gi-Lim Kim, Jihwan Yu, and Hyung-Woo Seo(KHNP CRI)
- P03D22 **Prediction of Decommissioning Waste Generation of RadWaste Treatment Facility**
San Chae and Won-Hyuk Jang(KAERI)
- P03D23 **Development of Advanced Collimator for Measuring in High Radiation Field**
Sang Yoon Park, Sang Bum Hong, Chaehun Lee, Seonkwang Yoon, and Bum Kyung Seo(KAERI)
- P03D24 **Measurement of Environmental Factors at a Nuclear Facility Decommissioning Site**
Yoon-Do OH, Dae-Seok HONG, and Jun-Hyuck IM(KAERI), Yun-Ho CHO(BNS)
- P03D25 **Dose Calculation according to Collimator Design for High Radiation Measurement**
Seonkwang Yoon, Chaehun Lee, Sang Yoon Park, Sang Bum Hong, and Bum Kyung Seo(KAERI)
- P03D26 **A Study on Deriving the Importance and Feasibility of Demolition Sequences and Evaluation Factors of Major Component for Deriving Standard Decommissioning Scenarios for Pressurized Heavy Water Reactor Nuclear Power Plants**
Sang Heon Lee, Min Ho Lee, and Jong Soon Song(CSU)
- P03D27 **A Study on Clearance of Radioactive Material for Decommissioning NPP according to Germany Regulations, Procedures and Experiences**
Jihwan Yu, Hyung-woo Seo, and Gi-lim Kim(KHNP CRI)
- P03D28 **A Review of Site-Specific Parameters in the Evaluation of Remaining Building Reuse from the NPPs Decommissioning**
Hyung-Woo Seo, Hye-Jin Jung, Chan-Geun Park, and Gang-Woo Ryu(KHNP CRI)
- P03D29 **A Preliminary Study on Time Limited Aging Analysis for Radiation Embrittlement of Components in Dry Storage System**
Hyun Seok Song, Sang Hyeok Lee, and Jae Hak Cheong(KHU)
- P03D30 **The Preliminary Study on the Treatment of Damaged CANDU Spent Fuel**
Kyungho Roh(KHNP CRI)
- P03D31 **Sensitivity Evaluation for Decay Heat Calculation Method of Spent Nuclear Fuel in the SFP**
Taehyeon Kim, Donghee Lee, and Yongdeog Kim(KHNP CRI)
- P03D32 **Review Study of Design and Development of Hot Cells**
Seok-Jun Seo and Jonghui Han(KAERI)
- P03D33 **A Criticality Safety Analysis of Dry Storage Cask Loaded with Accident-Tolerant Fuel**
Donghyeok Park, Seokgeun Cho, Kyoonsoo Cha, and Changje Park(Sejong Univ.)
- P03D34 **Optimized Complete Decladding Condition for Simulated Damaged Fuel of 20 cm Length**
Ju Ho Lee, Byung Jin So, Jae Won Lee, and Yung Zun Cho(KAERI)
- P03D35 **Comparative Analysis of Results according to the Measurement Direction of Spent Fuel Burnup**
Donghee Lee, Yongdeog Kim, and Kiyoung Kim(KHNP CRI)
- P03D36 **Technical Requirements for Dry Storage Demonstration System of CANDU Spent Fuel**
TaeHyung Na and YongDeog Kim(KHNP CRI)
- P03D37 **Development of Automation Module for Spent Nuclear Fuel Safety Information**
Seok Geun Cho, Seung Uk Yoo, Kyoonsoo Cha, and Change Je Park(Sejong Univ.)
- P03D38 **Comparison of Open Pool Fire Test according to Season**
K.S Bang, G.E Jeong, and Y.Y Yang(KAERI)
- P03D39 **Criticality Safety Analysis(CSA) for the Shifted Fuel Assemblies in Spent Fuel Transportation Cask**
Yubin Go, Kyoonsoo Cha, Chang Je Park, Hyuk Han, Keonil Cha, and Seung Uk Yoo(Sejong Univ.)
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- P03D40 **Criticality Safety Effect according to Fuel Rod Consolidation**
Kiyong Kim and Kyungho Roh(KHNP CRI)
- P03D41 **Analysis of Hydrogen Isotopes in Consumer Goods Using High Precision Gas Mass Spectrometry**
Jeong Eun Kim(KAERI), Min Jun Kim, and Bong Gi Kim(KINS),
Jin Bok Lee Jin Seog Kim, and Kiryong Hong(KRISS)
- P03D42 **Synthesis and Characterization of Stable Ag⁺ Ion Clusters**
Jeong Woo Hong, Sohyeon Lim, Chang Hyuk Kang, Chung Hun Han, and Hee-Jung Im(JNU)
- P03D43 **Surface Reactivities of U(IV) Nanoparticles in Aqueous Phases**
Wansik Cha, Seonggyu Choi, Hyejin Cho, and Hye-Ryun Cho(KAERI)
- P03D44 **Analysis of ⁹⁹Tc in Radioactive Waste by ICP-MS**
Jung-Weon Choi, Kwangsoon Choi, Gi Yong Kim, Jihyun Kim, and Jung Bo Yoo(KAERI)
- P03D45 **The Need for Performance Evaluation prior to Direct Use of Commercial Resin**
JUNG BO YOO and HYO JIN AHN(KAERI)
- P03D46 **A Study on Assessment System for the Integrity of Spent Nuclear Fuel under Normal Conditions of Transport**
Woo-seok Choi, JaeHoon Lim, Jongmin Lim, and Gil-Eon Jeong(KAERI)

4A

5.18(Thu)

핵연료 제조/성능/평가 I (Fuel fabrication, performance & test I)

I 류호진(Ho Jin Ryu), 김효찬(HyoChan Kim)

I 202B (2F)

- 09:00 Post-quench Ductility of Cr-coated (8 μ m, AIP) Zr-1.1Nb Accident Tolerant Fuel Cladding and Accident Margin Analysis
SungHoon Joung and Youho Lee(SNU)
- 09:20 Thermo-mechanical Analysis of Multi-layered Accident-tolerant fuel (ATF) Claddings
Jiwon Mun, Hyeong-Jin Kim, and Ho Jin Ryu(KAIST)
- 09:40 Numerical Investigation of Creep Behavior of Cr-coated ATF under Steady-state Condition
Jinsu Kim, Hyuntaek Rho, and Youho Lee(SNU)
- 10:00 2D FDM Structural Analysis Model for Cr-coated ATF Cladding: Development and Implementation into Fuel Analysis Code
Hyuntaek Rho and Youho Lee(SNU)
- 10:20 Development and Evaluation of Cold Spray Cr-coated Zr-alloy Cladding as Accident Tolerant Fuel (ATF) Design in LWRs
Hwasung Yeom(POSTECH), Kumar Sridharan(University of Wisconsin-Madison)
- 10:40 Coffee Break
- 11:00 Effects of Acoustic Impedance on Spent Nuclear Fuel Ultrasonic Inspection
Kyung Gun Kim and Jin Ho Jeong(KHNP)
- 11:20 Exploring the Microstructural Difference Between Circumferential Hydride and Radial Hydride in Reactor-grade Zirconium Cladding Tube
Dahyeon Woo and Youho Lee(SNU), Joo-Hee Kang(KIMS)
- 11:40 Effect of Reduced Hydride Connectivity on the Mechanical Strength of Zircaloy Via Grain Growth
Sangbum Kim and Youho Lee(SNU)
- 12:00 A Comparative Study on Spent Nuclear Fuels under Normal and Postulated Conditions of Transportation
Min Jeong Park, Yong Gyun Shin, and Yoon-Suk Chang(KHU)
- 12:20 Electron Irradiated ZrC layer in Surrogate TRISO Fuel Particles
Sunghwan Yeo, Hyunggen Lee, Eungsun Kim, and Jun Hwan Kim(KAERI)

4B

5.18(Thu)

부식 및 조사손상 I (Corrosion and radiation damage I)

I 김성우(Sung Woo Kim), 양승화(Seunghwa Yang)

I 203 (2F)

- 09:00 On the Wrong Use of Sodium Hydroxide as a Chemical Impurity Concentrated in Nuclear Steam Generator Crevices
Do Haeng Hur, Jeoh Han, and Soon-Hyeok Jeon(KAERI), Geun-Dong Song(FNC Tech.)

-
- 09:20 Atomistic Investigation of Interstitial Dislocation Loop Formation and Threshold Displacement Energy in Tantalum and Tantalum-Tungsten Alloy by Low Temperature Irradiation under Local Deformation
Mohammad Banisalman, Minkyu Park, and Mosab Banisalman(Virtual Lab Inc.)
 - 09:40 Multiscale Modeling Approach to Hygroelastic Aging of Epoxy and Epoxy Nanocomposites
Seunghwa Yang and Inseok Jeon(CAU), Seonyong Kwon(Samyang Corp)
 - 10:00 Formation of Nanotwins in Proton-Irradiated Austenitic 316 Stainless Steel
Yun Soo Lim, Dong Jin Kim, Sung Sik Hwang, Sung Woo Kim, Min Jae Choi, and Sung Hwan Cho(KAERI)
 - 10:20 Enhancing the Accuracy of Embrittlement Trend Curves for Nuclear Power Plants through Group Bias Estimation with a Multilevel Model
Gyeong-Geun Lee, Bong-Sang Lee, Min-Chul Kim, and Jong-Min Kim(KAERI)
 - 10:40 Coffee Break
 - 11:00 Factors for IASCC Initiation of Reactor Internal Materials of PWRs
Seong Sik Hwang, Min Jae Choi, Sung Woo Kim, and Dong Jin Kim(KAERI)
 - 11:20 Effects of Peening on Material Properties and Primary Water Stress Corrosion Cracking Behavior of Alloy 600
Baosheng Bai, Sungyu Kim, Joonho Moon, and Chi Bum Bahn(PNU), Wongeun Yi(Doosan Enerbility Co., Ltd.), Eunsub Yun(KHNP)
 - 11:40 Effect of Residual Stress on Oxidation Behavior of Stainless Steel 304L in Simulated Secondary Water Environment of PWR
Kyeongtae Park, Junhyuk Ham, and Ji Hyun Kim(UNIST), Seung Chang Yoo(KINS)
 - 12:00 Improvement Flow Accelerated Corrosion resistance of Carbon steel by Chromium electroplating and Plasma Nitriding
Dong-Ha Kim, Jeong Mok Oh, Sunghwan Yeo, Sung Ho Kim, and Jun Hwan Kim(KAERI)
 - 12:20 550°C Liquid Lead-Bismuth Eutectic Corrosion of Direct Energy Deposited AFA Steel Laser Cladding
Taeyong Kim, Byeongju Kim, and Ji Hyun Kim(UNIST), Gidong Kim(KIMS)

4C 5.18(Thu)

부식 및 조사손상 II (Corrosion and radiation damage II)

| 이유호(Youho Lee), 이현근(Hyeon-Geun Lee)

| 202B (2F)

초청발표

- 13:30 Creep Assessment for High-Temperature Nuclear Materials
Woo Gon Kim, Youngjin Roh, and Seonhwa Kim(KETG)
- 14:00 Corrosion of Candidate Structural Materials in a Flowing NaCl-MgCl₂ Salt Environment
Taeho Kim, Dong Jun Shin, Su Jeong Heo, Dalsung Yoon, Eun-Young Choi, and Chang Hwa Lee(KAERI)
- 14:20 Corrosion Study of Hastelloy N with Electrochemical Impedance Spectroscopy in NaCl-MgCl₂-NiCl₂ Systems
Jun Woo Park and Jong-Il Yun(KAIST)
- 14:40 Coffee Break
- 15:00 Effect of Metal-assisted Chemical Purification on Corrosion in Molten Chloride Salts of Stainless Steel
Hyeon-Geun Lee, Jung-Min Kim, Taeho Kim, and Daejong Kim(KAERI)
- 15:20 Corrosion Behaviors of 3-D Printed Ni-based Alloy in Molten NaCl-MgCl₂ Salt
Younghwan Jeon, Hyeongjin Byeon, Kiwon Kang, and Jaeyeong Park(UNIST)

4D
5.18(Thu)

**원자력 신소재 기술/원전 기기 건전성
(Nuclear Materials Development/Structural Integrity of Nuclear Components)**

I 반치범(Chi Bum Bahn), 양재호(Jae Ho Yang)

I 203 (2F)

-
- 13:40 PM-HIP Manufacturing Method for Nuclear Reactor Components
Jinsung Jang, Seung Ho Joo, Min-Chul Kim, and Jong Min Kim(KAERI)
- 14:00 Effect of Scan Strategy of SA508 Gr.3 Constituting Reactor Pressure Vessel on Mechanical Properties in Directed Energy Deposition
Wonjong Jeong and Ho Jin Ryu(KAIST), Young-Bum Chun, Suk Hoon Kang, Chang Kyu Rhee, and Min-Chul Kim(KAERI), Chang Hyoung Yoo, Seongjin Yoo, and Hongmul Kim(HANA amt)
- 14:20 Evaluation of Thermal Ageing Behavior of an Alumina-forming Duplex Stainless Steel (ADSS) Alloy at 375°C and 400°C
Chaewon Kim, Sumin Kim, and Changheui Jang(KAIST)
- 14:40 Coffee Break
- 15:00 Elasto-Plastic Analysis in the Simulation of the Piping System in Nuclear Power Plants
ChiWoong Ra, Eun-ho Lee, Hyunkyun Roh, Jeonghyun Kim, and No-cheol Park(Yonsei Univ.)
- 15:20 Effect of Stress State and Load Ratio on the Ratchet Deformation of SA508 Gr.1a LAS and SA312 TP316 SS
Sang Eon Kim and Jin Weon Kim(CSU), Jong Sung Kim(Sejong Univ.)

4E
5.19(Fri)

핵연료 제조/성능/평가 II (Fuel fabrication, performance & test II)

I 김동주(Dong-Joo Kim), 여승환(Seung Hwan Yeo)

I 202B (2F)

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- 09:00 Effect of Fission Gas Diffusivity of Dopant in Cr₂O₃ Doped UO₂ Pellet
JangSoo Oh, YangHyun Koo, and HyoChan Kim(KAERI)
- 09:20 Development and Various Nuclear Fuel Applications Status of Accident Tolerant Fuel Pellet Technology with Enhanced Thermal Conductivity
Dong-Joo Kim, Dong Seok Kim, Jae Ho Yang, Heung Soo Lee, Ji-Hae Yoon, Ji-Hwan Lee, and Hyun-Gil Kim(KAERI)
- 09:40 Fabrication of CSBA-loaded UO₂ Fuel Pellets for HANARO Irradiation Test
Dong Seok Kim, Ji Hwan Lee, Dong-Joo Kim, Jae Ho Yang, Ji-Hae Yoon, Heung-Soo Lee, and Seongwoo Yang(KAERI), Ho Jin Ryu and Yonghee Kim(KAIST)
- 10:00 Preliminary Assessment of La₂O₃-Al₂O₃-SiO₂ Doped ATF and Evaluation of Cycle Length Compensation by Enrichment Adjustment
Kibeom Park, Tongkyu Park, and Sung-kyun Zee(FNC Tech.)
- 10:20 Coffee Break
- 10:40 Fuel Performance Code for Light Water Reactor, GIFT: Current Development Status and Path-forward
Kyuseok Sim and Youho Lee(SNU)
- 11:20 Integral LOCA Experiment to Study FFRD Phenomena of High Burnup ATF Clad Fuels
Hyunwoo Yook, Sunghoon Joung, and Youho Lee(SNU)

- 11:40 Thermal-mechanical Analysis of Lead-cooled Fast Reactor Fuel Assembly with the Inverted Core Design
Hyeong Jin Kim, JiWon Mun, and Ho Jin Ryu(KAIST)
- 12:00 UO₂-Metal Composite Pellets for Accident Tolerant Fuels
Jae Ho Yang, Dong-Joo Kim, Dong Seok Kim, Heung Soo Lee, and Ji-Hae Yoon(KAERI)

