

KNS 2021 Spring 온라인 춘계학술발표회

KOREAN NUCLEAR SOCIETY

2021. 5. 12.(수)~14.(금)
Virtual Spring Meeting

(<http://2021springmeeting.kns.org>)



사단
법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

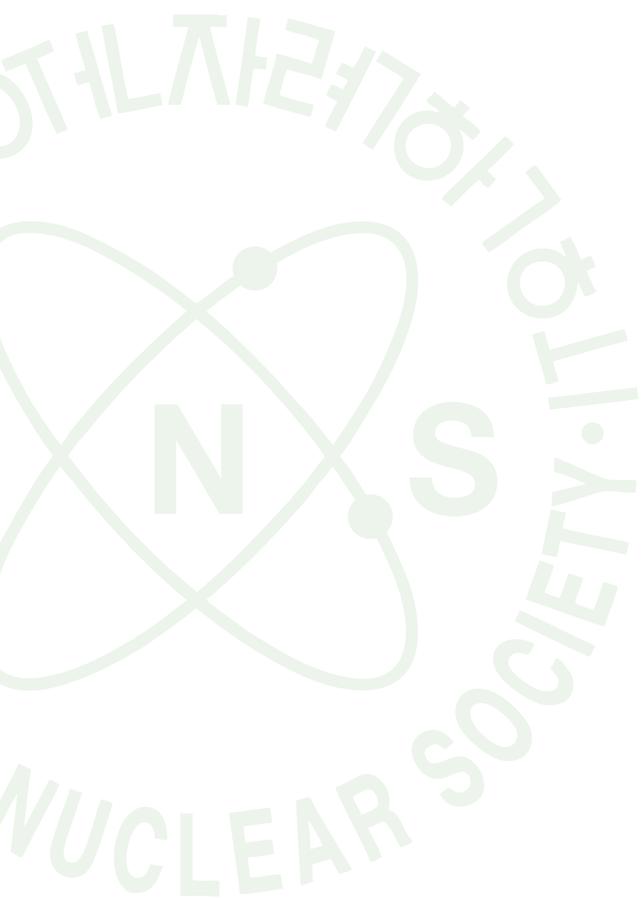
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53	12분과 원자력계측제어, 인간공학 및 자동원격 (Nuclear I&C, Human Factors and Automatic Remote Systems)

[한국원자력학회 특별회원 광고]

학회장 인사말



하재주 학회장

원자력학회 회원 여러분.

또다시 온라인으로 여러분을 뵙습니다. 임기 내에 한번도 여러분을 학회에서 대면하지 못한 최초의 학회장이 된 거 같은데 부디 코로나가 종식되어 유일한 학회장이 되기를 바랍니다.

얼마 전에 두산중공업을 참으로 오랜만에 방문을 하였습니다. 오래전에 방문할 때 발전기 샤프트를 만들기 위해 5백톤의 인고트를 만든 프레스로 두드리는 것을 보고 크게 감명받은 기억이 있습니다. 그때는 만톤 프레스가 한번 움직이면 창원 시내 전기가 꺾였었다던 시절이었습니다. 그리고 몇 년 전까지 원자로와 증기발생기 제작 라인에 수기가 줄을 서 있었는데 이번에 가보니 단 하나의 기기도 라인에 없었습니다. 대신 공장 밖 야적장에는 신한울 3.4호기용 증기발생기의 보다가 녹스는 것을 막기 위해 페인트칠을 한 채 쌓여 있었습니다. 언젠가는 쓰이겠지 하는 희망을 가지고 버리지 못하고 있다 합니다. 참으로 가슴이 울컥하였고 인프라가 무너지는 것이 이런 것이구나 실감했습니다. SMR에 희망을 걸어 보지만 기업이 이런 상태로 몇 년을 버티지 못할 터인데 개발이 되어도 우리가 공급할 수 있을까 걱정이 들었습니다. 물론 두산중공업만의 문제가 아니라 많은 기업들이 같은 처지입니다. 그래서 생태계를 유지하고 또 탄소중립을 달성하기 위해서는 신한울 3.4호기는 반드시 건설이 재개되어야 하는 것입니다.

이메일에서 따로 말씀드렸지만 후쿠시마 오염처리수 관련 입장문 발표 후 친일 프레임에 몰려 오해를 받기도 하지만 국민은 결국 공포보다는 과학을 선택할 것이라고 믿습니다. 여론에 편승하여 사실을 숨기는 것은 과학적 사실을 중시하는 우리의 가치에 반하는 것이라 생각합니다. 잠시 힘들더라도 이러한 가치를 상기고 싶습니다.

그리고, 일본이 후쿠시마 오염처리수 방류를 발표한 후 일반인이 얼마나 방사선 공포에 쉽게 동요되는지를 목도합니다. 과도한 공포가 자리를 잡지 못하게 하려면 우리는 평소와 과학적 사실에 근거한 소통을 지속적으로 해야 한다는 교훈을 또다시 상기하였습니다. 그래서, 원자력 바로 알리기는 참으로 중요합니다. 지금 중고등학교에서는 반핵단체의 원자력에 대한 왜곡된 이미지를 실은 교과서로 교육을 하고 있습니다. 미래의 희망인 중고등 학생에게 이미지가 아니라 과학적 사고를 할 수 있는 교육에 우리 학회가 할 수 있는 방안을 찾고 있습니다. 또한 학회가 모든 것을 다 할 수 없으므로 시민단체들이 운영하는 다양한 원자력 알리기 교육도 최대한 지원하기로 하였습니다. 원자력 관련 많은 기관에서 독립적으로 운영하고 있는 홍보를 모아 유튜브를 포함한 포털을 만들어 좀 더 효율적으로 소통할 수 있는 방안을 진행하고 있습니다. 원자력 이슈 및 소통위원회는 최근에 SMR 특집 유튜브 포럼을 개최하여 많은 호응을 얻었습니다. 원가를 해야 한다는 강박감은 있는데 효과는 참 더디어서 많은 인내와 헌신이 필요한 것 같습니다.

또한 우리 학회의 에너지믹스 특별위원회는 신재생, 화력, 원자력이 어떤 비중을 가질 때 어떤 문제가 있는지 몇 가지 에너지 시나리오를 분석하여 최종 보고서를 작성 중입니다. 지금까지 도출된 인사이트를 여러분과 공유하기 위해 위원장인신 노동석 박사님께서 특별강연할 것입니다. 에너지믹스에 대한 이해에 많은 도움이 되기를 바랍니다.

항상 목마름을 느끼고 항상 부족함을 느낍니다. 그래서 우리는 함께 하여 서로 채워주면서 살아야 하는 것일 겁니다. 오늘이 인생에서 가장 젊을 때이고 새로운 것을 안 하면 메모리에 남는 게 없어 세월이 빨리 간다고 느낍니다. 그래서 새로운 도전을 하면서 모자라는 것을 서로 채워주면 항상 젊게 살면서 1년을 10년처럼 보람 있게 살 수 있는 게 아닐까 생각이 듭니다. 우리 모두 그런 삶을 살기 바랍니다. 비록 춘계학술발표회가 온라인이지만 소중한 소통의 장이 되기를 바라며 회원 여러분 모두 건강하고 행복하십시오.

2021년 5월

한국원자력학회장 하 재 주

한국원자력학회 2021 온라인 춘계학술발표회 전체 일정

I 일정 2021년 5월 12일(수) ~ 14일(금)

구분	내 용		
개회내용	• 학회장 인사말 : 하재주 한국원자력학회장		
	• 축 사 : 용흥택 과학기술정보통신부 제1차관		
	• 수상자 : 2020춘계학술발표회 우수논문상		
	• 장학생 : 2021년도 한국원자력학회 장학생		
특별강연	• 탄소중립을 지향하는 에너지믹스(노동석 에너지믹스특별위원회 위원장) ※ 온라인 학술발표회 시스템에서 발표 영상 스트리밍서비스		
워크숍 5월 12일(수) 14:00~18:00 (ZOOM Live 및 유튜브 동시송출)	• 경수로형 SMR 기술개발(부제 : Green Energy를 위한 원자력의 역할) • 국내 리스크정보활용 규제 현황과 추진방향 • 국내의 최신 방사선 환경 • 소형 중성자원 개발과 이용 - III • 비확산 검증 관련 국내 연구개발 현황 ※ 온라인 학술발표회 등록시 전체 워크숍 무료로 참여 가능		
논문발표	구두논문 (ZOOM Live 및 유튜브 동시송출)	5월 13일(목) 오전	원자로물리 및 계산과학(A) 원자력시설해체 및 방사성폐기물관리(A) 핵연료 및 원자력재료(A) 원자력 열수력(C) 원자력 안전(C) 방사선 방호(A) 방사선이용 및 기기(A) 양자공학 및 핵융합기술(A) 원자력정책, 인력 및 협력(A) 원자력계측제어, 인간공학 및 자동원격(A)
		5월 13일(목) 오후	원자로시스템기술(A) 원자로물리 및 계산과학(B) 원자력시설해체 및 방사성폐기물관리(B) 핵연료 및 원자력재료(B) 원자력 열수력(A) 원자력 열수력(E) 원자력 안전(A) 방사선이용 및 기기(B) 원전건설 및 운영기술(A) 원자력계측제어, 인간공학 및 자동원격(B)
		5월 14일(금) 오전	원자로시스템기술(B) 핵연료 및 원자력재료(C) 원자력 열수력(B) 원자력 열수력(D) 원자력 열수력(F) 원자력 안전(B) 원자력 안전(D) 원전건설 및 운영기술(B)
	포스터논문	5월 12일(수) ~14일(금)	발표자료 또는 발표 동영상 게시