4F 핵연료 (Nuclear Fuels) – POSTER

5.18(Thu)
– 5.19(Fri)

| 양성우(Seongwoo Yang), 장훈(Hun Jang)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P04F01 Synthesis of LaYO₃ Crucible Material by Solid-state Reaction at Elevated Temperature
Ki-Hwan Kim, Hoon Song, Kyung-Chae Jeong, Sang-Gyu Park, and Jun-Hwan Kim(KAERI)
- P04F02 A Study on Improving the Fuel Meat Homogeneity of U₃Si₂ Dispersed Fuel for Research Reactors
Dong Jun Park, Hwa Young Song, Yong Hwan Lee, Soon Tae Kwon, Myeong Lip Heo, Jea Huek Moon, Sung Hwan Kim, and Yong Jin Jeong(KAERI)
- P04F03 Effect of Fabrication Conditions on a Density & Reactivity of NdYO₃ Powder as a Reaction Preventing Raw Material for Metal Fuel Casting
Sang-Gyu Park, Ki Hwan Kim, and Jun Hwan Kim(KAERI), Seoung Wook Moon(Sungkyunkwan Univ.)
- P04F04 A Preliminary Study on the Manufacture of Spherical ZrO₂ Particle and Fuel Preform with Complex-shape
Kyung-chai Jeong, Sang-gyu Park, Jeong-yong Park, Hyun-gil Kim, and Jun-hwan Kim(KAERI), Seong-jun Ha(Yonsei Univ.)
- P04F05 Defect Detection and Cause Analysis of HANARO Research Reactor Fuel Fabrication
Wonjae So, Gyucheon Jeong, Jingeon Shin, Yoonsang Lee, Hyunhee Bae, Chulgoo Ji, Homin Kim, Kinam Kim, and Yongjin Jeong(KAERI)
- P04F06 First Principles Calculations of Cesium Diffusion Behavior in UO₂ Fuel with Dopant Addition
Hyeongseob Kim, Jae Joon Kim, Hyun Woo Seong, and Ho Jin Ryu(KAIST)
- P04F07 Porous U-10Zr Fuel Pellet Fabrication using Spark Plasma Sintering
Jungsu Ahn(KAERI)
- P04F08 Fabrication Process of CSBA-loaded UO₂ Fuel for Enhanced Reactivity Control
Ji Hwan Lee, DongSeok Kim, Dong-Joo Kim, JaeHo Yang, Heung-Soo Lee, and Ji-Hae Yoon(KAERI), DongWook Shin(HYU)
- P04F09 Fabrication of LaYO₃ pellets for Reaction-preventing Material by Sintering Process
Seong-Jun Ha and Young-Kuk Lee(Yonsei Univ.), Sang-Gyu Park, Jun-Hwan Kim, Jeong-Yong Park, and Seoung-Woo Kuk(KAERI)
- P04F10 Integrity Assessment of Welds for Curved-type Nuclear Fuel Plate Assembly
Kyeongmin Park, Jungmin Do, Hyongjin Hwang, Sunyong Lee, Hyojin Jeong, Sunghwan Kim, and Yongjin Jeong(KAERI)
- P04F11 Non-destructive Tests for Irradiated Mini Fuel Plates in Hot Laboratory
Heemoon Kim, Youngjun Kim, Gwanyoun Jung, Sunghwan Kim, and Young-Wook Tahk(KAERI)
- P04F12 Development of an Air Ingress Analysis Module in COPA
Young Min Kim and Tae Young Han(KAERI)

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- P04F13 Uranium Hexafluoride (UF6) Cylinders Periodic Inspections and Tests
Won Hyuk Jang, Jeongwook Moon, and Jun Lee(KAERI)
 - P04F14 Preliminary Verification Results of a Temperature Analysis Performance of the FRAPCON Code Annular Option
Yong Sik Yang, Jae Yong Kim, and Ju Yeop Park(KINS)
 - P04F15 Comparison between Out-of-Pile and In-Pile Creep Performance of HT9 Cladding
Cheol MIn Lee, June-Hyung Kim, Dongha Kim, Jun-Hwan Kim, Ju-Seong Kim, and Jin-Sik Cheon(KAERI)
 - P04F16 Investigation of Thermal Creep Properties of Chromium Coated Cladding with MERCURY
Sung-Uk Lee, HyoChan Kim, and Donghyun Kim(KAERI), Martin Seveek(Czech Technical Univ.)
 - P04F17 Prediction of Coupled Behavior of CRUD Deposition and Boron Precipitation on the Upper Span Fuel of Pressurized Water Reactors
Seungjin Seo, Sungyeol Choi, Nakkyu Chae, and Samuel Park(SNU)
 - P04F18 Effects of the U(III) and U(IV) Oxidation States on MSR Fuel Properties: A CALPHAD Model-Based Investigation
Chaerin Kim, Woei Jer Ng, and Ho Jin Ryu(KAIST)
 - P04F19 Development and Verification of the Standalone Code for High-Temperature Oxidation Analysis of an Accident Tolerant Fuel
JaeYong Kim, ChangWhan Shin, and Jong-Dae Hong(KAERI)
 - P04F20 The Review of Models and Correlations in FRAPCON-4.0 and FRAPTRAN-2.0 for Fuel Pellet Material Change
Seulbeen Kim, Sarah Kang, Jang Keun Park, and Ju Yeop Park(KINS)
 - P04F21 Shared Use and Experimental Facility Introduction as a Public Asset; Fuel Assembly Mechanical Characterization and Design Qualification
Kang-Hee Lee, Heung-Seok Kang, Dong-Seok Oh, Ik-Sung Lim, and Soo-Ho Kim(KAERI)
 - P04F22 Optimization of Electroplating Process using Pulse Reverse Current for Enhanced FCCI Barrier Property on Metallic Fuel Cladding
Sung Su Ryu, Jeong Mok Oh, Sung Hwan Yeo, Sung Ho Kim, and Jun Hwan Kim(KAERI)

4G

원자력 재료 (Nuclear Materials) – POSTER

5.18(Thu)
– 5.19(Fri)

I 김민철(Min Chul Kim), 김종성(Jong Sung Kim)

I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

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- P04G01 Estimation of Neutron Damage to Reactor Vessel Internals for OPR-1000 and APR-1400
Junhyun Kwon and Jong-Min Kim(KAERI)
 - P04G02 Uncertainty Evaluation of the Thermal Diffusivity Measurement Data
Kweonho Kang, Byeongjoo Yoon, Changhwa Lee, and Jaesoo Ryu(KAERI)
 - P04G03 Effect of Reactor Power Drop During an Irradiation Testing of ARAA Material in HANARO
Kee-Nam Choo, Sung-Woo Yang, Sung-Jae Park, Yoon-Taek Shin, Chul-Yong Lee, Hae-Sun Jeong, Ye-Eun Na, and June-Sic Park(KAERI)
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- PO4G04 **Electrochemical Behavior of i-SMR Structural Materials in Simulated Soluble Boron-free KOH or LiOH Environments**
Wonjun Choi and Chi Bum Bahn(PNU), Seung Heon Baek, Geun Dong Song, Dong Seok Lim, Yeongho Son, and Young-Jin Kim(FNC Tech.)
- PO4G05 **Validation of Alternative Process to Simulate Irradiation Effect on Stainless Steel**
JUNHYUK HAM and JI HYUN KIM(UNIST)
- PO4G06 **Characterization of Microstructure and Mechanical Properties of Zirconium Alloy Welds in PHWR Fuel Rods**
Gyeongsik Yu and Chansun Shin(Myongji Univ.), Sangeun Kim and Hyung-Ha Jin(KAERI)
- PO4G07 **Design of Neutron Irradiation Testing at HANARO for Control Rod Neutron Absorber Materials**
Seongwoo Yang, Sung Jae Park, Yoon Taeg Shin, Hae Sun Jeong, Kee Nam Choo, Chul Yong Lee, Ye Eun Na, Junesic Park, Dong-Joo Kim, and Jae-Yong Kim(KAERI)
- PO4G08 **Improvement and Optimization of Atomization Technology for U_3Si_2 Powder Fabrication**
Jonghwan Kim, Jungmin Park, Jaedong Lee, Juhwa Lee, Sunghoon Kang, Sang-o Bae, Kinam Kim, and Yongjin Jeong(KAERI)
- PO4G09 **Investigating the Impact of Mechanical Post-processing on HT9 Cladding Material for Annular Metallic Fuel Manufacturing**
Jeong Mok Oh, Dong-Ha Kim, Sunghwan Yeo, Sung Ho Kim, and Jun Hwan Kim(KAERI)
- PO4G10 **Effect of Heat Treatment Process in SA508 Gr.3 for a Small Modular Reactor Application**
Seok Su Sohn and Se-Mi Hyun(Korea Univ.), Seokmin Hong, Min-Chul Kim, and Jongmin Kim(KAERI)
- PO4G11 **The General Relation between Tensile Strength and Swaging Process Conditions of the Nuclear Fuel Assembly**
Jaejun Hwang, Sunchil Kwon, Jingeon Shin, Chanseok Park, Taewon Cho, Sunghwang Kim, and Yongjin Jeong(KAERI)
- PO4G12 **Various Methodologies to Mitigate Structural Material Corrosion in Molten NaCl-MgCl₂ System**
Younghwan Jeon, Hongjeong Lee, Yulim Lee, and Jaeyeong Park(UNIST)
- PO4G13 **Corrosion Behaviors of Ni-based Alloy in Molten NaCl-MgCl₂ salt with a Cyclic Temperature System**
Younghwan Jeon, Ugyu Jeong, Yeojin Kim, and Jaeyeong Park(UNIST)
- PO4G14 **Hydrothermal Corrosion Behaviors of Cr-Based Alloy and Nitride Coated Nuclear Fuel Cladding**
Jung Ho Shin and Sangha Park(DMI)
- PO4G15 **Investigation of Corrosion Control Technologies for Structural Materials in MSR**
Changhyun Shim, Younghwan Jeon, and Jaeyeong Park(UNIST)
- PO4G16 **Simulation Model of Molten Salt Corrosion Using COMSOL**
Maehyun Cho and Kunok Chang(KHU)
- PO4G17 **Investigating the Influence of Stress on Helium Bubble Formation and Swelling in RAFM Steel**
Sangeun Kim and Hyung-ha Jin(KAERI), Minkyu Ahn, Jinwoo Park, Gyeongsik Yu, and Chansun Shin(Myongji Univ.), Chang-Hoon Lee(KIMS)
- PO4G18 **Corrosion Behavior of Austenitic Stainless Steel Used in Nuclear Power Plant Cooling Water Component After Plasma Electrolytic Oxidation**
Jun Heo, Seunguk Cheon, and Sung Oh Cho(KAIST)
- PO4G19 **Development of Tools for Stress Calculations in Fluid-Structure Interaction Analysis using Open-source Codes: A Case Study on Fatigue Damage Assessment**
Jin Haeng Lee, Dehee Kim, and Jonggan Hong(KAERI)
- PO4G20 **Changes in Mechanical Properties of Candidate Structural Materials by Corrosion in High Temperature Molten Salt**
Ji-Hyun Yoon(KAERI)
- PO4G21 **Development of Wear Prediction Model for Steam Generator Tubes**
Daeyeop Kwon and Chi Bum Bahn(PNU), Heejae Shin and Young-Jin Oh(KEPCO E&C)
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5A

5.18(Thu)

열교환기 및 히트파이프 (Heat Exchanger and Heat Pipe)

I 배황(Hwang Bae), 김동역(Dong-Eok Kim)

I 302 (3F)

- 13:30 Evaluation Performance of Spent Fuel Pool Cooling System with Water Jacket Heat Pipe
Sanghoon Lee, Min Suk Lee, Wooseong Park, and Young Hoon Jeong(KAIST)
- 13:50 Design and Evaluation of a Hybrid Cesium Heat Pipe Shutdown Rod as a Passive Safety System for Microreactors
Dong Hun Lee and In Cheol Bang(UNIST)
- 14:10 Preliminary Study on Effective Thermal Mass of Supercritical Carbon Dioxide Heat Exchanger
In Woo Son, Gi Hyeon Kim, Seung Kyu Lee, and Jeong Ik Lee(KAIST)
- 14:30 Simultaneous Two-Axis Force and Displace Measurement Techniques for Vortex Shedding in SMART100 Heat Exchanger Tube Array
Chan Lee, Dongseok Oh, Kanghee Lee, Suho Kim, and Heungseok Kang(KAERI)
- 14:50 Bended Zone Tube Assembly Vibration of Coiled Steam Generator Under Downward Flow
Kang-Hee Lee, Heung-Soek Kang, Sung-Wuk Lee, and Tae-Hyun Chun(KAERI)

5B

5.19(Fri)

원자로 계통 및 기기 열수력 (Reactor Safety and Component Thermal Hydraulics)

I 배병언(Byoung-Uhn Bae), 박영재(Youngjae Park)

I 301 (3F)

- 09:00 Analysis of SBLOCA for CRDM Nozzle Rupture with Loss of Safety Injection at the ATLAS Experimental Facility using the MARS-KS 1.5 and TRACE V5.0 Patch 6
Hyunjoon Jeong and Taewan Kim(INU)
- 09:20 Experimental Study on the Main Steam Line Break (MSLB) Accident Accompanied by the Loss of Shutdown Cooling System(SCS) based on the Risk/Performance Information
Yusun Park, Byoung Uhn Bae, Jong Rok Kim, Jae Bong Lee, Seok Cho, Nam Hyun Choi, and Kyoung Ho Kang(KAERI), Jae Beol Hong and Hyun Bin Chang(FNC Tech.)
- 09:40 Experimental Investigation of Thermal-hydraulic Behavior and Safety Performance of Reactor Coolant System and Containment During a Steam Line Break Using ATLAS-CUBE Facility
Jae Bong Lee, Jongrok Kim, Yusun Park, Kyoung-Ho Kang, and Byoung-Uhn Bae(KAERI)
- 10:00 Evaluation of SPACE Predictive Capability for Horizontal In-Tube Condensation under Low Pressure and Low Mass Flux Conditions
Sang Gyun Nam, Seong-Su Jeon, and Soon-Joon Hong(FNC Tech.)
- 10:20 Coffee Break
- 10:40 Analysis of Thermal Mixing Behavior of the Emergency Cooling Tank using the CUPID Code
Yun-Je Cho, Seong Jun Lee, and Han Young Yoon(KAERI)

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- 11:00 Analytical Investigation on Natural Circulation and Flow Instability in the FINCLS Facility for SMART
Hyun-Sik Park, Byong-Guk Jeon, Jin-Hwa Yang, Sunil Lee, Hyun-Gi Yoon, Sung-Uk Ryu, Sung-Jae Yi, Yoon-Gon Bang, and Hwang Bae(KAERI)
 - 11:20 Secondary System Modeling Guideline in Use of MARS-KS Code for Nuclear Renewable Hybrid Energy Systems
Young Seok Bang, Jungjin Bang, Seong-Su Jeon, Bub Dong Chung, and Youngsuk Bang(FNC Tech.)
 - 11:40 The Effect of Presence of Irradiation Rig on Research Reactor Core Flow Distribution
Taeil Kim, Yohan Lee, Donkoan Hwang, WooHyun Jung, Nakjun Choi, and HangJin Jo(POSTECH)
Jonghark Park, Kiwon Song, and Hyung Min Son(KAERI)
 - 12:00 Modeling of Swing Check Valve in Support of Prediction of Passive Safety Systems Performance
Young Seok Bang, Ju Yeop Park, and Yong Seog Choi(KINS)

5C
5.18(Thu)

열수력 계산 (Computational Thermal Hydraulics)

| 조윤제(Yun Je Cho), 방영석(Youngsuk Bang)

| 302 (3F)

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- 09:00 Performance Comparison of MULTID with Inter-channel Mixing Model Against CTF
Yunseok Lee and Taewan Kim(INU)
 - 09:20 Investigation of Reynold Analogy of Turbulent Pipe Flows with High Pr
DongHyuk Park, SangSoo Yoon, and BumJin Yoon(KHU)
 - 09:40 Validation of RANS based CFD Methodology with STAR-CCM+ Code Using Existing Sodium-Cooled Experimental Data
Hanseop Song and Jae-ho Jeong(Gachon Univ.), Junkyu Han(KAERI)
 - 10:00 Development of Simulation Technique for Crust Formation Calculation using Rigid Body Dynamics Model in Moving Particle Semi-implicit
Yun Sik Cho and Sung Joong Kim(HYU)
 - 10:20 Coffee Break
 - 10:40 Investigation for Effective Flow Path Designed for Flooding Safety System by Using MELCOR Code
Hyo Jun An, Jae Hyung Park, Chang Hyun Song, and Sung Joong Kim(HYU),
Jeong Ik Lee and Yonghee Kim(KAIST),
 - 11:00 Reduced Order Surrogate Modeling for Fast Accident Prediction
Jaeseok Heo and Seung-Wook Lee(KAERI), Ha Neul Na and Youngsuk Bang(FNC Tech.).
 - 11:20 Study of Geometric Parameters for i-SMR Reactor Vessel Auxiliary Cooling System
Dong Ho Nguyen, Koung Moon Kim, and Ho Seon Ahn(INU)
 - 11:40 Preliminary Analysis of Two-Phase Instability in Helical Coiled Tube for Helical Steam Generator
Seunghwan Oh, Doh Hyeon Kim, and Jeong Ik Lee(KAIST)
 - 12:00 Integrate Modeling Analysis of Secondary and Primary System for Small Modular Reactors
Jungjin Bang, Seong-Su Jeon, Young Suk Bang, Bub Dong Chung, and Young Seok Bang(FNC Tech.)