※ 논문발표는 종전 대면개최와 같이 각 세션별 좌장이 있으며, 학술발표회 기간 중 발표된 논문을 평가하며 심사과정을 거쳐 '학술발표회 우수논문'을 선정할 예정임 (우수논문은 각 연구부회별 1편 내외를 선정함)

축사



과학기술정보통신부
용홍택 제1차관

안녕하십니까. 과학기술정보통신부 차관 용홍택입니다.

한국원자력학회 온라인 춘계 학술발표회 개최를 축하합니다. 코로나-19로 인해 어려운 상황에서도 이번 학술발표회를 차질 없이 개최하기 위해 수고를 마다하지 않으신 하재주 학회장님을 비롯한 학회 관계자분들께 깊이 감사드립니다. 또한 논문발표와 토론에 참여해주시는 학회 회원님들께도 감사드립니다.

한국원자력학회는 1969년 창립 이후 꾸준한 학술발표회 개최와 간행물 발간, 학술포럼 개최 등을 통해 우리나라 원자력 학술 및 기술발전에 이바지해 왔습니다. 학생 학술대회 개최 및 장학사업을 통해 미래 원자력을 책임질 꿈나무 육성에도 관심을 기울여 왔습니다. 또한 원자력 소식지 발간을 통해서 산학연 및 국민들과의 소통에도 앞장서 왔습니다.

그간 우리나라 원자력은 안정적이고 깨끗한 전력공급을 통해 국가 발전과 경제성장에 기여하여왔으며, 완전한 기술자립을 기반으로 원전을 수출하는 원자력 기술강국으로 성장하였습니다.

다만, 최근 원자력을 둘러싼 환경이 변화하면서 원자력이 새로운 방향으로 재도약할 것을 요구하고 있습니다. 미래 신시장으로서 다목적 소형원자로(SMR)가 부상하면서 원자력 기술강국들의 각축전이 본격화 되고 있습니다. 국내에서는 원전의 안전성에 대한 국민들의 관심이 높아지고 있는 상황이며, 사용후핵연료 처리문제 또한 원전의 지속가능성을 담보하기 위한 중요한 문제입니다. 이외에도 기후변화위기에 대응하기 위한 탄소중립이 전 세계적인 흐름이 되면서, 이를 위한 원자력의 역할에 대한 논의도 필요한 시점입니다.

정부에서는 우리나라 원자력이 직면한 문제들을 해결하고 더욱 발전할 수 있도록 적극적으로 지원해 나가겠습니다. 원전 안전성을 획기적으로 높일 수 있는 원자력안전 기술개발, 우주-해양 등 다양한 분야에서 활용될 수 있는 소형원자로 개발 및 수출, 사용후핵연료처리-처분 기술개발을 계속 지원하겠습니다. 또한 국민의 의료복지 향상 및 미래 신산업 창출을 위한 방사선 기술개발에도 지원을 아끼지 않겠습니다.

원자력계도 국가 발전과 사회 공헌을 위해 계속 도전하고 노력해 주시길 부탁드립니다. 특히, 우리나라 원자력발전에 주도적 역할을 해온 한국원자력학회가 참신한 아이디어와 혁신적 기술을 공유하는 교류의 장으로서, 그리고 국민과 소통하며 원자력의 청사진을 제시할 수 있는 주역으로서 중추적 역할을 해주실 것으로 기대합니다.

다시 한번 한국원자력학회 온라인 춘계학술발표회 개최를 축하드립니다. 다음에는 코로나-19가 종식되어 여러분들을 직접 만나 뵈 수 있길 기대하며, 한국원자력학회의 앞날에 무궁한 발전이 있기를 기원합니다. 감사합니다.

2021년 5월

과학기술정보통신부 제1차관 **용 홍 택**

[논문발표자] 참가요령

1. 구두 발표는 실시간 온라인 발표(zoom)로 진행되며 ‘온라인학술발표회 전용페이지’ 접속 후 개인 별 해당하는 발표 세션에 접속하여 실시간 발표를 진행합니다.
 ※ 온라인 발표는 유튜브로 동시 송출 됩니다.
2. 포스터 발표는 발표자료 게시를 통해 발표가 진행되며, 사전에 발표자료를 제출한 경우만 발표(게재)로 인정됩니다. 발표자는 본인 발표논문에 대한 질의가 등록된 경우 이에 대한 답변을 진행하여 주시면 됩니다.
 ※ 행사 기간 중 본인 발표논문에 대한 질의가 등록된 경우, 등록 안내 메일 발송
 ※ 발표자료는 시스템 설계상 다운로드가 불가능하며, 불법촬영을 금합니다.
 행사 종료 이후 발표자료는 서비스 되지 않습니다.
3. 학술발표회 발표 논문 중 우수한 논문을 각 연구부회에서 추천 받아 학회 포상 및 장학위원회의 심사를 통해 학술발표회 우수논문상을 선정합니다.
4. 학술발표회 종료 후 실시간 발표(구두) 및 발표자료를 업로드(포스터)한 논문에 한해 논문 게재 증명서를 발급합니다.
5. 채택된 논문은 필히 등록비를 납부하여야 합니다.
 (※등록비를 납부하셔야 행사 기간중에 ‘온라인학술발표회 전용페이지’에 로그인 및 참여가 가능합니다.)

6. 학술발표회 등록비

구 분	기 준	on-line 등록비
학 생	학부생 및 대학원생	64,000원
원로회원	정회원 중 만65세 이상인 회원	면제
평생회원	연회비 10년분을 일시납 한 회원	120,000원
정회원A	2021년도 연회비 납부회원 2021년에 가입한 신규회원	
정회원B	2021년도 연회비 미납회원	160,000원
비 회 원	-	160,000원

※ 정회원B : 2021년도 정회원 연회비를 미납한 회원으로 2021년도 연회비 납부 시 정회원A로 전환됩니다.
 (종전처럼 학술발표회 등록비와 연회비는 별도로 운영되오니 이 점 양지 바랍니다.)

[일반참가자] 참가요령

1. 온라인학술발표회는 등록비를 납부한 분에 한해 참여가 가능하며, 워크숍은 별도의 추가 참가비 없이 등록비를 납부하시면 모두 참여 가능합니다.
2. 모든 참가자는 1인 1계정 사용을 원칙으로 하고 있습니다.
3. 구두발표는 발표 일정에 따라 해당 세션에 접속(ZOOM Live 및 유튜브)하여 참여 가능하며, 포스터 발표는 학술발표회 기간 중 자유롭게 참여 가능합니다.
 - 질의는 댓글로 남겨 주시면 발표자에게 알림 메일이 발송되며 발표자께서 질의 확인 후 답변드릴 예정입니다.
 - 질의는 일과 시간 중(09:00 ~ 18:00) 이용할 것을 권장합니다.
4. 발표자료는 시스템 설계상 다운로드가 불가능하며, 불법촬영을 금합니다.
행사 종료 이후 발표자료는 서비스 되지 않습니다.
5. 학술발표회 참가증명서는 등록비를 납부한 분에 한해 홈페이지를 통해 발급 가능합니다.
(※등록비를 납부하셔야 행사 기간중에 '온라인학술발표회 전용페이지'에 로그인 및 참여가 가능합니다.)
6. 학술발표회 등록비

구 분	기 준	on-line 등록비
학 생	학부생 및 대학원생	64,000원
원로회원	정회원 중 만65세 이상인 회원	면제
평생회원	연회비 10년분을 일시납 한 회원	120,000원
정회원A	2021년도 연회비 납부회원 2021년에 가입한 신규회원	
정회원B	2021년도 연회비 미납회원	160,000원
비 회 원	-	160,000원

※ 정회원B : 2021년도 정회원 연회비를 미납한 회원으로 2021년도 연회비 납부 시 정회원A로 전환됩니다.