5D
5.19(Fri)

비등 및 임계열유속: 실험, 모델링, 해석
(Boiling & CHF: Experiments, Modeling, and Simulation)

| 이종혁(Jong Hyuk Lee), 신동호(Dong-Ho Shin)

| 302 (3F)

- 09:00 A Model of the Bubble Waiting Time in Forced Subcooled Boiling
ManhLong Doan, Jeongmin Moon, Jinyeong Bak, Jae Jun Jeong, and Byongjo Yun(PNU)
- 09:20 Experimental Investigation of the Bubble Behavior Under Rolling Oscillations
Myungho Kim and Byoungjae Kim(CNU)
- 09:40 Influence of Inlet Turbulent Boundary Conditions on Bubble Diameter Calculation
Erol Bicer, Seong-Su Jeon, Yeon-Jun Choo, and Soon-Joon Hong(FNC Tech.)
- 10:00 Heat Partitioning Model with Bubble Tracking Method Considering Conjugate Heat Transfer
Ja Hyun Ku, Hee-pyo Hong, and Hyoung Kyu Cho(SNU)
- 10:20 Coffee Break
- 10:40 Experimental Study for Evaluation of Re-wetting Velocity on Micropillar Structures Using Particle Image Velocimetry (PIV) Technique
Hyeon Taek Nam, Hyunmuk Park, Yoomyeong Lee, Seungro Lee, and Donghwi Lee(JBNU)
- 11:00 Numerical Investigation of DNB for a Subcooled Flow Boiling in an Oscillating Pipe
Namkyu Ryu and Byoungjae Kim(CNU)
- 11:20 A Parametric Study on Pool Boiling CHF Phenomenon in Heaving Conditions: The Effects of Heaving Periods
Do Yeon Kim, Su Cheong Park, Seonho Choi, and Dong In Yu(PKNU)
- 11:40 Flow Boiling CHF Behavior according to Liquid Subcooling on the ATF-coated Tube
Namgook Kim and Sung Joong Kim(HYU)
- 12:00 Critical Heat Flux Tests on Accident Tolerant Fuel Cladding Under PWR and BWR Conditions
Donghwi Lee(JBNU), Tiago Augusto Moreira and Mark H.Anderson(University of Wisconsin-Madison)
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5E
5.18(Thu)

안전해석 현안 (Safety Analysis Issues)

| 이경원(Kyung-Won Lee), 전성수(Seong-Su Jeon)

| 301 (3F)

- 13:30 Study on Performance Evaluation Methodology for Passive Safety System
Jeehee Lee, Seong-Su Jeon, and Su Hyun Hwang(FNC Tech.), Ju-Yeop Park(KINS)
- 13:50 Development of Regulatory Audit Methodologies for Cr-coated ATF Cladding: A Scoping Analysis on LOCA Safety
Joosuk Lee, Hyedong Jeong, and Kyunglok Baek(KINS)
- 14:10 High-fidelity Numerical Investigation on Structural Integrity for SFR Fuel Cladding during Design Basis Events
SeoYoon Choi and JaeHo Jeong(Gachon Univ.), HyungKyu Kim(KAERI)
- 14:30 Analysis of a CEA Ejection Scenario for the Korean APR1400 Reactor using BEPU Approach
Ditsietsi Malale, Saja Rababah, Sebastian Dzien, and Aya Diab(KINGS)
- 14:50 System Code Analysis of MSGTR Mitigation with Passive Auxiliary Feedwater System
Seongsu Jeon, Youngjae Park, Jaeho Bae, Jungjin Bang, and Youngwook Chung(FNC Tech.), Dohyun Hwang(KHNP)
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5F

5.18(Thu)

첨단 원자로 열수력 (Thermal Hydraulics for Advanced Reactors)

| 김동억(Dong Eok Kim), 김형모(Hyungmo Kim)

| 301 (3F)

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| 09:00 | Analysis of Natural Circulation Characteristics of Passive Molten Salt Fast Reactor by using OpenFOAM Simulation
Juhyeong Lee, Sangtae Kim, and Sung Joong Kim(HYU), Yonghee Kim(KAIST) |
| 09:20 | Selecting Optimal Heat Transfer Chloride Salt for Molten Salt Fast Reactor
Sungwook Choi, Taeyoen Min, In Woo Son, Sunghyun Yoo, and Jeong Ik Lee(KAIST) |
| 09:40 | Assessment of Helium Bubbling Effect on Natural Circulation Applicable for Passive Molten Salt Fast Reactor
Wonjun Choi, Jae Hyung Park, Juhyeong Lee, Jihun Lim, Yunsik Cho, Sangtae Kim, and Sung Joong Kim(HYU), Yonghee Kim(KAIST), Youngsoo Yoon(Gachon Univ.) |
| 10:00 | Investigation of Computational Dynamic Modeling of Helical Once-Through Steam Generator for Integrated System Analysis
Keon Yeop Kim, Youngsuk Bang, So Eun Shin, Haneul Na, and Yeon Jun Choo(FNC Tech.) |
| 10:20 | CFD Study of Two-phase Flow Pressure Drop in Helical Tube Steam Generator
Doh Hyeon Kim, Seunghwan Oh, and Jeong Ik Lee(KAIST) |
| 10:40 | Coffee Break |
| 11:00 | Influence of Coil Thickness on Natural Convection Heat Transfer of Helical Coil
Dong Ho Shin and Bum Jin Chung(KHU) |
| 11:20 | Experimental Design Procedure for Tubes in Turbulent Cross Flow
Dong Seok Oh, Heung Seok Kang, Kang Hee Lee, Chan Lee, and Soo Ho Kim(KAERI) |
| 11:40 | Effect of Exit Restriction on the Two-phase Natural Circulation Flow as PCCS
Sun Taek Lim, Koungh Moon Kim, and Ho Seon Ahn(INU), Dong-Wook Jerng(CAU) |
| 12:00 | The Conceptual Heat Exchanger Design for Heat Pipe Cooled Micro Reactor
Faruk Celik and In Cheol Bang(UNIST) |

5G

5.18(Thu)
- 5.19(Fri)

원자력 열수력 실험 (Thermal Hydraulic Experiments) – POSTER

| 김종록(Jongrok Kim), 이연건(Yeon-Gun Lee)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

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| P05G01 | Thermal-Hydraulic and Thermo-Mechanical Behavior Under Nitrogen Inflow Condition in a Large Break Loss of Coolant Accident
Jae Bong Lee, Jongrok Kim, Kihwan Kim, Sang-Ki Moon, and Seok Kim(KAERI) |
| P05G02 | Test Requirements for Surface Characteristics of High Burnup Cladding Under LOCA and RIA Conditions
S. K. Moon, J. Kim, Y. S. Choi, K. Kim, J. B. Lee, B. G. Jeon, and S. Kim(KAERI) |
| P05G03 | Design Guide for Water Heat Pipes for Nuclear Power Plant Applications Based on the Thermal Limit Evaluation
Ye Yeong Park and In Cheol Bang(UNIST) |
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- P05G04 Hydraulic and Thermal Behaviors of Diabatic Two-phase Flow Through Porous Particle Beds
Lee Dong Ju, Oh Jong Seok, and Kim Dong Eok(CAU), An Sang Mo and Kim Hwan Yeol(KAERI)
 - P05G05 Experimental Study on Performance of Pitot-Static Tube with Varying Pitch Angles
Byungjun Lim, Kihwan Kim, and Hyosung Seol(KAERI)
 - P05G06 Development of the the Numerical Code to Predict Wear
Won Man Park, Sungman Son, and Choengryul Choi(Elsoltec), Tae Hyun Chun and Heung Seok Kang(KAERI)
 - P05G07 Experimental Study of Condensation Heat Transfer and Droplet Dynamic on Multiple Horizontal Copper Tubes with Super hydrophobic Characteristic
Hyunjun Sun and Kwon–Yeong Lee(HGU)
 - P05G08 High-fidelity Imaging of Subcooled Flow Boiling using Synchrotron X-ray and Laser Interferometry
Haeram Jeong, Sieun Kim, and Hyungdae Kim(KHU)
 - P05G09 Design of High-Pressure Flow Boiling Experimental Apparatus Applicable for Integrated Visualizations of Boiling Heat Transfer and Bubble Dynamics
Junha Kang, Donggyun Seo, and Hyungdae Kim(KHU)
 - P05G10 Experimental Investigation of Thermal Hydraulic Characteristic of Water Based Thermosyphon under Evacuated Non-condensable and Pressurized Non-condensable
Benrico Fredi Simamora and Jae Young Lee(HGU)
 - P05G11 Experimental Study of Two-phase Pressure Drop of Corrugated Mini Channel
Bowon Hwang, Haeun Noh, and Jaeyoung Lee(HGU)
 - P05G12 Analysis of Heat Transfer Performance in Two-Phase Closed Thermosyphon Applied Superhydrophilic and Superhydrophobic Surface Modification
Seong–Won Seo, Hyukjun Ha, and Kwon–Young Lee(HGU)
 - P05G13 A Modeling of Supercritical CO₂ Brayton Cycle for a Small Modular Molten Salt Reactor on Nuclear-powered Ship
Wonkoo Lee, Chan–Yong Lee, and Kwon–Yeong Lee(HGU)

5H

원자력 열수력 해석 1 (Thermal Hydraulic Analysis 1)–POSTER

5.18(Thu)
– 5.19(Fri)

I 허재석(Jae Seok Heo), 이제희(Jeehee Lee)

I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

-
- P05H01 Proposed Improvement of Existing SBLOCA M/E Analysis Methodology
BUMSOO YOUN, DONGHYUK LEE, and KYUNGHO NAM(KHNP)
 - P05H02 Analyses of Turbulence Induced Vibration on Trim Shapes of Control Valve with High Pressure Drop
Sangyun Je, Hyuksoon Lee, Taekyung Lee, and Ji–woong Bae(KHNP), Hoon Jang(Total Engineering Souldution)
 - P05H03 GAMMA+ Code Verification for Natural Circulation Phenomena in a MSR System
SUNG NAM Lee, Nam–il Tak, Hong–Sik Lim, and Sang Ji Kim(KAERI)
 - P05H04 Simulation of a Linear Quadratic Regulator Controller for sCO₂ Cycle Using MARS-KS
Gi Hyeon Kim and Jeong Ik Lee(KAIST)
 - P05H05 Simulation of IBLOCA (Intermediate-break Loss of a Coolant Accident) Scenario of PKL i2,2 Test
Jong Hyuk Lee and Seung Wook Lee(KAERI)
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- P05H06 Evaluation of the Increase in Feedwater Accident with Common Cause Failure during Flexible Operation using SPACE Code
Hyoung Kyoung Ahn, In Ho Song, and Seok Jeong Park(KEPCO E&C)
 - P05H07 Study on Main Steam Line Break Induced Steam Generator Tube Rupture Accident using SPACE Code
MinJeong Kim, Chang-Keun Yang, and Seung-Chan LEE(KHNP)
 - P05H08 Sensitivity Test for Intermediate Break Loss of Coolant of LSTF No.2 using SPACE
Chiwoong CHOI, Byung-hyun Yoo, and Seung-wook Lee(KAERI)
 - P05H09 Preliminary CFD Analysis of Refrigerant Cooled, Scaled Down RPV of OPR1000
Do Yeong Lim and In Cheol Bang(UNIST)
 - P05H10 Prediction of Flow Instability of Natural Convection in Sloped Channel
Byeonghee Lee and Seok-Gyu Jeong(KAERI)
 - P05H11 Analysis of CHF under Oscillatory Flow Condition using MARS-KS Moving Reactor Model
Moonhee Choi and Hyoung Kyu Cho(SNU)
 - P05H12 Validation of a CFX Code for Helical-Type MHD Power Generator
Jong-Pil Park and Doo Hee Chang(KAERI)
 - P05H13 CCP Assessment under CANDU Normal Operating Condition with Various Reactor Power
Jae Yong Oh, Euseung Ryu, and Donghwan Park(KHNP)
 - P05H14 Comparison of CCP using CHF Correlations under HSP-2 & 3 Conditions
Jae Yong Oh, Euseung Ryu, and Donghwan Park(KHNP)
 - P05H15 The Evaluation Process for Leak Detection Systems using CFD Analysis
Dae Kyung Choi, Won Man Park, Sung Man Son, and Choengryul Choi(Elsoltec),
Woo-Shik Kim, Tae-Soon Kwon, and Dong-Jin Euh(KAERI)
 - P05H16 A Numerical Study on Heat Transfer Characteristics of Various Shapes of Fuel Rods in Nuclear Reactors
Hyerim Woo, Sungjin Yang, and Jongrak Choi(KETI)
 - P05H17 Development of CFD Simulation Methodology for Cladding Oxidation Phenomenon
Siwon Seo, Armanto Simanjuntak, Benrico Simamora, and Jaeyoung Lee(HGU)
 - P05H18 Sensitivity Study for Active Single Failure in the Intermediate Break LOCA
Yerim Park, Seyun Kim, and Junkyu Song(KHNP)
 - P05H19 Numerical Modeling of Flow Boiling in a Rectangular channel using OpenFOAM
Iljin Kim and Hyungdae Kim(KHU)

5

원자력 열수력 해석 2 (Thermal Hydraulic Analysis 2)-POSTER

5.18(Thu)
- 5.19(Fri)

| 윤승현(Seung Hyun Yoon), 방정진(Jung Jin Bang)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P05I01 A Preliminary Study on Reliability Evaluation Methodology for Passive Safety Systems
Youngjae Park, Jeehee Lee, and Seong-Su Jeon(FNC Tech.), Ju-Yeop Park(KINS)
- P05I02 Modeling the CRUD Effects on Heat Transfer in Subchannels of Pressurized Water Reactor
Hyeon Ji Kim, Ji Yong Kim, and In Cheol Bang(UNIST)

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- P05I03 Preliminary Analysis of PIUS-type Experimental Apparatus with Hot/Cold Fluids Interface for Inherently Safety
Ju Hun Jung and In Cheol Bang(UNIST)
- P05I04 Safety Analysis of MicroURANUS LFR for Unprotected Loss of Flow and Unprotected Loss of Heat Sink
Joo Hyung Seo and In Cheol Bang(UNIST)
- P05I05 Effects of Truly Optimized PWR Lattice Core Design on Reactor Power and Critical Heat Flux in a Natural Circulation Small Modular Reactor
Jae Hyung Park, Jihun Im, Hyo Jun An, and Sung Joong Kim(HYU)
- P05I06 Performance Comparison of Compact Heat Exchangers Suitable for Chloride Molten Salt Fast Reactor Intermediate Heat Transport System
Sunghyun Yoo, In Woo Son, Sungwook Choi, and Jehoing Ik Lee(KAIST)
- P05I07 Predictability Evaluation of SPACE for DVI Line Break Test with ATLAS
Hae Min Park, Sung Won Bae, and Seung Wook Lee(KAERI)
- P05I08 Performance Evaluation of an AHX for Thermal Energy Storage System Test Loop
In Sub Jun, Jung Yoon, and Hyeonil Kim(KAERI)
- P05I09 Preliminary Multi-Physics Analysis of a 2x2 Rod Array Using CUPID/GIFT Coupled Code
Yeong Hun Lee, Kyuseok Sim, Youho Lee, and Hyoung Kyu Cho(SNU)
- P05I10 SB LOCA Analysis of a Floating Nuclear Reactor Under Combined Motion Condition
Yujeong Ko, and Hyoung Kyu Cho(SNU), Han Rim Choi(KEPCO E&C)
- P05I11 Evaluation the Effect of Surface Roughness of Cr-coated Cladding with Multi-layer Model on Large Break-Loss of Coolant Accident
Dong-Young Lee, Tae-Sun Ro, Bub-Dong Chung, and Soon-Joon Hong(FNC Tech.)
- P05I12 Preliminary Sensitivity Analysis of APR1400 IBLOCA Scenario using SPACE Code
Seung Wook LEE, ByungHyun YOU, and Jonghyuk LEE(KAERI)
- P05I13 Simulation of Recirculation between Reactor Coolant System and Containment with MARS-KS using Simple SMR Input
Jin-Hwa Yang, Byong Guk Jeon, and Hwang Bae(KAERI)
- P05I14 Analysis of Loss of Condenser Vacuum Loss with One POSRV Open Failure Accident using SPACE Code for APR1400
Chang-Keun Yang(KHNP)
- P05I15 Numerical Study on Conjugate Heat Transfer of IVR-ERVC using Ansys Fluent
Seungsu Han and Hyungdae Kim(KHU)
- P05I16 Preliminary CFD Analysis to Evaluate the Thermal-Hydraulic Characteristics of Printed Circuit Steam Generator using the CUPID Code
Taewoo Kim(UST), Hyun-Sik Park, Ik Kyu Park, and Sang Ji Kim(KAERI)
- P05I17 Sensitivity Analysis of the Core Flow in the APR-Type Reactor: A Comparative Study of Grid System and Turbulence Model
Sungman Son, Won Man Park, and Choengyul Choi(Elsoltec), Sang Gyu Lim and Uiju Jeong(KHNP)
- P05I18 Dynamic Characteristics of Steam Generator Tube Finite Element Models: A Comparative Study of Element Types
Won Man Park, Dae Kyung Choi, and Choengryul Choi(Elsoltec), Young Jin Oh(KECP E&C)
- P05I19 Modification of TASS/SMR Code for Thermal-hydraulic Behavior under Moving Condition
Jeongeun Kim, Youngyu Jung, Hyungjun Kim, Youngjong Chung, and Soohyoung Kim(KAERI)
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6A
5.18(Thu)**확률론적 안전성평가 (PSA)**

| 이용석(Yong Suk Lee), 김동산(Dong-San Kim)

| Samda Hall A (3F)

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- 09:00 A New Calculation Method for Multi-unit Cascade Accidents
Gee Man Lee, Hyun Seok Noh, and Woo Sik Jung(Sejong Univ.)
- 09:20 Review of the Importance Analysis Method in Seismic Probabilistic Safety Assessment
Seunghyun Jang, Junhee Park, and Min Kyu Kim(KAERI)
- 09:40 COHRISK: A Multihazard Risk Quantification Software for Nuclear Power Plants
Eujeong Choi, Jeong-Gon Ha, Minkyu Kim, and Daegi Hahm(KAERI),
Shinyoung Kwag(HNU), Jung-Han Kim(PNU)
- 10:00 Comparison of Various Quantification Approaches for Seismic PSA
Sang Hoon HAN(KAERI)
- 10:20 Coffee Break
- 10:40 Offsite Power Recovery Time Analysis for Dynamic Probabilistic Safety Assessment
Yunyeong Heo, Wooseok Jo, and Seung Jun Lee(UNIST)
- 11:00 Estimating the Effects of Offsite Power Recovery Time based on Cutset Analysis
Jae Young Yoon and Dong-San Kim(KAERI)
- 11:20 An Uncertainty Analysis Methodology in Level 2 PSA and Its Application
Juhyeok Choi, Dohyun Lim, Chanwoo Park, Minseop Song, and Moosung Jae(HYU)
- 11:40 A Sensitivity Analysis Methodology in Level 2 PSA and Its Application
Chanwoo Park, Juhyeok Choi, Dohyun Lim, Minseop Song, and Moosung Jae(HYU)
- 12:00 Plume Segmentation by Time Phase and Its Application to All Source Term Categories of OPR1000
Seunghwan Kim and Sung-yeop Kim(KAERI)
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6B
5.18(Thu)**중대사고 1 (Severe Accident 1)**

| 나영수(Youngsu Na), 오동욱(Dong-Wook Oh)

| Samda Hall B (3F)

-
- 09:00 Evaluation of PAR Hydrogen Recombination Characteristics Using Experimental Results from SPARC PAR Tests SP8 and SP9
Jongtae Kim and Jaehoon Jung(KAERI)
- 09:20 CFD Modeling for Start-up Characteristics of a Passive Auto-Catalytic Recombiner
Jongtae Kim, Hyoung Tae Kim, and Dehee Kim(KAERI)
- 09:40 CAD-based Containment Nodalization for Best-estimate Analysis of Hydrogen Behaviors Using the MELCOR Code
Jongtae Kim and Jaehyun Ham(KAERI)
- 10:00 Validation and Application of a Code for 3-D Analysis of Hydrogen Behavior during Severe Accidents
Jongtae Kim, Hyoung Tae Kim, and Dehee Kim(KAERI)
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- 10:20 Coffee Break
- 10:40 Accident Environment Assessment for the Development of a Flammability Risk Monitoring System
Youngsu Na, Jong-Hwa Park, Seongho Hong, Ki-Han Park, Jeong-Yun Oh, Jin-Hyeok Kim,
and Chang-Wan Kang(KAERI)
- 11:00 MELCOR Analysis of Core Coolability by Flooding Safety System Applicable for i-SMR
Chang Hyun Song, Jae Hyung Park, and Sung Joong Kim(HYU)
- 11:20 A Preliminary Study on ERVC Performance Depending on Insulation Conditions
Dong-Hyeon Choi and Yoon-Suk Chang(KHU)
- 11:40 Analysis of Individual Accident Scenarios for Dry Storage System
Hyungyu Roh, Eun-ho Lee, Chiwoong Ra, Junghyun Kim, and No-Cheol Park(Yonsei Univ.)

6C

5.18(Thu)

화재방호 / PSA (Fire safety in nuclear facility / PSA)

I 김도형(Dohyoung Kim), 이재호(Jaiho Lee)

I Samda Hall A (3F)

- 13:30 Numerical Analysis of One Liquid Pool Fire in Multiple Compartments Using FDS Model
Jaiho Lee and Young-Seob Moon(KINS), Byeongjun Kim(KICT)
- 13:50 Development of Computer Program for Automatic Generating Fire Load Calculation Sheet
Young-Suk Jung, Seong-Chan Kim, Sung-Jin Kim, Jae-Hwan Kim, and Jun-Hyun Park(STDTE)
- 14:10 Revisiting the Treatment of Real Nonsense Minimal Cutsets Generated from the Quantification of the
Single-Top Fire Events PSA Model of Nuclear Power Plant
Dae Il Kang and Yong Hun Jung(KAERI)
- 14:30 Consideration on the Fire PSA Maturity and Realism
Chang-Ju Lee, Nam Yeong Kim, and Dongju Jang(KINS)
- 14:50 Coffee Break
- 15:10 A Methodology for Forest Fire Hazard Analysis for External Event PSA
Joonseok Lim and Gyunyoung Heo(KHU)
- 15:30 Insights from Quantitative Risk Monitoring Model Development for LPSD Period
Deok Sung Han and Jeong Guk Song(KEPCO E&C), Bub Lin Kim and Seong Kyu Park(NESS)

6D

5.18(Thu)

안전현안 / 중대사고 (Safety Issues / Severe Accident)

I 허병길(Byung-Gil Huh), 박래준(Rae-Joon Park)

I Samda Hall B (3F)

- 13:30 Criticality Study of HALEU in APR1400 New Fuel Storage Using Erbium Neutron Absorber
Mohammad Abu salha, Husam Khalefih, and Yonghee Kim(KAIST), Key Yong Sung(KINS)
- 13:50 Analysis for 13% and 17% Break Sizes of Intermediate Break Loss of Coolant Accident in OPR1000 with
MARS-KS
Hae-Yong Jeong, Nihat Erdem Berber, and Nguyen Huu Tiep(Sejong Univ.)
- 14:10 Development of Source Term Release Modeling Methodology by NAME_LSC Code
Seung-Chan LEE(KHNP CRI)

- 14:30 Development of Atmospheric Dispersion Factor Calculation Module for DBA Conservatism Verification
Seung-Chan LEE(KHNP CRI)
- 14:50 Coffee Break
- 15:10 Source Term Estimation of Key Radionuclides Discharged from the Nuclear Power Plant into the Atmosphere based on Bayesian Inference
Siho Jang, Juryong Park, Dakyoung Lee, and Eung Soo Kim(SNU)
- 15:30 Analysis of the ACRR-ST-1 Experiment with the Integrated Severe Accident Analysis Code CINEMA
Woonho Jeong and Yong Hoon Jeong(KAIST)

6E
5.19(Fri)

중대사고 2 (Severe Accident 2)

| 김성중(Sung Joong Kim), 유용균(Yonggyun Yu)

| Samda Hall A (3F)

- 09:00 Application Status of Artificial Intelligence to Nuclear Power R&D
Hyun Seok Noh, Jung Soo Kim, Gee Man Lee, and Woo Sik Jung(Sejong Univ.)
- 09:20 Verification of the Approach to Estimate Accident Source Term Using Deep Learning
Sung-yeop Kim and Soo-Yong Park(KAERI), Yun Young Choi(NIMS)
- 09:40 Applicability Study of Deep Reinforcement Learning to Severe Accident Analysis
Joon Young Bae and Sung Joong Kim(HYU)
- 10:00 Coffee Break
- 10:20 Inferring Severe Accident Scenarios in Nuclear Power Plants with Reinforcement Learning (RL) and Supervised Learning (SL) Approaches: Part 1 SL Development
Yeonha Lee, Seok Ho Song, Semin Joo, and Jeongik Lee(KAIST),
Kysang Song(KHNP CRI), Sung Joong Kim(HYU)
- 10:40 Inferring Severe Accident Scenarios in Nuclear Power Plants with Reinforcement Learning (RL) and Supervised Learning (SL) Approaches: Part2 RL Development
Seok Ho Song, Yeonha Lee, Semin Joo, and Jeong Ik Lee(KAIST), Sung Joong Kim(HYU)
- 11:00 Inferring Severe Accident Scenarios in Nuclear Power Plants with Reinforcement Learning (RL) and Supervised Learning (SL) Approaches: Part 3 Sensitivity of RL to SL
Semin Joo, Seok Ho Song, Yeonha Lee and Jeong Ik Lee(KAIST), Sung Joong Kim(HYU)

6F
5.19(Fri)

안전현안 / PSA (Safety Issues / PSA)

| 박진희(Jinhee Park), 배용범(Young Bum Bae)

| Samda Hall B (3F)

- 09:00 Proposal of Safety Analysis Platform for Building Big Data on Nuclear Power Plant Accidents
DaeYoung Lee, HanGil Lee, and HunGyu Lim(FNC Tech.)
- 09:20 An Investigation on the Effects of Safety Culture-related Contributors to Event Occurrences using Bayes' theorem and Network Analysis
Manwoong KIM(KINS), Byung Joo MIN(KIAT), Wooseok JO and Seung Jun LEE(UNIST)
- 09:40 A Similar Fingerprint Information Detection Algorithm for the Security Enhancement of Biometric Access Authentication Systems in Nuclear Power Plants
Young-Hyun Baek, Sun-Dong Kim, Seok-Yun Kim, and Jun-Myung Lee(UNIONCOMMUNITY)
- 10:00 Coffee Break

- 10:20 An Application of Time-based Human Reliability Evaluation Method for Dynamic PSA
Wooseok JO and Seung Jun LEE(UNIST)
- 10:40 Model Sensitivity Analysis for the Effect of State-of-Knowledge Correlation
Gyun Seob Song and Man Cheol Kim(CAU)
- 11:00 Strategy Development for Emergency Call Estimation using Agent-Based Platform : PRISM
Geon Kim and Gyunyoung Heo(KHU), Jinkyun Park(KAERI)

6G

중대사고 (Severe Accident) – POSTER

5.18(Thu)
– 5.19(Fri)

| 홍성완(Seong-Wan Hong), 서미로(Mi Ro Seo)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P06G01 Preliminary Analysis of LOCA without Safety Injection for APR1400 using CSPACE Computer Code
Rae-Joon Park, Dong Gun Son, Jun Ho Bae, and Jaehoon Jung(KAERI)
- P06G02 CFD Simulation for Prediction of Flow Characteristics in the Core Catcher by Upward Heat Transfer of Corium
Sangmin Kim, Keun Sang Choi, and Jaehoon Jung(KAERI)
- P06G03 Preliminary Evaluation on Radioactive Material Filtration System Effectiveness under Development
Jaehoon Jung, Donggun Son, and SangHo Kim(KAERI)
- P06G04 Preliminary Results of Multidimensional Modeling of Fuel-Coolant Interactions with Lagrangian-Eulerian Coupling of Melt and Coolant
Min-Soo Kim, Dong-Jin Shin, Dong-Ha Kim, and Kwang-Hyun Bang(KMOU)
- P06G05 Effects of Kelvin-Helmholtz Instability on the Triggered Steam Explosion under High Water Level Condition in Reactor Cavity
Sang Ho Kim and Seong-Wan Hong(KAERI)
- P06G06 Preliminary Validation of MCCI Module for Coolability Assessment of Ex-Vessel Corium
Jun Sung Choi, Tae Hwan Kim, Jin-Woo Kim, Hyun Sun Park, and Eung Soo Kim(SNU)
- P06G07 Preliminary 1-D Analysis Model on Ex-vessel Corium Coolability in Pre-flooded Reactor Cavity
Seokgyu Jeong, Jaehoon Jung, Sang Ho Kim, and Jaehyun Ham(KAERI)
- P06G08 Comparative Analysis of CCI-3 Test Simulation using COCCI and CORQUENCH
Jaehyun Ham, Sang Ho Kim, and Jaehoon Jung(KAERI)
- P06G09 Benchmark Calculation of OECD/MCCI Experiments using MELCOR and ASTEC Code
Hyunha Ahn, Seongnyeon Lee, and Kyubyung Lee(KINS)
- P06G10 Review of Radiological Source Term Evaluation Methodologies to Improve SIRIUS Code in CINEMA
Donggun Son, Jun-Young Kang, Sung-Il Kim, Jaehyun Ham, Jun-Ho Bae, and Kwang-Soon Ha(KAERI)
- P06G11 Validation of pH Calculation Model of AnCheBi in the Presence of Organic Impurities
Yoonhee Lee and Yong Jin Cho(KINS)
- P06G12 Investigation of Spray Characteristics in TOSQAN-101 Experiment Using OpenFOAM CFD Simulation
Keun Sang Choi, Sangmin Kim, Jongtae Kim, and Jaehoon Jung(KAERI)
- P06G13 An Analytical Study of Hydrogen Combustion and Natural Convection Inside Vertical Plate-type Catalyst
Dae-Hyun Kim and Dong-Wook Oh(CSU), Young-Su Na(KAERI)
- P06G14 Numerical Simulation on Passive Autocatalytic Recombiner in SPARC Facility
Duc-Hay Nguyen and Sung Goon Park(SEOULTEC), Jae Hoon Jung(KAERI)

6H
5.18(Thu)
– 5.19(Fri)

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

| 김남영(Namyeong Kim), 박건용(Gunnyong Park), 박성규(Seong Kyu Park) | Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- PO6H01 A Comparative Study of the Standardized MPAS Level 2 PSA Model and the Operator Model
Hyun-bin Chang, Gunhyo Jung, Jung Hyun Ryu, and Jaebeol Hong(FNC Tech.)
- PO6H02 Concept of Level 3 PSA Event Tree Model Considering Emergency Responses
Kiwon Song and Sung-yeop Kim(KAERI)
- PO6H03 Prototype Development of DICE-PCTTRAN for Dynamic Scenario Analysis
Yongjoon Lee and Gyunyoung Heo(KHU)
- PO6H04 Uncertainty Quantification of Radial Displacement for Prestressed Concrete Containment Vessel Subjected to Internal Pressure
Sangwoo Lee, Hoyoung Son, Jong Ryun Lee, and Bu-Seog Ju(KHU)
- PO6H05 Risk Profiles from Seismic PSA for HANARO Research Reactor
Seung-Cheol Jang, SangHoon Han, YoonHwan Lee, and Sora Kim(KAERI)
- PO6H06 Risk Profiles from Internal Events PSA for HANARO Research Reactor
Seung-Cheol Jang, Yoon-Hwan Lee, and Sora Kim(KAERI)
- PO6H07 Fault Tree Modeling of Seismic Monitoring Analysis System(SMAS) of HANARO
Jiye Jeong, Yuntaek Im, Seunggyu Doo, Minwoo Lee, Soonkyu Hong, Youngsan Choi, and Jinwon Shin(KAERI)
- PO6H08 Review of Accident Screening Criteria for Evaluating SMR EPZ
Sunghyun Park, Horim Moon, and Sangwon Lee(KHNP CRI)
- PO6H09 Wind Tunnel Tests of a Transmission Tower under Combined Yaw and Tilt Angles
Seungho Lee, Canh Hoang Phan, and Soon-Duck Kwon(JBNU)
- PO6H10 Shaking Table Tests for Amplification Ratio Estimation of Electric Cabinet for Nuclear Power Plant under Seismic Loading
Chae Been Lee, Bub-Gyu Jeon, Sung-Wan Kim, and Dong-Wook Park(SESTEC), Seung-Jun Lee(KHNP CRI)
- PO6H11 A Study on the Detonation Potential for Jet Release of High-Pressure Hydrogen
JUYEON LEE and KAGSU JANG(KEPCO E&C)
- PO6H12 Review of Cable Fire Propagation Experimental Campaign of OECD/NEA PRISME-3 Project
Yong Hun Jung, Kyungho Jin, and Dae Il Kang(KAERI)
- PO6H13 Review of Electrical Cabinet Fire Spread Experimental Campaign of OECD/NEA PRISME-3 Project
Yong Hun Jung, Kyungho Jin, and Dae Il Kang(KAERI)
- PO6H14 Review of Smoke Stratification and Spread Experimental Campaign of OECD/NEA PRISME-3 Project
Yong Hun Jung, Kyungho Jin, and Dae Il Kang(KAERI)
- PO6H15 Prediction of Evacuation Time in Ventilated Main Control Room during Fire using CFAST Simulations and Machine Learning Model
Sumit Singh, Yu Zhang and Weon Gyu Shin(CNU), Jinsoo Bae, Saerin Lim, Jongkook Heo, and Seoung Bum Kim(Korea Univ.)