(중전처럼 학술발표회 등록비와 연회비는 별도로 운영되오니 이 점 양지 바랍니다.)

※ 행사 기간 중에도 등록비 결제가 가능합니다.

한국원자력학회 제33대 임원진

회장



하재주

수석부회장



정동욱

부회장



김균태



김미숙



양준연



최남우



최성민

감사



나기용



진태은

총무이사



박상길



정재호

사업이사



이병진



장희승

재무이사



권정택



박석빈

국제협력이사



박준경



이정익

기획이사



정승영



최성열

고급정책연구소



이기복 소장

학술이사



이승준



정재학

편집이사



김응수



김지현

홍보이사



방인철



한은옥

대학·청년이사



김동억



윤봉요

특임이사



문주현



형상철

한국원자력학회 원자력이슈 및 소통위원회 위원

위원장



정동욱

당연직 위원



권태순



김군태



김민환



김찬형



김창희



방인철



이도환



이동원



이은기



이희석



장창희



정범진



정승영



차완식



최성열



한은옥

임명직 위원



김동익



김성중



노동석



문주현



박문규



박상길



박성운



신동호



심형진



안호선



양준연



양진화



유동인



윤봉요



유지웅



이기복



이승준



이유한



이유호



이정익



이준엽



이현철



장희승



정재호

한국원자력학회 편집위원회 위원

위원장



나만균

국내 부위원장



구양현



김은희



최기용

국외 부위원장



Shinya Nagasaki



Hideo Nakamura



Won Sik Yang

국내 위원



김응균



김응희



김윤재



김원주



김지현



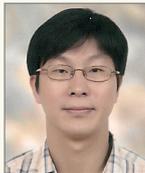
김응수



김인규



김창락



선광민



신형기



이동원



임호곤



정명조



정범진

국외 위원



Akio Gofuku



Didier Jacquemain



John C. Jin



Jean Noiro



Elia Merzari



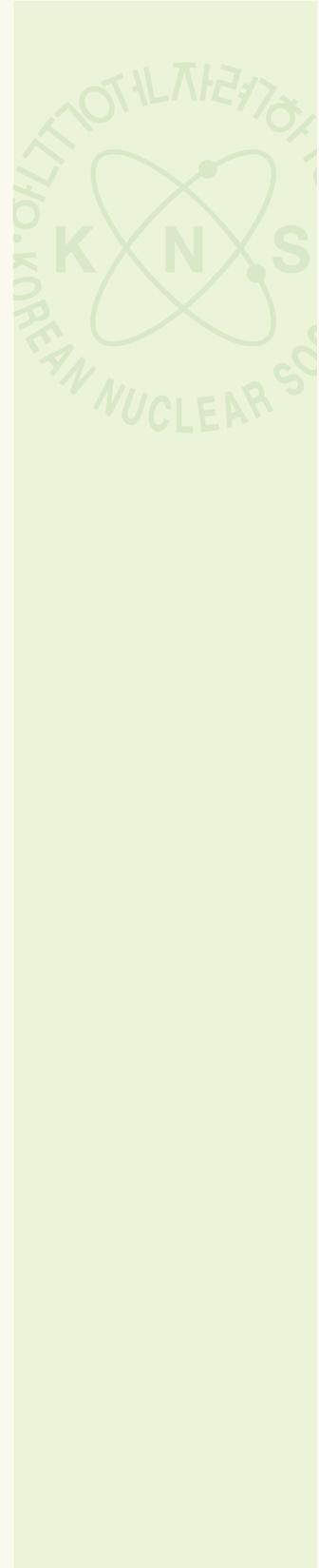
Dominique Bestion



Guanghui Su



Belle R. Upadhyaya



한국원자력학회 연구부회장/차기연구부회장 · 지부장

연구부회장/차기연구부회장

원자로시스템기술



김민환



이태호

방사선 방호



이희석



김희령

원자물리 및 계산과학



이은기



홍서기



김찬형



문명국

방사선 이용 및 기기

원자력시설해체 및 방사성폐기물관리



차완식



임상호



이동원



권혁중

양자공학 및 핵융합기술

핵연료 및 원자력재료



장창희



양재호



이도환



류정수

원전건설 및 운영기술

원자력열수력



권태순



윤병조

원자력정책, 인력 및 협력



정범진



임재영

원자력 안전



김군태



박현선

원자력계측제어, 인간공학 및 자동원격



김창희



김종현

국내외 지부장



송종순
광주/전남/전북 지부



이상훈
대구/경북 지부



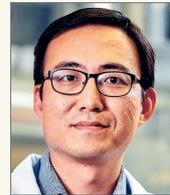
윤병조
부산/울산/경남 지부



강현국
미국 지부



UAE 지부



임 준
IAEA/Europe 지부

청년지부



박재영 지부장

여성지부



김영미 지부장

학생지부



고유정 지부장



이유호 지도교수

한국원자력학회 포상 및 장학위원회 위원/사무국

위원장



최남우

사무총장



남장수

위원



김교윤



김동익



김응수



김태룡

실장



민현정



박범서



어근선



윤봉요



윤종일

팀장



송지현



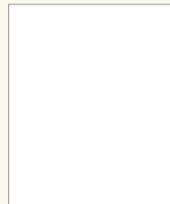
이승준



이은기



이정표



이희범

대리



유진현



전경락



정재학



채수열

직원



노예진

특별강연

| 일시 2021년 5월 12일(수) ~ 14일(금)



노 동 석

서울대학교 원자력정책센터
연구위원

넥스트에너지코퍼레이션
본부장

원자력학회 에너지믹스
특별위원회 위원장

(전)에너지경제연구원
전력정책연구 본부장

탄소중립을 지향하는 에너지믹스

세계가 탄소중립 시대를 향해 달려가고 있습니다. 세계 여러 곳에서 발생하는 폭한, 혹서, 홍수, 가뭄과 같은 이상기후 현상은 지구온난화 때문이라는 것이 IPCC의 결론입니다. 폭한과 혹서는 최강국가 미국의 두 차례 정전 원인이 되었습니다. 작년 말 대통령의 탄소중립 선언, 정부의 2050 탄소중립 추진전략(안) 발표로 우리도 탄소중립 대열에 합류했습니다. 그러나 아직 실행계획이 없어 구호에 그치고 있는 것이 현실입니다. 약간의 차이가 있을 뿐 다른 나라들도 비슷한 상황입니다.

탄소중립을 지향하는 각국의 에너지정책에서 우선하는 공통 전략은 석탄을 에너지공급원에서 퇴출하는 것입니다. 다른 점은 자국이 보유한 무탄소 에너지자원과 기술의 활용도를 최대한 높이는 방안을 찾는 것입니다. 스웨덴은 수력자원, 바람이 잘 부는 덴마크는 풍력자원 개발에 주력합니다. 자원이 부족한 나라들은 재생에너지와 원전을 주요 대안으로 고려합니다. 영국, 일본 등이 그렇습니다. 재생에너지만을 고집하는 국가는 독일과 우리뿐입니다. 비슷한 듯하지만 독일과 우리는 에너지여건이 다릅니다. 독일이 우리와 크게 다른 점은 전력 수출입이 가능하다는 점입니다. 그래서 최악의 상황은 피해갈 수 있습니다.

탄소중립은 비전력 에너지소비의 전력화를 요구합니다. 대표적인 예가 자동차입니다. 휘발류, 경유차는 전기차, 수소차로 대체되어야 합니다. 물론 전기는 무탄소 전기, 수소는 그린수소이어야 합니다. 산업용, 수송용 에너지소비비중이 높은 우리에게 탄소중립은 전력수요의 대폭 증가를 가져올 것입니다. 증가하는 전력수요를 재생에너지와 그린수소발전만으로 공급하겠다는 우리 정부의 전략은 실현가능하지 않습니다.

탄소중립을 지향하겠다는 정부·여당은 최근까지도 "탈석탄, 탈원전, 재생에너지, 그린수소 중심 사회로 빠르게 전환해야 한다"며 탈원전 정책을 지속하고 있습니다. 원자력은 가동중 탄소배출이 '0'입니다. 우리의 원전 공급망은 세계 최고의 경쟁력을 확보하고 있습니다. 우리의 탄소중립에 원자력이 활용되어야 할 이유입니다.

지난 몇 달 동안 에너지믹스 특위는 미래의 몇 가지 에너지믹스 Case를 상정하고 온실가스 배출, 경제적 파급영향 등을 분석했습니다. 미래 에너지정책 방향 설정에 도움이 되기를 희망합니다.