7A

5.18(Thu)

방사선 방호 (Radiation Protection)

| 배진형(Jin Hyoung Bai), 신창호(Chang-ho Shin)

| 401A (4F)

- 13:30 Improvements of User-friendly GUI-based Monte Carlo Simulation Code for External Exposure
Hyeonil Kim, Bangho Shin, Suhyeon Kim, Haegin Han, Sungho Moon, Gahee Son, and Chan Hyeong Kim(HYU), Chansoo Choi(University of Florida)
- 13:50 Analysis of Tritium Dispersion in the Atmosphere by using CALPUFF Modeling System Around the Wolsong Nuclear Power Plant Site
In Suk Song and Hyun Chul Lee(PNU), Dae-Hong Koh and Sung-Tae Kim(E2M3), Keon Wook Kang(SNUH)
- 14:10 Minimum Detectable Activity Evaluation of Seawater Radioactivity Monitoring System using MCNP Simulation
Dayeong Lee, Seongjin Maeng, Taeho Kim, Seyoung Yu, and Sang Hoon Lee(KNU)
- 14:30 A Proposal for the Data Quality Objectives Process to Apply to the Use of Artificial Intelligence for Getting Data on the Spread of Radioactive Contamination
Younghoon Oh, Younghee Park, and Namhun Kim(UNIST), Jiyon Lee(KINS)

7B

5.18(Thu)
- 5.19(Fri)

방사선 방호 (Radiation Protection) – POSTER

| 유재룡(Jaeryong Yoo), 최승진(Seung Jin Choi)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P07B01 Risk Comparison of Radiation to Carcinogenic Chemicals for Nuclear-Powered Maritime Vessels
youngjae Lee and jeongik Lee(KAIST)
- P07B02 Development of a Methodology for Assessing Radiation Exposure Scenarios for Workers in Accidents
Jun-Hyeok Kim, Sun-Hong Yoon, and Jin-Hyoung Bai(KEPCO E&C), Gil-Yong Cha(RADCORE)
- P07B03 Analysis of Gamma Shielding Evaluation Codes Based on Point Kernel Methodology
Heewon Lee, Minseong Kim, Minwoo Kwak, and Kwanpyo Kim(KHU)
- P07B04 Preliminary Study of Gamma-ray Response of Electron Paramagnetic Resonance (EPR) Signals using Teeth of Rats
HyoJin Kim, Yong Uk Kye, Yeong-Rok Kang, Jeung Kee Kim, Chang Geun Lee, and Wol-Soon Jo(DIRAMS), Dong-Yeon Lee(Dong-Eui Univ.)
- P07B05 Fabrication of Boron Nitride Nanotube/Polymer Composites for Neutron shielding
Sang-Woo Jeon, Jiwon Kim, Uijin Lee, Sung-Kon Kim, and Tae-Hwan Kim(JBNU)

-
- P07B06 **Radiation Shielding Test of CdSe Nanoparticles-Polymer Composites**
Dong-Chul Yang, Sang-Woo Jeon, Young-Jin Yoon, Tae-Hwan Kim, and Soo-Young Jo(JBNU)
- P07B07 **1D Convolutional Neural Network-based Study for Pile-up Correction Considering Noise Effect**
WONKU KIM, KILYOUNG KO, SANGHO LEE, JUNHYEOK KIM, JISUNG HWANG, GYOHYEOK SONG,
JAEHYUN PARK, and GYUSUNG CHO(KAIST)
- P07B08 **Current Status of the Sea Area Monitoring around Fukushima Daiichi NPS**
Myeong-Su Kim, ILA Lee, Jane Joo, and Jeonghoon Shin(KoFONS)
- P07B09 **Review of Radiological Impact Assessment Model in Disposal of NORM Waste**
Do Yeon Lee, Seong Yeon Lee, Min Seong Kim, and Kwang Pyo Kim(KHU)
- P07B10 **Analysis of Gaseous Effluents during Normal Operation of Planned Nuclear Power Plants at Pątnów
Localization in Poland**
Edyta Agata Macieja and Juyoul Kim(KINGS)
- P07B11 **Learning-based Change Point Detection for Robust and Accurate Nuclear Counting**
Changyeop Shin and Sungho Lee(KAERI)
- P07B12 **Database Design for Off-site Dose Calculation**
Deukman Kim, Seokju Hwang, Siyoung Kim, and Jungkwon Son(KHNP)
- P07B13 **Analysis of Radionuclide Releases from Long Term Station Blackout Accident from the Potential Nuclear
Reactor Technologies in Uganda**
Oboo Moses and Juyoul Kim(KINGS)
- P07B14 **Prediction of Radiation Level Change of Nuclear Power Plant using LSTM Model**
Han Young Joo, Jin Sik Choi, Jeong Yeon Lee, Chae Hyun Lee , and Joo Hyun Moon(Dankook Univ.)
- P07B15 **Off-site Consequence Analysis of VVER-1200 at El Dabaa Nuclear Power Project in Egypt**
Waad Saleh and Juyoul Kim(KINGS)
- P07B16 **A Study on the Optimal Evacuation Path through Dijkstra's Algorithm in the Case of Radiation Accidents**
Yunjong Lee and Min Ho Joe(KAERI)
- P07B17 **Compararisons on Categorization Criteria of Nuclear Facilities Based on Radiological Effects**
Chanki Lee, Won Tae Hwang, Wi-Ho Ha, Ilje Cho, and Hyun Ki Kim(KAERI)
- P07B18 **DNA Damage Responses to Low-dose Ionizing Radiation in Normal Keratinocytes and Diabetes Type II
Keratinocytes**
Hae Jin Lee, Hyuntaik Im, and Jae Youn Yi(KIRAMS)
- P07B19 **A Study on the Feasibility of a Self-Monitoring System using a Laser Distance Sensor for a Deep-
Inspiration Breath-Hold in Radiation Treatment of Breast Cancer**
Dong Woon Kim, Hosang Jeon, and Ji Hyeon Joo(PNUYH), Yanggan Ki, Wontaek Kim, and Donghyeon Kim(PNU),
Dal Park and Jiho Nam(PNUH)
- P07B20 **Association between Serum Uric Acid Level and Metabolic Syndrome in Nuclear Power Plant Workers**
Sook Hee Sung, Nam Hee Kim, Ji Young Moon, So Hyun Shin, and Seung Jin Choi(KHNP RHI)
- P07B21 **Analysis of Radiation Exposure to Spent Fuel Container Truck Drivers**
KiHO Park, SungJun Choi, and ChangJe Park(Sejong Univ.)

방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A

5.18(Thu)

방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

I 이필수(Pilsoo Lee), 박병건(Byung-Gun Park)

I 401A (4F)

- 09:00 Radioactivity Measurement of Reactor-produced Radionuclide ^{60}Co using $4\pi\beta(\text{LS})-\gamma$ Coincidence System
Jinyu Kim, Bo-Young Han, Gwang-Min Sun, and Taeyun Kim(KAERI)
- 09:20 The Pulse-height Spectra of a Plastic Scintillation Optical Fiber Detector according to the Position of Gamma-ray Emitting Radioactive Nuclides
Siwon Song, Jinhong Kim, Jae Hyung Park, Seunghyeon Kim, Hyungi Byun, Seokhyeon Jegal, Sangjun Lee, and Bongsoo Lee(CAU)
- 09:40 Evaluation of Indoor Radon Concentration and Dose as a Function of Wall Thickness
Taeho Kim, Seongjin Maeng, Dayeong Lee, Seyoung Yu, and Sang Hoon Lee(KNU)
- 10:00 Development of 2.5 MeV and 14.8 MeV Mono-energetic Neutron Fields
Sinchul Kang, Jungcho Kim, Joonghyun Kim, Hyeonseo Park, HyeoungWoo Park, and Young Soo Yoon(KRISS)
- 10:20 Participation in IAEA Proficiency Test Exercise on Determination of Elements in Clay and Plant Samples through INAA using HANARO Reactor
Kishore Babu Dasari(GNU), Hana Cho(KRISS), Seong Pyo Hong, Jong-Hwa Moon, and Gwang Min Sun(KAERI)
- 10:40 Coffee Break
- 11:00 Investigating Systematic Effects on Nuclear Heating Calculation for Radioisotope Production in HANARO using MCNP6
Taeyun Kim and Sung-Joon Ye(SNU),
Bo-Young Han, Seongwoo Yang, Jaegi Lee, Gwang-Min Sun, and Byung-Gun Park(KAERI)
- 11:20 Evaluation of Improved Production Methods and Supply of No-carrier Added Lu-177
Euntae Kim and Kanghyuk Choi(KAERI)

8B

5.18(Thu)
- 5.19(Fri)

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

I 문명국(Myungkook Moon), 김한수(Han Soo Kim)

I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P08B01 Scintillation Properties of Flexible Scintillator Composed of PDMS and Nanocrystals
Jeong Min Park, Chang Goo Kang, Su Jin KIM, Jang Ho Ha, Han Soo KIM, and Young Soo KIM(KAERI)
- P08B02 Comparison of the Environmental Tests of MIL and IEC Standards for the Betavoltaic Battery
Seokjin Hong, Sungwoo Cho, Hongjoon Park, Byoungmoo Kang, Gyuseung Kim, Bongjai Huh, and Hosang Yoon(HCT), Jinjoo Kim(KAERI)

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- P08B03 **Synthesis of Perovskite Nanocrystals for Radiation Applications**
Su Jin Kim, Jeong Min Park, Han Soo Kim, Young Soo Kim, Jang Ho Ha, and Chang Goo Kang(KAERI)
- P08B04 **Development of Bonner Sphere Spectrometer for Neutron Source with 30 MeV Proton Cyclotron**
Gyuhaeng Jo, Soobin Lim, and Kyoung-Jae Chung(SNU), Bong-Ki Jung(KAERI)
- P08B05 **Development and Optimization of Backscatter X-ray detection system Based on Pencil Beam Scanning**
Jaehyun Park, Gyohyeok Song, Wonku Kim, Junhyeok Kim, Jisung Hwang, Sangho Lee, and Gyuseong Cho(KAIST)
- P08B06 **Polymer-nanoparticle Composite Scintillators for Flexible Radiation Detector**
Chang Goo Kang, Jeong Min Park, Su Jin Kim, Han Soo Kim, Young Soo Kim, and Jang Ho Ha(KAERI)
- P08B07 **X-ray Micro-Tomosynthesis System Coupled with Optical Lens for Battery Materials Research**
Heon Yong Jeong and Sung Oh Cho(KAIST)
- P08B08 **Tomosynthesis Reconstruction of Coin-Cell Battery by Weighted Filtered Back-projection**
Jichan Kim, Heon Yong Jeong, and Sung Oh Cho(KAIST)
- P08B09 **MEA Preparation of Fe-N/C Catalyst Synthesized by E-beam Irradiation and Effect of Acid Treatment**
Chaewon Lee, Young Rang Uhm, and Gwang Min Sun(KAERI), Haein Choi-Yim(SMWU)
- P08B10 **Mineralogical Characterization of Baekje Pottery using Radiation-based Analysis**
Hyunkyung Choi, Young Rang Uhm, and Gwang-Min Sun(KAERI)
- P08B11 **Comparison of Analogue Setup and Semi-digital Setup for Doppler Broadening Spectroscopy**
Youngsu Jeong, Boyoung Han, Jaegi Lee, and Gwangmin Sun(KAERI), Yongmin Kim(Daegu Catholic Univ.)
- P08B12 **Feasibility Study on the Application of He-4 Gas Scintillator Detector in Differential Die-Away(DDA) System by using MCNP Simulation**
Jisu Kim, Heejun Chung and Sung Woo Kwak(KINAC), Jihun Moon(NSSC)
- P08B13 **Method for Calculating Delayed Gamma-ray Transport from Aluminum in HANARO**
Byung-Gun Park, G.M. Sun, and Myong-Seop Kim(KAERI)
- P08B14 **Commissioning of 6.5MeV Electron Beam of Microtron**
Keon Ho Kim, Jae Hong Yu, and Seong Hee Park(Korea Univ. Sejong)
) Young Uk Jeong and Sangyoon Bae(KAERI)
- P08B15 **Analytical Method of Positron Annihilation Lifetime Spectrum for Single-piece Samples**
Jaegi Lee, Young-Su Jeong, Bo-Young Han, Gwang-Min Sun, and Young Rang Uhm(KAERI)
- P08B16 **Introduction to Experimental Setup of Two-dimensional Positron Annihilation Lifetime and Doppler Broadening Spectroscopy (2D-PALS+DBS)**
Bo-Young Han, Young-Su Jeong, Jaegi Lee, and Gwang-Min Sun(KAERI)
- P08B17 **Development of Proton Recoil Detector for Measurement of Ultrafast Neutron Spectrum with YAG: Ce Scintillator**
Soobin Lim, Kyoung-Jae Chung, and Y.S. Hwang(SNU)
- P08B18 **Simulation of Experimental Setup for Multiplicity Analysis by using the HANARO DNAA System**
Seong Pyo Hong, Bo-Young Han, Gwang-Min Sun, Jaegi Lee, and Young-Su Jeong(KAERI)
- P08B19 **Annual report : Measurement of Radiocarbon using AMS in Gyeongju Region**
Seung-Won Lee, Sae-Hoon Park, and Yu-Seok Kim(Doungguk Univ.)
- P08B20 **Analysis of Radioisotope Production According to the Position of the IP-15 Rig in the Research Reactor(HANARO)**
Sungsoo Nam, Uljae Park, Kanghyuk Choi, Soyoung Lee, Euntae Kim, and Kihwan Park(KAERI)
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- P08B21 Purification and Recovery of Lu using Chromatography
hyojin Kim(HYU), kanghyuck Choi(KAERI)
- P08B22 Korea-UK Round Robin Test to Establish International Standards for ETG
GUJIN KANG, JONGBUM KIM, KWANGJAE SON, and JINTAE HONG(KAERI), SANGWOK KIM(Dongguk Univ.)
- P08B23 Measurement of Strontium-82 Specific Activity Using ICP-MS
Kye-Ryung Kim, Yong-Sub Cho, Sang-Pil Yoon, and Seunghyun Lee(KAERI)
- P08B24 Study on Wolter Mirror Design for a Neutron Microscope Development
Jin Man Kim, Cheonkyu Lee, and Jung-Gil Lee(KITECH), TaeJoo Kim and Jongyul Kim(KAERI)
- P08B25 Energy-Resolved Neutron Technique for Metal Material Analysis
Junyoung Son, Daeseung Kim, Yumim Heo, Junhyeok Won, and Seungwook Lee(PNU)
- P08B26 Proton-Irradiated Tin Oxyhydroxide Nanoparticle Anodes for Enhanced Lithium-Ion Storage
Jaewoo Lee, Seunguk Cheon, and Sung Oh Cho(KAIST)
- P08B27 Effective Dispersion of BNNTs in Organic Solvents under E-Beam Irradiation with Different Absorbed Doses
Seung Hwa Yoo and Dabin Cheon(JBNU)
- P08B28 Analysis of Inter-track Effect in Chemical Stage for FLASH Irradiation using Geant4-DNA
Euntaek Yoon(SNU), Wook-Geun Shin(MGH), Hoang Tran and Sebastien Incerti(Bordeaux Univ.),
Chang Heon Choi(SNUH)
- P08B29 Electron Beam Irradiation-Assisted Preparation of High-Concentration CNTs/Organic Solvent Dispersion for CNT-Composite Synthesis
Seung hwa Yoo, Wonjung Choi , and Jiyeon Moon(JBNU)
- P08B30 Spectroscopic Analysis of CNT Dispersed by Electron-beam Irradiation
Seung Hwa Yoo and Cheol Hyeon Lee(JBNU)
- P08B31 Comparison of Rh6G and MO Dye Degradation Activities by Electron Beam Irradiation Under Simulated Sunlight
Seung Hwa Yoo, Jun Hyuk Jeong, and Jun Seop Shin(JBNU)

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

9A

5.19(Fri)

양자공학 및 핵융합기술(Quantum Engineering and Nuclear Fusion)

| 김한성(Han-Sung Kim), 김석권(Suk-Kwon Kim)

| 401A (4F)

- 09:00 Analysis of the Parameters of Korea-4GSR
Tae-Yeon Lee(PAL)
- 09:20 A KAHIF-upgrade Project for Fusion/Fission Material Irradiation Research
Seunghyun Lee, Dong Won Lee, Dae-sik Chang, Sangbeen Lee, Kihyun Lee, and Sunghwan Yun(KAERI)
- 09:40 Development of 10 kW Applied-Field MagnetoPlasmaDynamic Thruster for Nuclear Electric Propulsion
Kil-Byoung Chai, Sung-Ryul Huh, Dong Won Lee, Haewon Shin, and Duck-Hee Kwon(KAERI)
- 10:00 Progress in Development of Soft X-ray Two-filter Diagnostic for Electron Temperature Measurement in VEST
M. W. Lee and C. Sung(KAIST), Soobin Lim, Wonik Jung, and Y. S. Hwang(SNU)
- 10:20 The Diamagnetic Flux Measurements in the Pulsed Magnetic Mirror Plasma
Mingi Choe, Donggeun Oh, Gwangwoon Baek, and Choongki Sung(KAIST), Jun-Gyo Bak(KFE)

9B

5.18(Thu)
- 5.19(Fri)

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

| 이동원(Dong Won Lee), 송영기(Young-Gi Song)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P09B01 Development of the Web Application for Real-Time Monitoring of Accelerator Operation Parameter at KOMAC
Sung-Yun Cho, Jae-Ha Kim, Seung-Ho Lee, Young-Gi Song, and Hyeok-Jung Kwon(KAERI)
- P09B02 Proposal of Compact Accelerator-based Neutron Source (CANS) by using 7Li-d Nuclear Interactions
Sangbeen Lee, Seunghyun Lee, Kihyun Lee, Dae-Sik Chang, Sunghwan Yun, Yong-Sub Cho, and Dong won Lee(KAERI)
- P09B03 Preliminary Study of Development of DAQ Monitoring System for RF Power at KOMAC
Seung-Ho Lee, Young-Gi Song, Jae-Ha Kim, and Sung-yun Cho(KAERI)
- P09B04 Development of Multipurpose DAQ System using ZYNQ-based Digitizer for in 100 MeV Linac and Beam Lines at KOMAC
Young-Gi Song, Jae-Ha Kim, Sung-Yun Cho, Seung-Ho Lee, and Hyeok-Jung Kwon(KAERI)
- P09B05 Resonance Control Cooling System for RAON RFQ
Bum Sik Park and In Seok Hong(IFS)
- P09B06 Beam Intensity Monitoring by using ACCT at the Proton Irradiation Test Facility
Sang-Pil Yoon, Seunghyun Lee, Young-Gi Song, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI)
- P09B07 Methods for Improving Alignment Coordinate System of Accelerator Tunnel at KOMAC
Dae-Il Kim, Mun-Ho Jo, and Sang-Hun Lee(KAERI)