2021 춘계학술발표회 수상자 명단

학술발표회 우수논문상 (2020 추계학술발표회 발표논문)



김상언
(조선대학교)



김재민
(울산과학기술원)



김태석
(한양대학교)



배성환
(주이엔이티)



박건희
(한양대학교)



박성대
(한국원자력연구원)



이성남
(한국원자력연구원)



이준영
(한국원자력연구원/
서울대학교)



이창민
(포항공과대학교)



장상훈
(서울대학교)



정연홍
(한국원자력통제기술원)



Faris B. Sweidan
(한국과학기술원)



2021 춘계학술발표회 장학생 명단

2021년도 한국원자력학회 장학생

경북대학교



유세영

경희대학교



곽민우



윤성하



이진혁

단국대학교



신동근

동국대학교



박지영



남태욱



배규민

부산대학교



임예은



이진규

서울대학교



김동민



김태완



윤지원

세종대학교



장지혜



엄정현

울산과학기술원



박진수



김원경

제주대학교



고단우



서준원

조선대학교



이지용



구영도

중앙대학교



송시원



정성훈

포항공과대학교



Hafeez,
Muhammad
Aamir

한국과학기술원



주세민



김효이



김현태

한양대학교



이교은



이정수

한국전력국제원자력대학원대학교

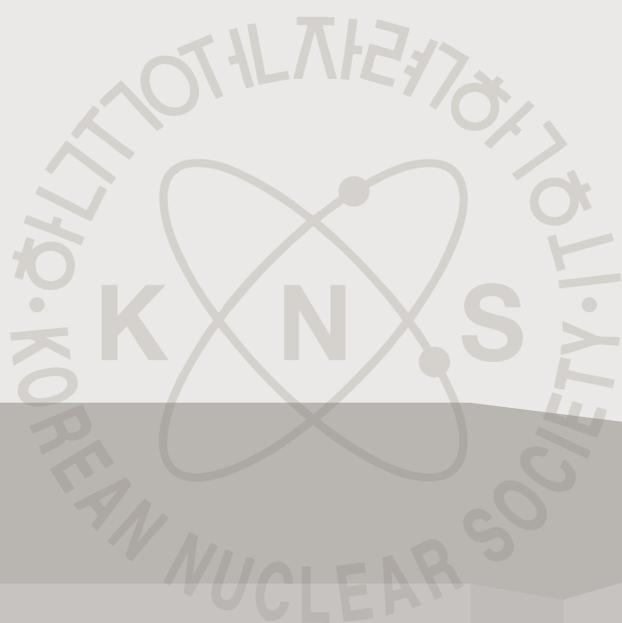


Ahmed Mohammed
Abd El-Hameed Abd
EL-Samed

KOREAN NUCLEAR SOCIETY

KNS 2021 Spring
온라인 춘계학술발표회

Workshop



Workshop

경수로형 SMR 기술 개발 (부제: Green Energy를 위한 원자력의 역할)

| 일시 2021년 5월 12일(수) 14:00~17:00

| 주최 한국원자력학회 원자로시스템기술 연구부회

일 정	내 용
14:00 ~ 14:05	기념 촬영
14:05 ~ 14:10	소개 (사회자)
14:10 ~ 14:25	SMR 전망과 과제, 정동욱, (중앙대학교)
14:25 ~ 14:40	SMR 시장, 이동형, (한국원자력연구원)
14:40 ~ 14:55	해양 분야 SMR, 이병진, (한국전력기술)
14:55 ~ 15:10	육상 분야 SMR, 강한옥, (한국원자력연구원)
15:10 ~ 15:30	혁신 SMR 개발 계획, 허선, (한국수력원자력)
15:30 ~ 15:45	SMR 혁신 제작 기술, 조성우, (두산중공업)
15:45 ~ 16:00	혁신 SMR과 규제 요건 개발 방향, 설광원, (한국원자력안전기술원)
16:00 ~ 16:30	패널 토의 (사회: 강한옥) 박문규(세종대학교), 김용학(한수원CRI), 이태호(한국원자력연구원), 신안동(한국원자력안전기술원)
16:30 ~ 17:00	온라인 질의/답변

| 기타사항 온라인-오프라인 병행

※ 오프라인 참석자는 발표자와 패널에 한정함.

문의처 : 강한옥 / 한국원자력연구원 / 042-868-2758 / hanokang@kaeri.re.kr

국내 리스크정보활용 규제 현황과 추진방향 워크숍

| 일시 2021년 5월 12일(수) 14:00~18:00

| 주최 한국원자력학회 원자력안전 연구부회

일 정	내 용
14:00 ~ 14:10	인사말
14:10 ~ 14:40	국내 리스크 정보활용 의사결정 활성화 방안, 양준언 (한국원자력연구원)
14:40 ~ 15:10	안전중요도 기반 의사결정 체제 구축 추진 현황, 변충섭 (한국수력원자력)
15:10 ~ 15:40	국내 리스크정보활용 규제 현황, 김도형 (한국원자력안전기술원)
15:40 ~ 16:00	Coffee break
16:00 ~ 16:30	안전중요도 결정 프로세스 개발 현황, 정원대 (한국원자력연구원)
16:30 ~ 17:00	주요국 가동원전 규제감독체계 및 국내 추진 방향, 정수진 (한국원자력안전기술원)
17:00 ~ 18:00	패널 토의

| 기타사항 문의처 : 김만철 / 중앙대학교 / 02-820-5907 / charleskim@cau.ac.kr

Workshop

국내의 최신 방사선 환경

| 일시 2021년 5월 12일(수) 14:00~18:00

| 주최 한국원자력학회 방사선방호 연구부회, 한국원자력안전기술원

일 정	내 용
14:00 ~ 14:10	연구부회장 환영사, 이희석 (포항가속기연구소)
14:10 ~ 14:20	‘우리나라 국민의 자연 및 인공 방사선 피폭량 조사’ 연구 소개 및 인사말, 정규환 (한국원자력안전기술원)
	Session I 좌장 : 정규환 (한국원자력안전기술원)
14:20 ~ 14:50	라돈 피폭 현황 및 관리방안, 이재기 (KARP 방사선안전문화연구소)
14:50 ~ 15:20	항공승무원 우주방사선 피폭 관련 연구현황 및 전망, 이재진 (한국천문연구원)
15:20 ~ 15:50	삼중수소 피폭의 이해, 강건욱 (서울대학교 의과대학)
15:50 ~ 16:10	Coffee Break
	Session II 좌장 : 최원철 (한국원자력안전기술원)
16:10 ~ 16:40	국민의 자연방사선 피폭량 조사 최신 현황, 김용재 (한국원자력안전기술원)
16:40 ~ 17:10	국민의 인공방사선 피폭량 조사 최신 현황, 김광표 (경희대학교)
17:10 ~ 17:40	생활주변 방사선 안전규제 현황 및 추진방향, 최원철 (한국원자력안전기술원)
17:40 ~ 18:00	종합 질의응답

| 기타사항 문의처 : 한기영 / 한국원자력안전기술원 / 042-603-3029 / k732hgy@kns.re.kr

소형 중성자원 개발과 이용 - III

| 일시 2021년 5월 12일(수) 14:00~18:00

| 주최 한국원자력학회 양자공학 및 핵융합기술 연구부회, 방사선이용 및 기기 연구부회 (공동주최)

일 정	내 용
14:00 ~ 14:10	인사말 (연구부회장) 사회(이창희/이동원)
14:10 ~ 14:30	국내의 CANS 현황 - KCANS/UCANS/IAEA 활동 (이동원/이창희, 한국원자력연구원)
14:30 ~ 14:50	소형중성자 선원 개발과 응용 산업화 전략 마련을 위한 국내외 현황분석 (채중서, 성균관대학교)
14:50 ~ 15:05	30MeV 사이클로트론 기반 중성자원 및 중성자영상화 기술 개발 현황 (정봉기, 한국원자력연구원)
15:05 ~ 15:20	KOMAC 100MeV 중성자빔 개발 계획 (문명국, 한국원자력연구원)
15:20 ~ 15:35	A use of 70-MeV cyclotron facility of RISP for CANS study (김종원, 기초과학연구원)
15:35 ~ 15:50	PAL 전자가속기를 이용한 중성자원 개발 현황 (이희석, 포항가속기연구소)
15:50 ~ 16:05	A-BNCT 현황 (김동수, 다원시스)
16:05 ~ 16:20	KIRAMS R&D project for tandem accelerator based BNCT (홍봉환, 원자력의학원)
16:20 ~ 16:40	휴 식
16:40 ~ 17:10	BNCT 최신 동향 소개 (서효정, 다원메덱스)
17:10 ~ 17:40	반도체 가속 평가 최신 동향과 평가용 빔의 중요성 (정성수, QRT)
17:40 ~ 18:00	마무리: 이동원/이창희 (한국원자력연구원)

| 기타사항 문의처 : 이동원 / 한국원자력연구원 / 010-6403-0655 / dwlee@kaeri.re.kr
이창희 / 한국원자력연구원 / 010-5505-3696 / leech@kaeri.re.kr