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- P09B08 **Implementation of an Efficient Quad Scan Method for the Transverse Beam Characteristics at KOMAC**
Seunghyun Lee, Hyeok–Jung Kwon, Han–Sung Kim, Sang–Pil Yun, and Dong–Hwan Kim(KAERI)
- P09B09 **Implementation Technology Survey of the Particle Therapy Machine**
Hyeok–Jung Kwon, Han–Sung Kim, Kye–Ryung Kim, Sang–Pil Yoon, Dong–Hwan Kim, and Seunghyun Lee(KAERI)
- P09B10 **Fabrication of a Prototype Drift Tube based on Permanent Magnet Array**
Han–Sung Kim, Seung–Hyun Lee, Dong–Hwan Kim, Sang–Pil Yun, and Hyeok–Jung Kwon(KAERI)
- P09B11 **Implementation of Local Monitoring Box for Cooling Water Flow from Drift Tube at The KOMAC**
Kyunghyun Kim, Hyeokjung Kwon, Hansung Kim, Wonhyeok Jung, Haeseong Jeong, and Seonggu Kim(KAERI)
- P09B12 **Implementation of the Electronic Logbook Application for KOMAC**
Jae–Ha Kim, Sung–yun Cho, Young–Gi Song, and Hyeok–Jung Kwon(KAERI)
- P09B13 **Improvement of the Switch Plate with a Modulator at KOMAC**
WonHyeok JUNG, Hae–sung Jeong, Seong–Gu Kim, kyung–hyun Kim, and Hyeok–Jung Kwon(KAERI)
- P09B14 **Effect of View Port Degradation on OES System in VEST**
Taehee Eom, Wonseok Lee, Wonik Jung, Sooghee Oh, and Yongseok Hwang(SNU), Choongki Sung(KAIST)
- P09B15 **Progress of Strategic Material Irradiation R&Ds with Domestic Facilities toward Future Fusion Neutron Sources Preparation**
Dong Won LEE, Bongki JUNG, Kihyun LEE, Sunghwan YUN, and Seunghyun LEE(KAERI)
- P09B16 **Concept of Pebble Feeding Procedure for HCCP TBM in KO**
Seong Dae Park, Jae–Sung Yoon, Suk–Kwon Kim, and Dong Won Lee(KAERI), Youngmin Lee(KFE)
- P09B17 **Compatibility of RMP-driven ELM Control with Divertor Detachment in KSTAR**
Haewon Shin and Kil–byoung Chai(KAERI), Junghoo Hwang, Yoonseong Han, and Wonho Choe(KAIST), Giwook Shin and Hyungho Lee(KFE)
- P09B18 **Numerical Grid Matching for Coupling SOLPS-ITER and NEO**
Sungpil YUM, KyuBeen KWON, and Eisung YOON(UNIST)
- P09B19 **A Microcapsule, Hohlraum, Confined Inertial Nuclear Fusion Analysis Using Ion Beams: US DOE’s Triumph by Non-Magnetic Confinement in LLNL for Commercialization**
TAE HO WOO(CUK)
- P09B20 **Neutron Irradiation Test on TIG-welded Specimens of ARAA Material**
Jae Sung Yoon, Suk–Kwon Kim, Hyung Gon Jin, Dong Won Lee, and Seong Dae Park(KAERI), Yi Hyun Park(KFE)
- P09B21 **A Feasibility Study by Neutronics Analysis on the Usage of Hydrogen-rich Materials for Enhancing Blanket Shield Performance**
Sunghwan Yun, Seong Dae Park, Dong Won Lee, Cheol Woo Lee, Hyung Gon Jin, Chang Wook Shin, Suk–Kwon Kim, and Jae Sung Yoon(KAERI), Yi–Hyun Park, Mu–Young Ahn, and Seungyon Cho(KFE)
- P09B22 **Measurement of S/XB Values of W I Atomic Lines for Tungsten Diagnostics in KAERI Divertor Simulator Device**
Changmin Shin(KAIST|KAERI), Wonho Choe(KAIST), Duck–Hee Gwon, Haewon Shin, and Kil–Byoung Chai(KAERI)
- P09B23 **Measurement of Transmission and Neutralization Efficiency of KSTAR NBI-2**
SeulChan Hong, Byungkeun Na, J.H. Jeong, Jae Young Jang, Min Park, W. Cho, J.S. Kim, and Jong–Gu Kwak(KFE)
- P09B24 **Improving Secondary Electron Collection Efficiency in Scanning Electron Microscope using Simulation**
Ji Seong Nam, Min Keun Lee, and Kyoung–Jae Chung(SNU), Young–Ro Lee(COXEM)
- P09B25 **Improvement of Beam Alignments in the KSTAR NBI-2**
Jae Young Jang, Wook Cho, SeulChan Hong, Geonwoo Baek, Byungkeun Na, JongSu Kim, Jinhyun Jeong, and JongGu Kwak(KFE), YongSeok Hwang(SNU)
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- P09B26 **The Control System of the Korean Atomic Energy Research Institute Heavy Ion Irradiation Facility**
Dae-Sik Chang, Sung-Ryul Huh, Yong-Sub Cho, Sangbeen Lee, and Seunghyun Lee(KAERI),
Seok-Kwan Lee(Joong-Ang Vacuum Co., Ltd.)
- P09B27 **Progress in the Performance Evaluation of Key Components in the Coolant Purification System for Nuclear Fusion Reactors**
Chang Wook Shin, Suk-Kwon Kim, Hyung Gon Jin, and Dong Won Lee(KAERI),
Seok-Kwon Son, Youngmin Lee, and Mu-Young Ahn(KFE)
- P09B28 **Measurement of Electron Flood in Plasma Flood Gun Device**
Minkeun Lee, Junbeom Park, Jiseong Nam, and Kyung-Jae Chung(SNU)
- P09B29 **Selecting Dominant Modes and Reducing Data Dimensionality on GENE Data with DMD**
Dami Jung and Eisung Yoon(UNIST), Jaemin Kwon(KFE)
- P09B30 **Simulation of Neutron Yield Comparison Depending on Proton Energies and Targets for BNCT**
Hyunha Shim and Seong Hee Park(Korea Univ.Sejong)
- P09B31 **Conceptual Design of Fixed Tungsten Target for Spallation Neutron Source: A Replication Study**
Namwoo KANG, Pilsoo LEE, and Yongsik JANG(KAERI), Ji Su HWANG(Virtual Rx)

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

10A

5.18(Thu)

원전 운영 및 경년열화(NPP Operation & Aging Management)

| 김민규(Minkyu Kim), 정승호(Seung-ho jeong)

| 401B (4F)

- 09:00 Development of a Nuclear Intelligent Retrieval and Analysis System
Byeongmun Ahn, Byeong-hyeok Ha, Byoungchan Han, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.), Young-Jin Oh and Jaeseok Yoo(KEPCO E&C)
- 09:20 Requirements Management for Design of NPPs using Graph Neural Networks
Byoungchan Han, Byeong-hyeok Ha, Byeongmun Ahn, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.), Jaeseok Yoo and Young-Jin Oh(KEPCO E&C)
- 09:40 External Hazard Analysis Based on Operational Performance Information for NPPs
Gibae Kim, Youngsun Choun, and Soohyuk Chang(CENITS Corp.)
- 10:00 External Flood Assessment in Nuclear Power Plants caused by Storm Surge
Beom-Jin Kim, Daegi Hahm, and Minkyu Kim(KAERI)
- 10:20 Study On Nuclear and Renewable Energy System Performance Prediction by using Modelca
Sungho Kim(KEPCO E&C), Daeh Kang, Kyungrim Ahn, and Juhyung Park(IVH), Hae-Ryong Hwang(ISMR Co. Ltd.)
- 10:40 Preliminary Analysis of Thermocline Energy Storage System Coupled with Nuclear Power System
Sungkun Chung and HangJin Jo(POSTECH)
- 11:00 Coffee Break
- 11:20 Flaw Evaluation Procedure for Reactor Vessel Internal Components
Junseog Yang and Hyeongdo Kweon(KHNP), Hyunsu Kim(KEPCO E&C)
- 11:40 Evaluation of Neutron Fluence at the Reactor Pressure Vessel Nozzle using Ex-Vessel Neutron Dosimetry(EVND) and Surveillance Capsule
HYUNCHUL LEE, Mi Joung Lim, Kyung Sik Kim, Young Jae Maeng, Jung Gwan Jo, and Tae Min Lim(KRIST)
- 12:00 Effect of Plasticizer Migration on Mechanical Properties of NBR under Thermal Aging
Inyoung Song and Ji Hyun Kim(UNIST), Daehwan Kim and Daewon Cho(KIMM)

10B

5.19(Fri)

설계 제작 (Design & Manufacturing)

| 강기식(Ki-sig Kang), 최영재(Young Jae Choi)

| 401B (4F)

- 09:00 Requirements Management for Long-Term Nuclear Projects
Jinil Kim, Choong Sub Yeum, and Joong Uk Shin(IAE)
- 09:20 Auxiliary Power System and Protection Scheme for SMR Generating Stations
Choong-koo Chang and Woong-kyu Lee(KINGS)

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- 09:40 Cycle Analysis and Economic Evaluation of Heat Pipe Cooled Microreactor and Comparison with Other Power Generation Systems
Su Won Lee, Yongnam Lee, Namhyeong Kim, and HangJin Jo(POSTECH)
 - 10:00 Numerical Study on the Design Parameters of a Packed Bed Thermal Energy Storage System
Seong-Il Baek, Jeong-Won Han, and Bum-Jin Chung(KHU)
 - 10:20 Techno-Economic Assessment of Modular Water Electrolysis System Coupled with Heat-Pipe Cooled Microreactor
SeockYong Lee, UngJin Na, and HangJin Jo(POSTECH)
 - 10:40 Joint Cooperative Research on Technology Familiarization through Comparison and Analysis of Codes for Czech New NPP Construction
Kisig KANG, Seoyoon CHO, and Wooyong JUNG(KINGS)
 - 11:00 Business Feasibility Evaluation of Nuclear-renewable Hybrid Energy System using MMR
Young Jae Choi(HEC)
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10C

5.18(Thu)

수화학 (Water Chemistry)

I 심희상(Hee Sang Shim), 권혁철(Hyuk Chul Kwon)

I 401B (4F)

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- 13:30 Recent Water Chemistry Strategies on Steam Generator Tube Fouling Mitigation in Secondary Water of PWRs
Soon-Hyeok Jeon, Do Haeng Hur, and Hee-Sang Shim(KAERI)
 - 13:50 Effect of Corrosion Product Concentration on Structure and Thermal Property of Fuel CRUD in PWR
Yunju Lee, Junhyuk Ham, and Ji Hyun Kim(UNIST), Seung Chang Yoo(KINS)
 - 14:10 The Reviewing FFA(Film Forming Amine) Application Technology for Reducing Corrosion of Secondary System composited of Materials during the Overhaul(OH)
Hyuk Chul Kwon, Jin Soo Choi, Kyung Hee Lee, Cho Rong Kim, Yong Sang Cho, and Kyu Min Song(KHNP)
 - 14:30 Coffee Break
 - 14:50 Flow-Accelerated Corrosion Behavior of A106 Gr.B in Simulated PWR Secondary Water with Different pH and pH Control Agents
Jeoh Han, Soon-Hyeok Jeon, Hee-Sang Shim, and Do Haeng Hur(KAERI), Young-Kook Lee(Yonsei Univ.)
 - 15:10 Corrosion Behaviors of Alloy 690 Steam Generator Tubes in Boron-Free Primary Coolant
Hee-Sang Shim, Soon-Hyuk Jeon, Ju Seong Kim, and Do Haeng Hur(KAERI)
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10D

5.18(Thu)

내진해석 1 (Seismic Analysis 1)

I 구경회(Gyeong-Hoi Koo), 곽신영(Shinyoung Kwag)

I 402A (4F)

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- 13:30 A Study on the Design of Ground Motion Database and Processing for Input Seismic Evaluation and Nuclear Power Plant Safety
Jin Koo Lee, JeongBeom Seo, and Sung Young Whang(KITValley)
 - 13:50 Prediction of Seismic Responses of Structural Systems Having Degradation and Pinching using Deep Learning
Taeyong Kim(Ajou Univ.), Oh-Sung Kwon(University of Toronto), Junho Song(SNU)
 - 14:10 Seismic Test of a Scaled-down Model for Spent Fuel Racks in NPP Spent Fuel Pool
Heung Seok Kang, Kang Hee Lee, Dong Seok Oh, and Soo Ho Kim(KAERI)
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- 14:30 Coffee Break
 - 14:50 Capacity Evaluation of Shear Wall with Concrete Voids Using Numerical Simulation
Jae-Wook Jung, Yongmoon Hwang, and Junhee Park(KAERI)
 - 15:10 Prediction of Seismic Damage of NPP Cabinet using Deep Neural Network
Chulyoung Kang, Tae-Hyun Kwon, and Minkyu Kim(KAERI)
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10E 5.19(Fri)

내진해석 2 (Seismic Analysis 2)

| 류용희(Yonghee Ryu), 이환호(Hwanho Lee)

| 402A (4F)

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- 09:00 Development of Automated Structural Analysis Platform for Data-Driven Prediction on Structural Responses
Jingoo Lee, Seungjun Lee, and Young-Joo Lee(UNIST)
 - 09:20 Estimation of Concrete Breakout Strength of Anchor for Essential Service Water Pump Using Design Code and Experiment
Gyeonghee An and Junhee Park(KAERI)
 - 09:40 Sensitivity Analysis of Seismic Hazard Curve Conversion by the Probabilistic Distribution of Soil Amplification Factor
Seung Jae Lee, Hae Yeon Ji, and Jung Han Kim(PNU)
 - 10:00 A Study on the Procedure of Determining Seed Motion for Seismic Analysis
Jeong-Gon Ha, In-Kil Choi, and Minkyu Kim(KAERI)
 - 10:20 The Effects of Opening on the Strength of Shear Walls Under Multi-axis Loading
Hyemin Shin and Junhee Park(KAERI)
 - 10:40 Coffee Break
 - 11:00 New Methodology for Proportional Damping under Multi-directional Excitations
Choongyo Seo, Gysung Woo, and Sungmin Lee(KEPCO E&C)
 - 11:20 Seismic Integrity of Main Steam Line Depending on Seismic Isolator in Lead-cooled Small Modular Reactor
Byeongju Kim, Taeyong Kim, and Ji Hyun Kim(UNIST), Haedong Chung(MicroURANUS), Gyeong-Hoi Koo(KAERI)
 - 11:40 Investigation Ground Motion of Dip-slip Fault Based on Pseudo Dynamic Source Model
Donghee Park and Sewoon Choi(KHNP)
 - 12:00 Correction for Site Effects in Observed Ground Motions and Development of Empirical Ground-motion Prediction Equation for the Korean Peninsula
Byeong Seok Ahn, Tae-Seob Kang, and Hyun Jae Yoo(PKNU)
-

10F 5.18(Thu)

구조해석 (Structural Analysis)

| 김종욱(Jong Wook Kim), 기준우(June-woo Kee)

| 402A (4F)

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- 09:00 Cyclic Lateral Loading Test of Cylindrical Wall for Seismic Evaluation of Containment Building
Hyeon Keun Yang(KAERI), Hong Gun Park(SNU)
 - 09:20 Rules of Structural Integrity Evaluation for Class-A Components of High Temperature Reactors
Gyeong-Hoi Koo, Na-Hyun Kim, Si-Hwa Jeong, and Sang-Ji Kim(KAERI)
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- 09:40 **Review of Failure Mechanism of Tensile Anchors in Concrete**
Ilhwan Moon, Chang Beum Park, Sungmin Lee, and Yunho Nam(KEPCO E&C)
 - 10:00 **Evaluating Fluid Leakage through Concrete Crack**
Se-Yun Kim, Sung-Wook Hong, Donghwi Eum, and Tong-Seok Han(Yonsei Univ.)
 - 10:20 **Characterization of the Nonlinear Behavior of the piping T-joints by Experiment and Finite Element Analysis**
Sung Gook Cho, Gihwan So, and Jee Hoon Moo(Innose Tech.),
ABhinav Gupta(North Carolina State Univ.)
 - 10:40 **Coffee Break**
 - 11:00 **Preliminary Study on Leakage Rate Estimation of Cracked Concrete Walls**
Yousang Lee and Hong-Gun Park(SNU)
 - 11:20 **Numerical Study on the Concrete Microstructure using Image-based Virtual Element Method**
HyeongTae Kim and Kyoungsoo Park(Yonsei Univ.)
 - 11:40 **Typhoon Hazard Analysis of Kori Site using Logic Tree**
Gungyu Kim and Seunghyun Eem(KNU), Shinyoung Kwag(Hanbat National Univ), Young-Sun Choun(CENITS Corp.),
 - 12:00 **A Study on Structural Integrity Evaluation of CANDU Type SRT**
youngyoon Lee and hongpyo Lee(KHNP)
 - 12:20 **A Study on Robust Optimal Sensor Placement for Containment Buildings in Nuclear Power Plants**
Chanwoo Lee, Youjin Kim, and Hyung-jo Jung(KAIST)

10G
5.18(Thu)
– 5.19(Fri)