Workshop

비확산 검증 관련 국내 연구개발 현황

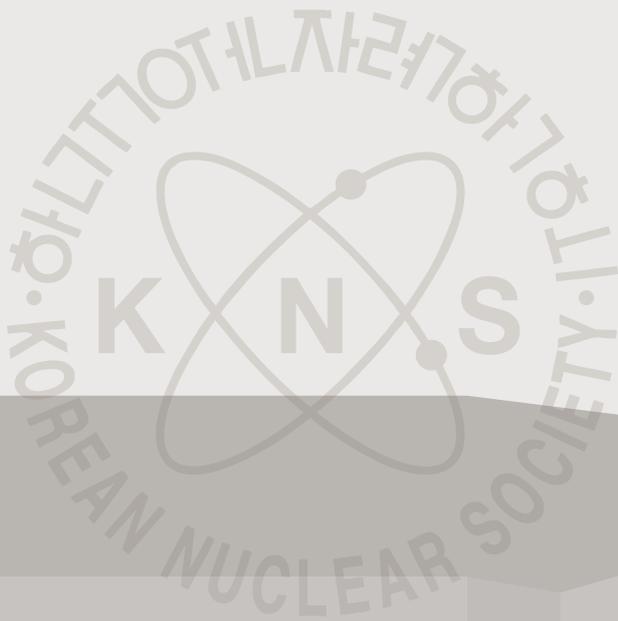
| 일시 2021년 5월 12일(수) 14:00~18:00

| 주최 한국원자력학회 원자력 정책,인력 및 협력 연구부회, 한국원자력통제기술원(공동 개최)

일 정	내 용
14:00 ~ 14:10	개회사, 유호식(KINAC)
14:10 ~ 15:00	KINAC Physical Model 플랫폼 개발 연구 소개, 정연홍(KINAC)
15:00 ~ 15:50	위성영상 전처리 및 분석 알고리즘 개발 연구 소개, 김민수(KINAC)
15:50 ~ 16:20	휴 식
16:20 ~ 17:10	핵물질 탐지를 위한 소형 방사선 검출기 설계-제작 연구 소개, 김명수(KINAC)
17:10 ~ 17:50	패널 토의: 원자력 활동 탐지 및 기술장비 개발을 위한 학계와 협력 방안 논의 - 사회: 백승혁(KINAC) - 토론: 김기현(세종대), 김용민(대구카톨릭대), 최성열(KAIST)
17:50 ~ 18:00	마무리 및 폐회

| 기타사항 문의처 : 도호정 / 한국원자력통제기술원 / 042-860-9826 / hojungd@kinac.re.kr

분과별 논제 및 발표자



1A
5. 13(목)중소형경수로 및 중수로
(Small and Medium Pressurized Water Reactor and Heavy Water Reactor)

| 좌장 권혁(Hyuk Kwon), 배준호(Junho Bae)

| 발표장소 온라인

- 13:30 Passive X Cooling for Innovative SMR Safety System
Sung-jae Yi, Byong Guk Jeon, Jin-Hwa Yang, Hwang Bae, Hyun-Sik Park, Sung-Uk Ryu, Sun-Il Lee, Yoon-Gon Bang, and Eo-Jin Jeon(KAERI)
- 13:50 A Study on Fast Startup Simulation of the Soluble-Boron-Free SMR ATOM
Yunseok Jeong, Ahmed Amin E. Abdelhameed, and Yonghee Kim(KAIST)
- 14:10 Preliminary Analysis of Coupling Supercritical CO₂ Cycle and Natural Draft Dry Cooling Tower for Small Modular Reactor Application
Jihun Lim, Doyoung Shin, Taeseok Kim, Jae Hyung Park, and Sung Joong Kim(HYU), Jeong Ik Lee(KAIST)
- 14:30 Delayed-Photoneutron Calculator for 37-Element Fuel Bundle in CANDU-6 Lattice
Yanuar Ady Setiawan and Douglas Fynan(UNIST)
- 14:50 Effect of Power Distribution Change on T/H Parameters by using CUPID
Eun Hyun Ryu and Jong Yub Jung(KAERI)
- 15:10 Necessity of Accident Analysis Tool for CANDU Spent Fuel Pool
JONG YEOB JUNG(KAERI)
- 15:30 High Temperature Oxidation of the Feeder Pipe and its Potential Risk as the Hydrogen Gas Management during SB-LOCA of CANDU Reactor
Jun-young Kang, Dong Gun Son, Yong Mann Song, Jong Yeob Jung, and Jun Ho Bae(KAERI)
- 15:50 Influence of the LOCA Break Size at Failure Time of CANDU Fuel Channel
Jun-young Kang, Dong Gun Son, Yong Mann Song, Jong Yeob Jung, and Jun Ho Bae(KAERI)
- 16:10 Variation of Mechanical Property due to Short Range Ordering by Thermal Aging up to 20,000 Hours in Zr-2.5%Nb CANDU Pressure Tube
SungSoo Kim and Jong Yub Jung(KAERI), Young Suk Kim(MACTEC)

1B
5. 14(금)액체금속로 및 고온가스냉각로
(Liquid Metal Reactor and High-Temperature Gas-cooled Reactor)

| 좌장 김대희(Dehee Kim), 박병하(Byung Ha Park)

| 발표장소 온라인

- 09:00 Flow Accelerated Corrosion Experiment in LBE for Corrosion Modeling Development Using Impeller Equipped Facility
Jaewon Choi and Youho Lee(SNU)
- 09:20 Experimental Study of Impingement Wastage Caused by Sodium Water Reaction in the Printed Circuit Steam Generator
Siwon Seo(ACT Co.), Sangji Kim(KAERI), Haeun Noh and Jaeyoung Lee(HGU)

-
- 09:40 **Criticality Concerns on Transportation of a Small Modular Marine Reactor**
Myung Hyun Kim and Seong Jun Yoon(KHU)
 - 10:00 **Development of Heat Transfer Analysis Code for Heat Pipe Cooled Space Reactor Core**
SUNG NAM LEE, Sung Hoon Choi, and Chan Soo Kim(KAERI)
 - 10:20 **3D Printed Heat Pipe Design for Space Nuclear Reactor Application**
Ye Yeong Park and In Cheol Bang(UNIST)
 - 10:40 **CFD Investigation on Shape Effect of Helically Wrapped Wire Spacer in a Heat Pipe**
Gi-Uk Choi, Han-Seop Song, and Jae-Ho Jeong(Gachon univ), Su-Jong Yoon and Min-Seop Song(INL)
 - 11:00 **Parametric Study of a High Temperature Heat Pipe with Hybrid Wick Structure**
Byung Ha Park and Chan Soo Kim(KAERI)
 - 11:20 **Experimental Study of a Screen Wick Alkali-Metal Heat Pipe with a Pressurized Gas-Cooled Condenser**
Sung Deok Hong, Byung Ha Park, and Chan Soo Kim(KAERI)
-

1C

가압경수로 (Pressurized Water Reactor) – POSTER

| 좌장 이송규(Song Kyu Lee), 문주형(Joo Hyung Moon)

| 발표장소 온라인

-
- P01C01 **Preliminary Economic Analysis of Nuclear Integrated Liquid Air Energy Storage System**
Jung Hwan Park and Jeong Ik Lee(KAIST)
 - P01C02 **Experimental Setup for Tank Stratification in the Liquid Air Storage Tank in the Liquid Air Energy Storage Integrated to PWR Steam Cycle**
Jin Young Heo, Hak Beom Lee, and Jeong Ik Lee(KAIST)
 - P01C03 **Thermodynamic Study of Liquid CO₂ Energy Storage System Integrated to a Conventional PWR**
Yong Jae Chae and Jeong Ik Lee(KAIST)
 - P01C04 **Thermodynamic Analysis of Hydrogen Power Generation Integrated Pressurized Water Reactor**
Seunghwan Oh and Jeong Ik Lee(KAIST)
 - P01C05 **Comparison Analysis of Thermal and Mechanical Integrated Liquid Air Energy Storage System with Pressurized Water Reactor**
Seok Ho Song, Jung Hwan Park, Jin Young Heo, and Jeong Ik Lee(KAIST)
 - P01C06 **Preliminary Thermal Sizing of PRHRS Heat Exchanger for Innovative Next Generation SMART Plus**
Joo Hyung Moon and Seungyeob Ryu(KAERI)
 - P01C07 **An Experimental Setup for Thermal Oscillation Near the Dryout Front in the Single Semi-Circular Channel**
Jin Su Kwon, Sung Gil Shin, and Jeong Ik Lee(KAIST), Sang Ji Kim(KAERI)
 - P01C08 **Preliminary Computational Study on Conduction Thermal Resistance for a Zigzag Printed Circuit Heat Exchanger with Monitoring Channels**
Cheong Bong Chang, Joo Hyung Moon, Hyunjun Cho, Hun Sik Han, and Seungyeob Ryu(KAERI)
 - P01C09 **Added Mass and Under-Water Damping of Flexible Tube in Staggered Tube Array for Estimating Instability Constant**
Kang-Hee Lee and Heung-Seok Kang(KAERI), Jong-In Kim and Doo-Ho Hong(DOOSAN)
 - P01C10 **Preliminary Sizing of Printed Circuit Steam Generators with Zigzag Channels**
Seok Kim and Sang Ji Kim(KAERI)
 - P01C11 **Code-to-Code Validation of a Closed Multichannel Analysis Code for Core Flow Distribution in Pressurized SMR using MARS-KS**
Juhyung Lee, K. W. Seo, H. Kwon, S. J. Kim, H. Seo, and D. H. Hwang(KAERI)
-

1D

액체금속로, 고온가스냉각로, 연구용원자로

(Liquid Metal Reactor, High-Temperature Gas-cooled Reactor, Research Reactor) - POSTER

| 좌장 박홍범(Hong Beom Park), 이성남(Sung Nam Lee)

| 발표장소 온라인

- PO1D01 High Temperature Fatigue Tests and Creep Tests of P91 Material Subjected to Induction Pipe Bending Process
Jong-Bum Kim, N.H. Kim, S.K. Kim, and C.G. Park(KAERI)
- PO1D02 Application of Trans-Critical CO₂ Power Conversion System in MicroURANUS
Sungwook Choi, Bong Seong Oh, and Jeong Ik Lee(KAIST)
- PO1D03 Development Status of Lead-Bismuth-Cooled Fast Reactor for Marine Application
Tung Dong Cao Nguyen, Muhammad Farid Khandaq, Eun Jeong, Jiwon Choe, Douglas Fynan, and Deokjung Lee(UNIST)
- PO1D04 Design of Main Components of Refueling Decay Heat Removal System for the PGSFR
Yohan Jung, Huee-Youl Ye, Jonggan Hong, and Jae-Hyuk Eoh(KAERI)
- PO1D05 Preliminary Design of Na-CO₂ PCHes for Thermal Energy Storage and Utilization System
Dehee Kim, Tae-ho Lee, Jonggan Hong, and Jae-Hyuk Eoh(KAERI)
- PO1D06 Vibration System Analysis of Radial Magnetic Bearing for MMR Condition
Dokyu Kim and Jeong Ik Lee(KAIST), SeungJoon Baik(KAERI)
- PO1D07 Study of Automatic Control for Supercritical CO₂ Cycle
Yongju Jeong, Gihyeon Kim, and Jeong Ik Lee(KAIST)
- PO1D08 Validation of the Modified MARS Code for Modeling of S-CO₂ Cycle Using Compressor Test Results from KAIST
Jeong Yeol Baek, Jae Jun Lee, and Jeong Ik Lee(KAIST)
- PO1D09 Geometrical Effect of the Reactor Pool for the Performance of Siphon Breaker in a Research Reactor using Computational Fluid Dynamics
Hong Beom Park, Minkyu Jung, Seong Hoon Kim, and Kyoungwoo Seo(KAERI)
- PO1D10 Experimental Study on the Break Accident for the Negative Pressure Pipe in the Primary Cooling System of a Research Reactor
Minkyu Jung, In Guk Kim, Jaesik Kwak, Ki-Jung Park, Kyoung Woo Seo, and Seong-Hoon Kim(KAERI)
- PO1D11 Water Pressure Distributions on Pool Door for Research Reactor
Kwangsub Jung, Taejin Kim, and Jinho Oh(KAERI)
- PO1D12 Preliminary Design of Heat Exchanger Considering in Operating Flow Rate Range in a Research Reactor
Ki-Jung Park, In Guk Kim, Kyoungwoo Seo, and Seong-Hoon Kim(KAERI)
- PO1D13 Core Thermal Hydraulic Characteristics of Open Pool Type Research Reactors
Hyung Min Son, Kiwon Song, and Jonghark Park(KAERI)
- PO1D14 Calculation and Application of Minimum Sump Volume
Hwanho Lee and Jinho Oh(KAERI)
- PO1D15 Prediction of Low-Pressure Critical Heat Flux using SPACE-RR Code
Hyung Min Son and Dongwook Jang(KAERI)

2A

5. 13 (목)

원자로해석방법론 (Reactor analysis method)

| 좌장 이덕중(Deok Jung Lee), 이현철(Hyun Chul Lee)

| 발표장소 온라인

-
- 09:00 Verification of MCS Particle Transport Calculations using the Sky-Shine Experiment in the SINBAD Benchmark.
Xiaoyong Feng and Hyun Chul Lee(PNU), Deokjung Lee(UNIST)
 - 09:20 A Study on Reconstruction of Intra Fuel Pin Power and Flux Distribution with the iDTMC Method in the Monte Carlo Reactor Analyses
Inhyung Kim and Yonghee Kim(KAIST)
 - 09:40 A Comparison of Time-Dependent Monte Carlo Frameworks: Predictor-Corrector Quasi-Static Method and Dynamic Simulation
HyeonTae Kim and Yonghee Kim(KAIST)
 - 10:00 Nuclear Data Uncertainty Estimation in DeCART Calculations by Stochastic Sampling Method
Ho Jin Park and Jin Young Cho(KAERI)
 - 10:20 Embedded Pin Power Reconstruction in APEC Leakage-Corrected Nodal Analysis
Seongdong Jang, Yunseok Jeong, and Yonghee Kim(KAIST)
 - 10:40 A Study on the Convergence Behaviour of the Hybrid Coarse Mesh Finite Difference (HCMFD) Method
Taesuk Oh and Yonghee Kim(KAIST)
 - 11:00 Impact of Training Dataset Reduction on the Prediction Accuracy of Nuclear Design Parameters using Convolutional Neural Network
Siarhei Dzianisau, Muhammad Farid Khandaq, and Deokjung Lee(UNIST)
 - 11:20 Applicability of the GPS Method for Burnup-Dependent Leakage Correction in Pin-Wise Two-Step Reactor Analysis
Haesun Jeong and Yonghee Kim(KAIST), Hwanyeal Yu(KEPCO NF)
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2B

5. 13 (목)

원자로물리 및 일반 (Reactor Analysis General)

| 좌장 박호진(Ho Jin Park), 임재용(Jae-Yong Lim)

| 발표장소 온라인

-
- 13:30 Nuclear Heating Analysis for HANARO Cold Neutron Source by McCARD Burnup Calculations
Sung Jae Hwang, Young In Kim, and Hyung Jin Shim(SNU), Chul Gyo Seo(KAERI)
 - 13:50 Transient Capability of 3D MOC Code STREAM
Anisur Rahman and Deokjung Lee(UNIST)
 - 14:10 Validation of AGN-201K Design Data with Combination of Numerical Analysis and Experiments
Jong Hoon Kim and Myung-Hyun Kim(KHU)
 - 14:30 Neutronic Evaluation of Super Deep-Burn of PWR TRU Wastes in CANDU with Multi-Recycling Schemes
Dae Hee Hwang and Yonghee Kim(KAIST)
 - 14:50 Single Cycle Loading Pattern Optimization by Simulated Annealing Augmented with Deterministic Dominant Descent
Jaeguk Lee and Hyung Jin Shim(SNU)
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- 15:10 Feasibility Study of a Two-Batch Soluble-Boron-Free APR-1400 Reactor
Husam Khalefih and Yonghee Kim(KAIST)
 - 15:30 Burnable Poison Strategies for Extra-Long Cycle Small PWR
Aiman Dandi and Myung Hyun Kim(KHU)
 - 15:50 Improved FAST Device (iFAST) for Assuring the Safety of Oxide-Fueled Sodium-Cooled Fast Reactors during Anticipated Transients without Scram Events
Ahmed Amin Abdelhameed and Yonghee Kim(KAIST), Chihyung Kim(KAERI)
 - 16:10 Preliminary Study on the Candidate Fuel Salt of Molten Chloride Salt Fast Reactor
Sungtaek Hong(KAERI), Yonghee Kim, Seongdong Jang, and Taesuk Oh(KAIST)
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2C