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

I 이홍표(Hong Pyo Lee), 박준희(Junhee Park) I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- PO10G01 **Review on LCA (Life Cycle Assessment) for CO₂ Emissions of the SMR (Small Modular Reactor)**
Seong Kuk Cho, Jiyun Lee, Keong Tae Hwang, Hongjo Youn, Yongik Jang, Youngwoo Lee,
and Hoyung Shin(HEC)
- PO10G02 **Development of Flowchart based Technical Specification**
Bosang Yun(KHNP), Jonghyun Kim(CSU)
- PO10G03 **A Study on Harmonic Distortion Measurement in NPP**
Sungbaek Park and HoonKeun Lee(KINS)
- PO10G04 **A Study on the Secondary-Primary Coolant Temperature Deviation to Prevent Overpressure During RCP Startup**
Jonghoon Kim(KHNP), jonghyun Kim(CSU)
- PO10G05 **Degradation Mechanisms for Alloy 690 Steam Generator Tubing in Nuclear Power Plants**
Chan Hee Cho, Kwan Seob Jang, Ji Eun Jang, and Hee Sung Jung(Sae-An Engineering)
- PO10G06 **SIL Versus Dedication in EPRI 3002002982**
Kwang-Young Sohn, kweon-Woo Sohn, and Sung-Jong Kim(MIRAE-EN), Tae-Hwa Hong(KHNP CRI)

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- P010G07 Preliminary Study On Machine Learning-based Estimation of Earthquake Characteristics at Unmeasured Site
Yongmoon Hwang and Junghoon Lee(KAIST)
- P010G08 Screening of Potential Extreme Natural Hazards for Nuclear Power Plant Sites
Gilyoung Chung, Hyunsung Park, Hyungkui Park, Gibae Kim, Youngsun Choun, and Soohyuk Chang(CENITS Corp.)
- P010G09 A Proposal of the Ultimate Pressure Capacity Evaluation Method of Containment Buildings through a State-of-the- Art Review
Hyung-Kui Park, Young-Sun Choun, and Soohyuk Chang(CENITS Corp.), Yun Yong Kim(CNU)
- P010G10 Overall Generation Cost Analysis According to the SMR Units in Jeju Island
HyeonHo Byun and ManSung Yim(KAIST), YoungSuk Bang and KeonYeop Kim(FNC Tech.)
- P010G11 Calculating the Surface Temperature of the Instrument for Confirming the Service Condition in the Environmental Qualification
Geon gyu Choi(KHNP)
- P010G12 The Activity Increase of Blowdown System in Non-Leaking Steam Generators during Tube Leak in the Steam Generator
DONG-MAN SHIN and KUK-HEE LEE(KHNP)
- P010G13 Regulation Considerations for Zinc Application into Reactor Coolants of SMR
Jinsoo Choi, Daseul Ham, Chorong Kim, Yongsang Cho, Hyukchul Kwon, and Kyumin Song(KHNP)
- P010G14 Influence of Octadecylamine Concentration and Temperature on the Organic Film Formation on Alloy 690TT Substrate
Soon-Hyeok Jeon, Do Haeng Hur, and Hee-Sang Shim(KAERI)
- P010G15 The First Application of CPP Amine-form operation in OPR Plant
Dong-soo Shon, Jeong-uk Lee, Yu-mi Choi, Hye-min Kim, Gi-soon Hwang, and Hyun-min Park(KHNP)
- P010G16 Analysis of Sludge Deposition in Steam Generator during Operation of Domestic NPPs
Kyunghee Lee and Jimin Kim(KHNP)
- P010G17 Effect of Temperature on Corrosion Behavior of Si_3N_4 in Alkaline Water
Sang-yeob Lim, Sun-Young Park, Soon-Hyeok Jeon, and Hee-Sang Shim(KAERI)
- P010G18 Evaluation of RCS Zinc Injection in the Hanbit Unit 3
SungHyun Park, ByoungChae Yeo, JinSu Choi, and KyungHee Lee(KHNP)
- P010G19 Variability Estimation of Natural Frequency of Electrical Equipment Based on Shaking Table Tests
In-Kil Choi(KAERI), Sung-Jin Chang and Dong-Uk Park(KOCED)
- P010G20 Development of Network Safety Assessment Methodology for Loss of Off-site Power System
Seunghyun Eem(KNU), Shinyoung Kwag(Hanbat National Univ.), Daegi Hahm(KAERI)
- P010G21 Methodology for Probabilistic Soil-Structure Interaction Analysis of Nuclear Power Plant Structures
Hyunsung Park, Youngsun Choun, and Soohyuk Chang(CENITS Corp.), Junhee Park(KAERI)
- P010G22 Seismic Hazard Analysis on Indonesia's Multipurpose Nuclear Research Facility
Rhajendra Ekaputra, Chang-kyu Lee, and Eric Yee(KINGS)
- P010G23 Magnitude Homogenization for International Seismological Center Magnitudes for South Korea
Soojin Jung, Eric Yee, and Rhajendra Ekaputra(KINGS)
- P010G24 Magnitude Homogenization for Agencies Relevant to South Korea
EUI HYUN JUNG, SOOJIN JUNG, and ERIC LEE(KINGS)
- P010G25 Combining Historical Earthquake Data in Seismicity
Chang-kyu Lee, Soo-jin Jung, and Eric Yee(KINGS)
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- PO10G26 Preliminary Estimation of Gutenberg-Richter Parameters for South Korea
Min-young Kang, Eui-Hyun Jung, and Eric Yee(KINGS)
- PO10G27 Seismic Retrofit due to Dynamic Characteristics of RCS Equipment of NPP in BDBE
Tae Myung Shin(KNUT)
- PO10G28 A Damage Evaluation of the Reactor Cavity Subjected to an Equivalent TNT Explosion for Fuel-Coolant Interactions
Seong-Kug Ha and Ik-Jung Yun(KINS), Yeo-Hoon Yoon and Kyoung-Teak Lee(KOSTECH)
- PO10G29 Structural Behavior and Damage of Reinforced Concrete Beams Under Cyclic Loadings Using ABAQUS Implicit Code
Seong-Kug Ha, Ho Park, and SaeHanSol Kang(KINS)
- PO10G30 A Numerical Investigation of Punching Shear Behavior in Meso-Scale Arch Panel as Wall Member in Nuclear Reactor Containment Building
Dal-Hun Yang(KHNP)
- PO10G31 On the Design of SC Walls for Missile Impact_Summary of Tests and Simulations
Joo Min Kim(KAERI), Amit Varma(Purdue Univ.)
- PO10G32 Pre-installation and Operation Inspection of a Demonstration Facility for Innovative High-Temperature Thermal Energy Storag
kiwon Park, youngil Cho, jongman Kim, jung Yoon, yonghoon Shin, and hyeonil Kim(KAERI)

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

11A
5.19(Fri)

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

| 이동훈(Dong Hoon Lee), 정익(Ik Jeong)

| 402B (4F)

- 09:00 Proposing a Draft Small Modular Reactor Regulatory Policy Direction for Korea
Young-A SUH, Kyuntae Kim, Keyyong Sung, Young-il Lee, Jinsu Kim, and Youn young Jang(KINS)
- 09:20 Regulatory Framework for Nuclear Fuel Cycle Facilities
Hyojik Lee, WooJin Jo, Siwan Noh, EuiYong Kim, SeokJun Seo, SeungNam Yu, and JongHui Han(KAERI)
- 09:40 Socio-economic Potential of Micro Molten Salt Reactors
Tae Joon LEE(KAERI)
- 10:00 The Status of the U.S HALEU/LEU+ Supply Program and its Implications on the Korean Advanced Reactor Research and Development
Sangbum Kim and Youho Lee(SNU)

11B
5.18(Thu)

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

| 한재준(Jae-Jun Han), 정홍화(Honghwa Jeong)

| 402B (4F)

- 09:00 Facility Safeguardability Assessment of the i-SMR
Hosik Yoo, Seungho Jeong, Seungho Ahn, Seungmin Lee, Donghyuk Lim, and Kwangho Ju(KINAC)
- 09:20 Application of Fault Tree Analysis Method to Force on Force (FOF) Scenario Development
Yun-Seon Chung, Jung-Soo Kim, and Woo-Sik Jung(Sejong Univ.)
- 09:40 Development of Vital Area Identification Method Against Vehicle Attack
Yun-Seon Chung and Woo-Sik Jung(Sejong Univ.)
- 10:00 A Study on Nuclear Fuel Cycle Model using AnyLogic Platform
Jae Uk Seo, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.)
- 10:20 Coffee Break
- 10:40 Development of Risk Assessment Model for Nuclear Proliferation Scenario Based on the Nuclear Fuel Cycle
Byeong-hyeok Ha, Tongkyu Park, Sung-kyun Zee, and Suwon Lee(FNC Tech.)
- 11:00 Significance and Implication of Nuclear Inclusion in EU Taxonomy
Sung Yoon Park and EunBee Park(KINAC), Narae Choi(University of Seoul)

11C

5.18(Thu)

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

| 한재준(Jae-Jun Han), 정홍화(Honghwa Jeong)

| 402B (4F)

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- 13:30 Prototype Development of Integrated Export Control Database System
Byoungchan Han, Tongkyu Park, and Sung-Kyun Zee(FNC Tech.)
 - 13:50 The Road Back to the JCPOA: Analyzing Iran's Compliance and IAEA's Verification Capabilities
Hojung Do(KINAC)
 - 14:10 A Study on Improving Domestic Security Regulation System Considering Experience and Current Status of U.S.NRC
Ha Neul Na, Youngsuk Bang, Heung Gyu Park, So Eun Shin, and Yong Suk Lee(FNC Tech.)
 - 14:30 Coffee Break
 - 14:50 Review of Regulatory Applicability of Acquisition Path Analysis Methodology
Yonhong Jeong, Hojung Do, and Dongjin Kim(KINAC)
 - 15:10 Feasibility Study on Classification of Nuclear Threat Types Using Machine Learning with Ratios of Xe Isotopic Activity
Sang-Kyung Lee, Sang Woo Kim, Yu Yeon Cho, Chang Ho Shin, and Ser Gi Hong(HYU)
 - 15:30 Residual Demand Analysis of South Korea under Deep Penetration of Variable Renewable Energy
Jai Oan Cho and Jeong Ik Lee(KAIST)

11D

5.18(Thu)
- 5.19(Fri)

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

| 김영준(Youngjune Kim), 이영우(Youngwoo Lee)

| Lobby (3F)

| 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

| 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

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- PO11D01 Student Training Program for Radiation Safety in HYU: Research internship, Problem-based Learning, and Colloquium
Junik Cho, Euidam Kim, Euna Lee, Chae-eon Kim, Jongeun Kim, Jiwon Choi, and Yoonsun Chung(HYU)
 - PO11D02 Development and Pilot Operation of Nuclear Safety Information Training Programs for Local Residents of NPP
Jihye Park(KoFONS)
 - PO11D03 An Analysis of Research Trends in Applying Artificial Intelligence to the Nuclear Field Based on Big Data
Gibeom Kim and Yonggyun Yu(KAERI)
 - PO11D04 Development of Question-Answering System Based on Regulatory Documents for KAERI
Hongbi Kim and Yonggyun Yu(KAERI)
 - PO11D05 A Study on Efficient Implementation Plan of KAERI Export and Import Control System
Seongmi Han, HyunJo Kim, Incul Kim, and Mun-Young Ryu(KAERI)
 - PO11D06 A Study on a Nuclear Material Analysis Capability of the Gamma Imaging System, i-PIX
Yewon Kim(KINAC)

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- P011D07 Classification of Nuclear Fuel Cycle-Related R&D Activities using Content Validity Verification
Seungmin Lee, Hyunjin Kim, and Gil Hoon Ahn(KINAC)
- P011D08 Analysis of 2022 Nuclear Posture Review
Sung Yoon Park and EunBee Park(KINAC)
- P011D09 Voting Process for the Nuclear Security Resolution at the 66th IAEA General Conference and the Issue of Rules of Procedure at Multilateral Meetings
EunBee Park and Sangcheol Hyung(KINAC)
- P011D10 A Study on Physical Protection Records of Nuclear Facilities
Myungtak Jung, Ji-Hwan Cha, and Wooseub Kim(KINAC)
- P011D11 A Conceptual Approach to MSR Safeguards
Deukhyun Jo and Man-Sung Yim(KAIST)
- P011D12 Analysis of Safeguardability Assessment Parameters Using Text Mining
Geunhee Kim and Seungmin Lee(KINAC)
- P011D13 South Korea's Ongoing Efforts to Strengthen the Physical Protection Regime Under the CPPNM and its Amendment
Wooseub Kim, Sundo Choi, and Hye-seung Kim(KINAC)
- P011D14 Thermal Infrared Satellite Imagery For Countering Nuclear Proliferation: A Recommendation
Jae-jun Han and Gayeon Ha(KINAC)
- P011D15 Estimation of Nuclear Test Time in Neighboring Countries using MCMC (Markov Chain Monte Carlo) based on Radioactive Xenon Isotopic Activity Ratios
YuYeon Cho and Ser Gi Hong(HYU)
- P011D16 Comparison of Nuclide Inventories for Magnox Fuel Obtained by SCALE TRITON and SFCOMPO
Dongjin Kim(KINAC)
- P011D17 Retrofitting Coal Power in the Philippines Using Korean SMR—Feasibility Evaluation
Cris Jericho Cruz and Man-Sung Yim(KAIST)
- P011D18 Application of Graded Approach to Periodic Safety Review of Predisposal Radioactive Waste Management Facilities
Chul-Kyu Lim, Hyeon-Sik Chang, Hyun-Sik Kang, Chang-Sup Lee, Seoung-Rae Kim, and Mi-Suk Jang(NESS)
- P011D19 Necessity of Target Set Identification Regulation in Physical Protection Perspective
Ji-Hwan Cha(KINAC)
- P011D20 Suggestions for Improvements in Conducting Periodic Safety Review (PSR) of Radioactive Wastes Management Facilities Compared to Nuclear Power Reactors
Hye-jin Kim, Won-hyuk Jang, Jeong-wook Moon, and Na-on Chang(KAERI)
- P011D21 A Study on Integrated Regulatory System through Review of US Experience
Youngsuk Bang, Heung Gyu Park, So Eun Shin, Ha Neul Na, and Yong Suk Lee(FNC Tech.)
- P011D22 The Investigation of Innovative Operation and Maintenance Technology to develop a Road Map for i-SMR
Ik Jae Jin and In Cheol Bang(UNIST)
- P011D23 A Study on the Optimal Economic Evaluation Methodology of i-SMR
Jin-Ho Oh(CSU)

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

12A
5.18(Thu)

원자력계측제어, 인간공학 및 자동원격 1 (Nuclear I&C, Human Factors, and Automatic Remote Systems 1)

| 김지태(Jitae Kim), 최선미(Sun-Mi Choi)

| 303 (3F)

- 09:00 Comparison of Error Rate Depending on Operator Expertise and Simulator Complexity
Taewon Yang and Jonghyun Kim(CSU), Jooyoung Park and Ronald Boring(INL)
- 09:20 Operational Anomaly Diagnosis Algorithm using Machine Learning Technology with MARS-KS Transient Simulation Database
Sang min Park, Ji yong Lee, Young kyun Kwack, Hoang Nhan Hien, and Suk ku Sim(En2T)
- 09:40 Smart Engineering of APR1400 MMIS Virtual Stimulation
Sungjin Lee, Min-seok Kim, and Hosun Ryu(KHNP)
- 10:00 Operational Anomaly Detection Methodology using MARS-KS Nuclear Safety Transient Simulation Database
JIYONG LEE, SANGMIN PARK, YOUNGKYUN KWAK, NHAN HIEN Hoang, and SUKKU SIM(En2T)
- 10:20 A Deep Learning Approach to Nameplate Detection and Text Recognition using YOLOv5 and Tesseract OCR
Seul Lee and Daeho Kim(KEPCO E&C), Jaepil Ko(KIT)
- 10:40 Coffee Break
- 11:00 Development of Anomaly Recovery Algorithm Based on Concept of Robust AI
Hee-Jae Lee and Jonghyun Kim(CSU), Daeil Lee(KAERI)
- 11:20 SPDS Design Improvement as Operator Support System
Seung HAN, Byung Rae KIM, and Yoon Hee LEE(KEPCO E&C)
- 11:40 Development of Integrated Dynamic Emergency Operating Procedure with Hierarchical Structure
Jung Sung Kang and Seung Jun Lee(UNIST)
- 12:00 Assessing Vulnerability of Nuclear AI using Layer-wise Relevance Propagation and Bayesian Neural Networks for Adversarial Attack Mitigation
Young Ho Chae and Seo-Ryong Koo(KAERI)

12B
5.18(Thu)

원자력계측제어, 인간공학 및 자동원격 2 (Nuclear I&C, Human Factors, and Automatic Remote Systems 2)

| 이용석(Yong Suk Lee), 김승근(Seung Geun Kim)

| 303 (3F)

- 13:30 Feature Selection Using Machine Learning for Complex Abnormal Event Diagnosis
Ji Hyeon Shin and Seung Jun Lee(UNIST)
- 13:50 Design of CMOS Logic Integrated Circuit for Multi-Radiation Environment and Verification of Proton Particle and Gamma-ray Tolerance Characteristics
Minwoong Lee, Namho Lee, Huijeong Gwon, Jongyeol Kim, Younggwon Hwang, and Donghan Ki(KAERI)