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

| 좌장 박창제(Chang Je Park), 이은기(Eun Ki Lee)

| 발표장소 온라인

-
- PO2C01 Evaluation of Automatic Control System for Long Term Load Following Operation using Control Rod for a SMR
Kibeom Park, Tonkyu Park, and Sungkyun Zee(FNC Tech.), Bon Seung Koo(KAERI)
 - PO2C02 Preliminary Analysis of Dynamic Control Rod Reactivity Measurement Method for Fission Chamber Excore Detector
YuGwon Jo, Hwan-Soo Lee, and Eun-ki Lee(KHNP)
 - PO2C03 Estimation of Plutonium Production in a Graphite-Moderated Reactor using Graphite Isotope Ratio Method and MCS
Kyeongwon Kim, Ran Lee, and Deokjung Lee(UNIST), Jinseok Han, Hyun Chul Lee, and Junkyung Jang(PNU)
 - PO2C04 Energy Deposition Model in STREAM with Photon Transport
Nhan Nguyen Trong Mai, Kyeongwon Kim, Woonghee Lee, and Deokjung Lee(UNIST), Sooyoung Choi(UM), Kiho Kim(KINS)
 - PO2C05 Use of the Super Homogenization Method for Fast Reactor Analysis
Tung Dong Cao Nguyen, Tuan Quoc Tran, and Deokjung Lee(UNIST), Kiho Kim(KINS)
 - PO2C06 A Refinement of the AFEN Response Matrix Method in the Two-Dimensional Trigonal Geometry
Jae Man Noh(KAERI)

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

3A 5. 13 (목)

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

I 좌장 최성열(Sungyeol Choi), 박환서(Hwan Seo Park)

I 발표장소 온라인

- 09:00 The New Technologies for the Immobilization of Radioactive Iodine and Its Implication to the Deep Waste Disposal
Yongsoo Hwang, Hyo On Nam, and Yongjun Cho(KAERI)
- 09:20 Comparison of SCALE 6.1 Monaco/MAVRIC and MCNP Calculation for HI-STAR 63
Dong Jin Kim, Geon Hee Park, and Ser Gi Hong(HYU), Ye Seul Cho(KORAD), Ara Go and Dae Sik Yook(KINS)
- 09:40 Durability Test of Cold-Immobilized Binder-Free Adsorbents
Sujeong Lee and Hojin Ryu(KAIST), Muhmod ul Hassan(PNRA)
- 10:00 Development of Concentrated Waste Drying Treatment System Designed to be Mobile and Compact for Radioactive Liquid Waste Treatment in NPPs
Yu Sun Yeom, Doo Hee Lee, Jung Gi Kang, Jung Keun Kim, Jin Wook Kang, Yoon Hweoi Huh, and Jae Duck Park(LC gen. Co.)
- 10:20 The Impact of Glaciation over the Stability and Long Term Post-Closure Radiological Safety of a Potential Deep Geologic Repository for the Permanent Disposal of Used Nuclear Fuels in the Republic of Korea
Yongsoo Hwang and Inyoung Kim(KAERI)
- 10:40 A Preliminary Study on Work Difficulty Factor of Decommissioning in Korean Nuclear Power Plants
Seung Hyun Lee, Tai-jin Park, and Sang-mook Kang(KARA), Jae Hyun Kim(HYU)

3B 5. 13 (목)

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

I 좌장 서범경(Bum Kyoung Seo), 배상은(Sang Eun Bae)

I 발표장소 온라인

- 13:30 Preliminary Study on the Phase Behavior of Rare Earth Doped Uranium Oxide using In-Situ High-Temperature X-ray Diffraction
Tae-Hyeong Kim, Dong Woo Lee, Jeongmook Lee, Junghwan Park, Jong-Yun Kim, and Sang Ho Lim(KAERI)
- 14:10 Surface Decontamination of Radioactive Cesium by Reversibly Cross-Linkable Hydrogel/Adsorbent based Coating
Hee-Man Yang, Chan Woo Park, Ilgook Kim, In-Ho Yoon, and Youngho Sihn(KAERI)
- 14:30 Removal of Radioactive Cs with MXene Fiber Fabric by Electrochemical Method
Minseok Lee and Ho Jin Ryu(KAIST)
- 14:50 Cation-Exchanged Hydroxyapatite for Strontium Separation from Groundwater
Youngho Sihn, Hee-Man Yang, Chan Woo Park, In-Ho Yoon, and Ilgook Kim(KAERI)

3C

원자력시설해체 및 방사성폐기물관리

(Nuclear Facility Decommissioning and Radioactive Waste Management) – POSTER

| 좌장 조혜진(Hyejin Cho), 양희만(Hee-Man Yang)

| 발표장소 온라인

- PO3C01 **Development of High-Efficiency Cesium Adsorbent(HECA) for Cesium Removal from Cesium Contaminated Water**
Byungwoo Lim and Jongshik Joo(NEED)
- PO3C02 **Design Analysis of Disassembler Connection Devices for Spent Fuel Assembly**
Young-Hwan Kim, Yung-Zun Cho, Chang-Hwa Lee, and Jin-Mok Hur(KAERI)
- PO3C03 **Normal Transportation Test Results for KJRR-F Fresh Fuel Transportation Cask**
Gil-Eon Jeong, Yun-Young Yang, and Kyoung-Sik Bang(KAERI)
- PO3C04 **A Study on the Disposal Safety of Radioactive Waste Containing Organic Complexing Agents**
HyeJin Kim, Kyu Tae Park, Sung Ryul Kim, Jung Min Oh, Ji Ung Kim, and Wook Jae Yoo(Orbitech),
Wang Kyu Choi(KAERI), Jae Chul Ha(KORAD), Dae Sung Lee(KNU)
- PO3C05 **Development of Materials for Treatment of Radioactive Waste Generated from NPP using LLW and VLLW Soil/Concrete Waste**
Do Kyun Park, JeongHun Kil, and YounHo Kim(DRET),
SeongJoo Kang, SeungIl Kim, DukWon Kang, and JoonSeok Lee(eLIM Global)
- PO3C06 **A Review on the Status of the Decommissioning Waste Recycling System on the World**
Byung-Sik Lee, Ye-Jeon Lim, So-On Park, and Sae-Mi Hwang(DKU)
- PO3C07 **Optimization of Spent Nuclear Fuel Assemblies per Canister Based on Decay Heat to Improve the Disposal Efficiency**
Jongtae Jeong, Jung-Woo Kim, and Dong-Keun Cho(KAERI)
- PO3C08 **Self-Disposal of Aluminum Material Radioactive Waste through Applying Radioactive Waste Classification and Self-Disposal Standards**
Homin Kim, Kyuhong Lee, and Yongjin Jeong(KAERI)
- PO3C09 **Development of Design Requirements for Chemical Injection and Decomposition&Treatment Facility**
JEONGJU KIM, Hak-Soo KIM, and Cho-Rong KIM(KHNP CRI)
- PO3C10 **Characterization of Plasma Arc Piercing Process for STS304**
Dong-Hyun Kim, Dae-Won Cho, Jeong Suh, Kwang-Deok Choi, and Ryoon-Han Kim(KIMM),
Tae-Hyung Na(KHNP CRI)
- PO3C11 **Considerations for Nuclear Power Plant Decommissioning Project Management and Areas to be Managed**
Hyung-woo Seo, Sang hyun Lee, Ji-hwan Yu, and Gi-lim Kim(KHNP CRI)
- PO3C12 **Training Requirements for Personnel in Nuclear Power Plant Decommissioning**
Gi-lim Kim, Hyung-woo Seo, Sang hyun Lee, and Ji-Hwan Yu(KHNP CRI)
- PO3C13 **The Nuclear Power Plant Life-Cycle Analysis Considering the Decommissioning Projects**
Sang hyun Lee(KHNP), Hyung-woo Seo, Ji-hwan Yu, and Gi-lim Kim(KHNP CRI)
- PO3C14 **Decontamination Experiments of Soil from the Decommission of NPP Using Supercritical CO2 with Ultrasonic Horn**
Jaebin Shin and Kwangheon Park(KHU)
- PO3C15 **A Review on Integrated Management Procedure for NPP Decommissioning Project**
Jihwan Yu, Hyung-woo Seo, Gi-lim Kim, and Sang-hyun Lee(KHNP CRI)