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- 14:10 Anomaly Detection using Autoencoder based on Dimension Augmentation
Hogeon Seo and Yonggyun Yu(UST|KAERI), Seunghyoung Ryu, Byoungil Jeon, and Gibeom Kim(KAERI)
 - 14:30 Coffee Break
 - 14:50 Deep Learning-based Air Bubble Detection for HANARO
Minjong Kim, Minsu Kim, and Younggyun Yu(KAERI)
 - 15:10 Implementation of Low-power Sensing Technology for Wireless Leakage Monitoring
Tae-Jin Park and You-Rak Choi(KAERI)
 - 15:30 Cyber Security Considerations for Technologies Intended in the Future SMR
Yoon Ki Choi, Kyung Jin Lee, Yeon Jun Choo, and Kiwhan Chung(FNC Tech.)
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12C
5.18(Thu)

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

I 박종원(Jongwon Park), 김종현(Jonghyun Kim) I 400 (4F)

- 13:30 A Study of the Teleautonomy Approach to the Door Opening Task of a Mobile Robot for Accident Response at Operating Nuclear Power Plants
Dongjun Hyun and Hocheol Shin(KAERI)
 - 13:50 Feasibility Study of Nuclear Power-Based Collision on Asteroid Following NASA's DART Mission: A Giant Step of Humankind for Planetary Space Defense (PSD)
TAE HO WOO(CUK)
 - 14:10 Study of Global Path Planning for Ground Robot in Complex 3D Terrain
Sungwook Hur, Dongseok Ryu, Kihong Im, and Jongwon Park(KAERI)
 - 14:30 Coffee Break
 - 14:50 Preliminary Study of a Surveillance Robot System in the Radioactive Waste Storage Facility
Wonseo Lee, Dongseok Ryu, and Tack-Jin Kim(KAERI), Sugon Shim(Korea Tech.)
 - 15:10 Design of Radioactive Material Sampling Devices in High Radiation Area Using a Dual Arm Robot
Jongwon Park and Ki Hong Im(KAERI), Seongjin Park(CNU), Myungsoo Kim(KINAC)
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12D
5.19(Fri)

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

I 박태진(Tae-Jin Park), 이성진(Sungjin Lee) I 303 (3F)

- 09:00 Signal Validation in Nuclear Power Plant Accidents using Diffusion Model
Jeonghun Choi and Seung Jun Lee(UNIST)
 - 09:20 Experimental Data Generation using StyleGAN-like Architecture
Doyeob Yeo, Dae-Sic Jang, and Jeong-Han Lee(KAERI)
 - 09:40 Multi-kernel Neural Network-based Visualization of Pipe Leakage from Video Data
Hogeon Seo, Byun-Young Chung, Jihyun Jun, and Young-Chul Choi(KAERI)
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- 10:00 Nuclear Power Plant Vibration Automatic Monitoring System using Artificial Intelligence
Hyunjun Lee(RMS Technology)
 - 10:20 Discrimination Technology of Metallic Object Impact Signal and Thermal Shock Signal using the Ambiguity Function
Jeong-Han Lee, Dae-Sic Jang, Doo-Byung Yoon, and Jin-Ho Park(KAERI)
 - 10:40 Coffee Break
 - 11:00 Development of Remaining Trip Time Prediction Algorithm for Abnormal Situations at Nuclear Power Plants
Hyojin Kim and Jonghyun Kim(CSU)
 - 11:20 Investigation of Modal Characteristics of a Scaled Down Core Support Barrel for Fault Data Generation
Byunyoung Chung, Dae-Sic Jang, Jihyun Jun, Taeyoung Ko, and Young-Chul Choi(KAERI)
 - 11:40 A Method for Wireless Technology Application in Nuclear Power Plant
You-Rak Choi and Tae-Jin Park(KAERI)
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12E
5.19(Fri)

원자력계측제어, 인간공학 및 자동원격 5
(Nuclear I&C, Human Factors, and Automatic Remote Systems 5)

I 구서룡(Seo Ryong Koo), 조선봉(Sun Bong Jo)

I 400 (4F)

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- 09:00 Prediction of Small-Scale Leak Flow in Nuclear Power Plants Using Bidirectional LSTM
Hye Seon Jo, Sang Hyun Lee, and Man Gyun Na(CSU)
 - 09:20 Vibration Monitoring of Core Support Barrel in APR1400 Reactor Vessel Based on the NIMS-IVMS Data Evaluation
Yang Gyun Oh, Eunsuk Oh, Kil Young Jung, Jong Sung Moon, and Yoon Hee Lee(KEPCO E&C),
Chan Jun Jeong and Dae-geun Shin(KHNP)
 - 09:40 Interpretability of Deep Neural Networks for Abnormal Situations Diagnosis in Nuclear Power Plants: A Rule Extraction Technique
Ji Hun Park, Sang Won Oh, Min Seon Kim, and Man Gyun Na(CSU)
 - 10:00 HANARO Secondary Cooling System Behavior Prediction based on Deep Neural Network and Data Augmentation
Seung Geun Kim, Geunhyeong Lee, Minwoo Lee, and Yonggyun Yu(KAERI)
 - 10:20 Development of Nuclear Transient Early Warning System
Seo Ryong Koo(KAERI)
 - 10:40 Coffee Break
 - 11:00 Enhancing the Reliability of Abnormal State Diagnosis in Nuclear Power Plants Using Explainable Boosting Machine
Ho Jun Lee, Ji Hun Park, Ji Woo Hong, and Man Gyun Na(CSU)
 - 11:20 Three Channel Plant Protection System (PPS) Design for Small Modular Reactor (SMR) with no CCF Potential
JongSoo Kwon, YoungGeul Kim, Insok Hwang, JaeHong Ha, and YoonHee Lee(KEPCO E&C)
 - 11:40 Uncertainty Combination Method for Reactor Trip System
Youngho Jin and Oon-Pyo Zhu(GINIS), Jae-Yong Lee(Sejong Univ.)
 - 12:00 A Robust Approach for Small Bubble Detection in HANARO Core Using Consecutive Multi-Frames
Jimin Lee and Jiyeon Yim(UNIST), Minjong Kim, Minwoo Lee, Minsu Kim, and Yonggyun Yu(KAERI)
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12F
5.18(Thu)
– 5.19(Fri)

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

I 장인석(Inseok Jang), 이승민(Seung Min Lee)

I Lobby (3F)

I 게시시간 5.18(Thu) 13:00 ~ 18:00 / 5.19(Fri) 09:00 ~ 12:00

I 저자 발표시간 5.18(Thu) 13:00 ~ 14:00

- P012F01 Study on Reactor Operation Automation System with AI Based Program Application
Sanghoon Bae, Seop Hur, and Seoryong Koo(KAERI)
- P012F02 Study on Implementation Method of Safety System Communication Virtualization in MMIS Digital Twin
Min-seok Kim and Hosun Ryu(KHNP)
- P012F03 Study on Performance Verification Method of NPP Controller in MMIS Digital Twin
Hosun Ryu and Min-seok Kim(KHNP)
- P012F04 Analysis of General Requirements for Introducing IEC International Standards into the Domestic Nuclear Digital I&C Systems
Youngmi Kim, Hoonkeun Lee, and Sungbaek Park(KINS)
- P012F05 Control Algorithm Improvement for Reactor Makeup Water and Boric Acid Makeup Flow Control Loops
Myunghoon Ahn, Woogoon Kim, and Yoonhee Lee(KEPCO E&C)
- P012F06 Analysis of IEC 61508 based-SIL Certification Process for Application of Commercial Grade Digital Equipment in Nuclear Power Plants
Hoon-Keun Lee, Yongil Kwon, Sungbaek Park, and Youngmi Kim(KINS)
- P012F07 V-I Curve Analysis for Status Prediction of Nuclear Power Plant Safety-Grade PLC
Ka-ram Park, Su-Hyun Kim, Chi-Uk An, Kwan-Woo Yoo, Gi-Ho Cho, and Dong-Yeon Lee(SOOSAN ENS)
- P012F08 A Study on Turbine Control System using Neural Network for Small Modular Reactor
Kun-Young Han, Dong-Han Yoo, Sa-Kil Kim, and Gee-Yong Park(KAERI)
- P012F09 Design Consideration for Radiation Monitor Development Using Commercial Gamma Detector Module
Sung-Ho Lee and ChangYeop Shin(KAERI)
- P012F10 A Study on the Design of CPS for i-SMR
Chanho Sung, Kyungmin Kim, Jungho Kim, and Jooyoul Lee(KHNP)
- P012F11 Simulation Data Selection Method for the Development of Effective Artificial Intelligence Application for Nuclear Power Plants
Hyun-Chul Lee(KAERI)
- P012F12 Study on the I-SMR Simulator Development and HFE Validation
Kyeong-min KIM, Chan-Ho SUNG, and Joo-Youl LEE(KHNP)
- P012F13 Part Failure Rate Prediction of Digital I&C System according to Various Environmental Conditions in Electrical Equipment Room
Inseok Jang(KAERI)
- P012F14 Exploring Methodologies to Increase the Reliability of Data for Verifying Nuclear Power Plant Artificial Intelligence Software
Da-Young Lee, Han-Gil Lee, and Jeong-Hun Lee(FNC Tech.)
- P012F15 Validation of Plant Control System Design Change
DONGIL LEE(KHNP)

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- PO12F16 **Flight Path Planning and Simulation for Exterior Inspection of a Dome-type Nuclear Containment Building Using UAV**
Daehee Min(Korea Tech), Hocheol Shin, Wonseo Lee, and Dongseok Ryu(KAERI)
- PO12F17 **Motion Analysis of Radioactive Material Sampling Using a Dual Arm Robot in High Radiation Area**
Jongwon Park and Ki Hong Im(KAERI), Gaeun Shin(CNU), Myungsoo Kim(KINAC)
- PO12F18 **Development of a GPS Module for Real-Time Positioning of Radioactive Waste Drums**
Yujin Lee(HYU), Wonseo Lee and Dongseok Ryu(KAERI)
- PO12F19 **Motion Test and Grasping Force Modeling of a Flexure-based Anthropomorphic Gripper**
Ki Hong Im, Seung Hwan Kim, Jongwon Park, and Jinyi Lee(KAERI)
- PO12F20 **Stairway Detection from Point Cloud Data for Robot Operation in Nuclear Facilities**
Sungmoon Joo and Dongseok Ryu(KAERI)
- PO12F21 **Fault Detection Method in the Startup Operation of Nuclear Power Plants**
Jinhui Kang and Jiho Min(KHNP)
- PO12F22 **Deep Learning Based Radionuclide Identification for High Temperature**
Minhwan Park, Jung-Yeol Yeom, and Semin Kim(Korea Univ.), Chanho Kim(KAERI)
- PO12F23 **Reactor Power Generation Prediction using SVR based on Cherenkov Effect**
Taeyoung Ko, Minjong Kim, Jinwon Shin, and Yonggyun Yu(KAERI)
- PO12F24 **Radiation Effect Analysis of CMOS Automatic Gain Control (AGC) Circuit**
Donghan Ki, Namho Lee, and Minwoong Lee(KAERI),
Sungmi Kim, Yurin Jin, and Seongik Cho(JBNU)
- PO12F25 **Technological Trends and Challenges for Detecting and Responding to Cyber Threats in NPP I&C Systems: A Literature Review.**
Jae Hwan KIM, Gwang Seop SON, Jeong Woon LEE, Jae Gu SONG, In Koo HWANG,
and Chul Kwon LEE(KAERI)
- PO12F26 **Feasibility Study on Assumption of Vital Area Identification for Cybersecurity Exercise Scenario**
Dohun Kwon, Kibem Son, and Gyunyoung Heo(KHU), Sejin Beak(KAERI), Seungmin Kim(KINAC)
- PO12F27 **Development of an NPP Cyber Security Test Bed: 1st Phase Development Case**
In Hyo Lee(KINAC)

MEMO

A series of horizontal dotted lines for writing.

학술발표회 회의장 배치도 (Floor Plan)

2F

- ① 201 A, B
- ② 202 A, B
- ③ 203



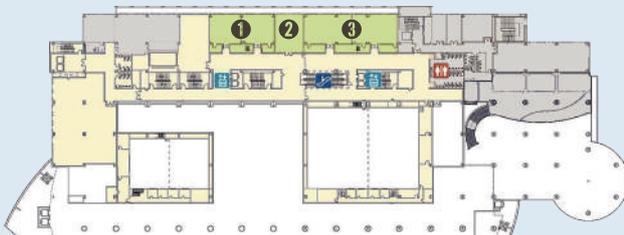
3F

- ① 301
- ② 302
- ③ 300
- ④ 303
- ⑤ 304
- ⑥ 삼다홀(Samda Hall) A,B
- ⑦ 한라홀(Halla Hall) A,B
- ⑧ 델리자(Delizia)
- ⑨ 델리뷰(Deli View)



4F

- ① 401 A, B
- ② 400
- ③ 402 A, B

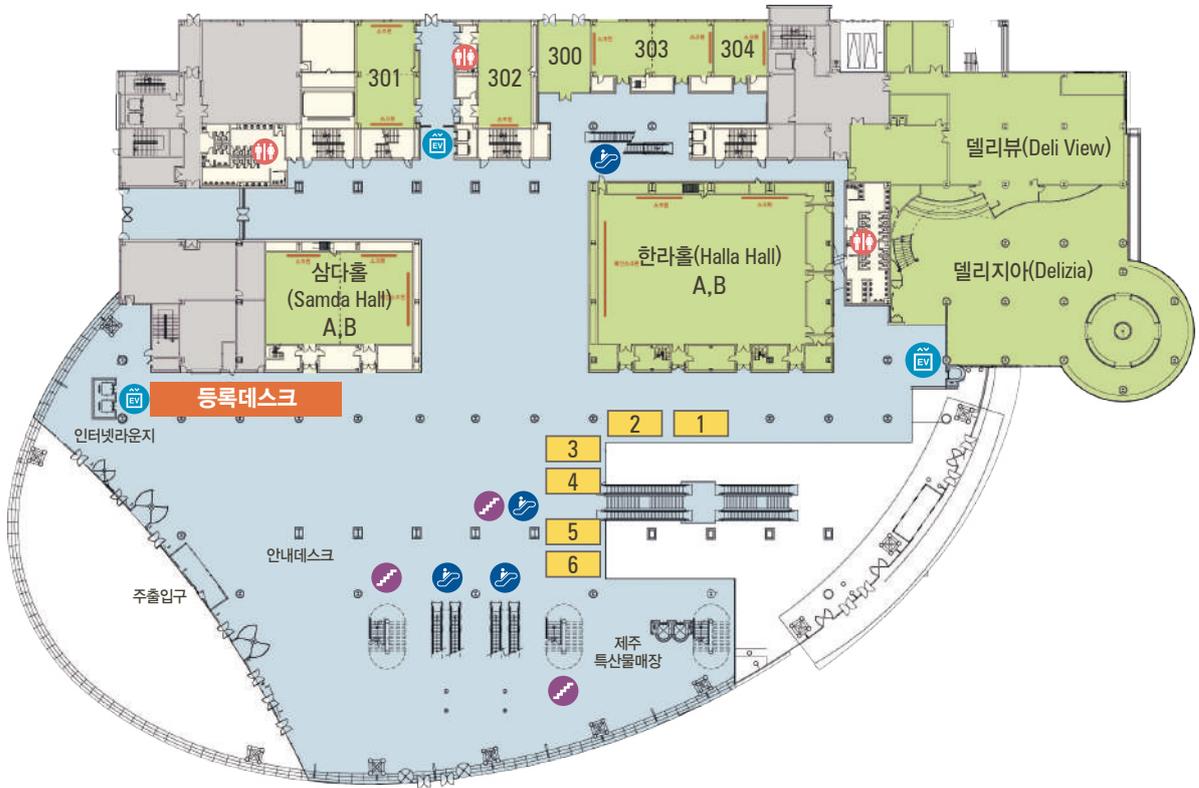


5F

- ① 탐라홀(Tamna Hall)
- ② 오션뷰(Ocean View)



전시 (Exhibition)



위치	기업명
1	
2	
3	

위치	기업명
4	 
5	 한국방사선진흥협회 Korean Association for Radiation Application
6	 한국원자력연구원 Korea Atomic Energy Research Institute

교통편 (Transportation)

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운행표	공항 → 한라병원 → 동광환승정류장 → 중문관광단지입구 → 호텔(그랜드조선제주, 파르나스호텔, 신라호텔, 스위트호텔, 블룸호텔, 롯데호텔, 컨싱턴리조트, 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

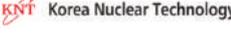
🚖 택시안내 (제주공항 ↔ 중문)

거리	소요시간
약 42km	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

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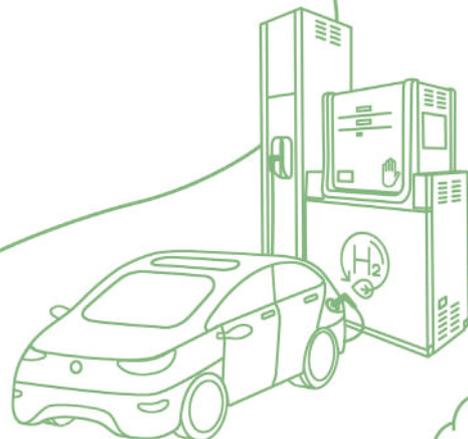
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