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- P03C16 **Human Error Probability Estimate from the Stress on the RPVI Dismantling Work**
Chang-Su Nam, Min-Sik Kim, Min-Jun Kim, Hyeon-Su Kim, and Byung-Sik Lee(DKU)
- P03C17 **A Study on the Safety Class Designation of the Hot Cell Facility**
Byung-Sik Lee, Dong-Jin Kim, Hyun-Ji Kim, and Won-Il Ha(DKU)
- P03C18 **Development of PHWR Spent Fuel Storage Basket Cutting Equipment**
kiyoung Kim, donghee Lee, and yongdeog Kim(KHNP CRI)
- P03C19 **Evaluation of Residual Stress on Welds of Spent Fuel Dry Storage Canisters by Peening Technology**
Donghee Lee and Yongdeog Kim(KHNP CRI), Sungwoo Cho(DOOSAN)
- P03C20 **Corrosion Behavior of Anodized and Cathodic Plasma Electrolytic Oxidation (CPEO) Coatings on Stainless Steel used in Nuclear Spent Fuel Dry Storage Canister**
Jun Heo, Jaewoo Lee, and Sung Oh Cho(KAIST)
- P03C21 **In-Situ High Temperature X-ray Diffraction for Structural Transition of Uranium Oxide**
Dong Woo Lee, Tae-Hyeong Kim, JongYun Kim, Jeongmook Lee, and Sang Ho Lim (KAERI)
- P03C22 **SEM-EDS and XRD Study on the Metallic Mo-doped CeO₂**
Hyun Myung Choe, Jeongmook Lee, Tae-Hyeong Kim, Jong-Yun Kim, and Sang Ho Lim(KAERI)

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5. 13(목)

핵연료 특성 및 성능 (Nuclear Fuel: Properties and Performance)

| 좌장 박정용(Jeong-Yong Park), 김준환(Jun Hwan Kim)

| 발표장소 온라인

- 09:00 Fuel Material Selection Strategy for Marine Propulsion LFR
Hyeong-Jin Kim, JiWon Mun, and Ho Jin Ryu(KAIST)
- 09:25 A Feasibility Study on the Application of Additive Manufacturing Method to Fabricate Nuclear Fuel using Surrogate
Jae Ho Yang, Dong Seok Kim, Heung Soo Lee, Dong-Joo Kim, and Ji-Hae Yoon(KAERI)
- 09:50 Microstructural Simulations of Fission Gas Bubbles Generation and Grain Recrystallization in the High Burnup Structure of UO₂
Faris B. Sweidan and Ho Jin Ryu(KAIST)
- 10:15 Numerical calculation of UO₂ - 3 vol%Mo Microplate Fuel Pellet for Enhancing Radial Thermal Conductivity
Heung Soo Lee, Dong-Joo Kim, Dong Seok Kim, Jae Ho Yang, and Ji-Hae Yoon(KAERI)
- 10:40 TRANOX: Mechanistic Model for Non-Isothermal Steam Oxidation of Zircaloy Cladding
Dongju Kim, Hyunwoo Yook, Kyunghwan Keum, and Youho Lee(SNU)
- 11:05 Post-Quench Ductility Test on Pre-hydrided Zr-Nb Cladding and Review on ECCS Criteria
Kyunghwan Keum and Youho Lee(SNU)

4B

5. 13(목)

오스테나이트계 합금의 열화 (Degradation of Austenitic Alloys)

| 좌장 이봉상(Bong Sang Lee), 황성식(Seong Sik Hwang)

| 발표장소 온라인

- 13:30 Effect of Stress Type on the Oxide Layer Properties of Alloy 600MA and 690TT in Simulated Secondary Water
Byung Joon Bae, Jeoh Han, and Do Haeng Hur(KAERI), Jongsup Hong(Yonsei Univ.)
- 13:55 Influences of Zn Concentration on the General Corrosion Behavior of Alloy 690TT in Simulated Primary Water of PWRs
Soon-Hyeok Jeon, Dong-Seok Lim, and Do Haeng Hur(KAERI), Jinsoo Choi and Kyu Min Song(KHNP)
- 14:20 Novel Test Method to Measure PWSCC Initiation Time of Nickel Alloys Using Rupture Disk-Type Specimen
Sung-Woo Kim, Geon-Woo Jeon, and Dong-Jin Kim(KAERI)
- 14:45 Low Cycle Fatigue Life of Alloy 52M Weld Metal in Simulated PWR Environment
junhyuk Ham, seung chang Yoo, yunju Lee, daehyeon Park, and ji hyun Kim(UNIST)
- 15:10 Estimation of Creep Behavior of Alloy 690 based on the Power Law Creep Models
Bong-Sang Lee, Jong-Min Kim, June-Yeop Kwon, Kwon-Jae Choi, and Min-Chul Kim(KAERI)
- 15:35 Radiation Shielding Strategy for Material Testing of PWR Reactor Internal Components
Seong Sik Hwang, Sung Hwan Cho, Hyung Ha Jin, Kwon Jae Choi, Sung Woo Kim, and Dong Jin Kim(KAERI)

4C

5. 14 (금)

PWR에서의 부식과 제어 (PWR Corrosion and Mitigation)

| 좌장 김동진(Dong-Jin Kim), 이유호(Youho Lee)

| 발표장소 온라인

- 09:00 IG Cracking of SA508 by Thermal Treatment at 350-420oC
SungSoo Kim and Jong Yup Jeong(KAERI), Young Suk Kim(MACTEC)
- 09:25 Corrosion Behavior of Borated Stainless Steel in High DO Boric Acid Water
Daehyeon Park, Yunju Lee, Junhyuk Ham, Seung Chang Yoo, and Ji Hyun Kim(UNIST),
Kiyong Kim and Donghee Lee(KHNP)
- 09:50 Corrosion Performance of Coating for Venturi Fouling Mitigation at Nuclear Power Plant
Wonjun Choi and Chi Bum Bahn(PNU), Young-Jin Kim, Dong-Seok Lim, and Hyun-Chul Lee(FNC Tech.)
- 10:15 Improvement of Alkali Silicate Heat-Resistant Coating According to ZIRLO's Surface Treatment Method
Boyeon Kweon, Gyu Hyeon Shim, Ji Hoon Kim, Dong Ho Nguyen, and Ho Seon Ahn(INU)
- 10:40 Post-LOCA Ductility of Cr-coated Cladding and Its Implications on Accident Coping Time
Hyunwoo Yook, Kyunghwan Keum, Dongju Kim, and Youho Lee(SNU)
- 11:05 Study on Fe-Cr-Al Alloys Corrosion on 360 °C Simulated Pressurized Water Chemistry Condition
Taeyong Kim, Seung Chang Yoo, Junhyuk Ham, Yunju Lee, In Young Song, and Ji Hyun Kim(UNIST),
Sungyu Kim and Chi Bum Bahn(PNU)
- 11:30 Air Oxidation Behaviors and Kinetics of UO₂ and Zircaloy-4 Cladding under Spent Fuel Pool Accident Condition
Sun-Ki Kim(KAERI)
-

4D

핵연료 및 원자력재료(Nuclear Fuel and Materials) – POSTER

| 좌장 임광영(Kwang-young Lim), 반치범(Chi Bum Bahn)

| 발표장소 온라인

- PO4D01 Surface Characteristics of Metal Fuel Rod Prepared by Using Quartz and Graphite Molds
Kyungchai Jeong, Sangkyu Park, and Jeongyong Park(KAERI)
- PO4D02 Preliminary Study on the Fretting Wear Behavior of Multi-Layer Coatings for Accident Tolerant Fuel Cladding
Young-Ho Lee, Jung-Hwan Park, Dong-Jun Park, Yang-Il Jung, Sung-Chan Yoo, and Hyun-Gil Kim(KAERI)
- PO4D03 FRAPCON Base Irradiation Input for FFRD Analysis
Yong Sik Yang and Jang Soo Oh(KAERI)
- PO4D04 Qualitative Approach to Understand Irradiation Growth Behavior of ODS ATF fuel
Yong Sik Yang, Jong Dae Hong, and Jae Yong Kim(KAERI)
- PO4D05 Qualitative Approach to Understand the Behaviors of Oxidation, Hydriding, and the Buildup of Corrosion Products (CRUD) for CrAl-ODS-Zr Alloy ATF Cladding
Jong-Dae Hong and Jae Yong Kim(KAERI)
- PO4D06 Qualitative Approach to Understand Fatigue Behavior of CrAl-ODS-Zr Alloy ATF Cladding
Jong-Dae Hong and Jae Yong Kim(KAERI)
- PO4D07 Pressure Calculation of Intergranular Bubbles in UO₂
Jae joon Kim and Ho jin Ryu(KAIST)
- PO4D08 Ramp Test Rods Analysis using ROPER and ABAQUS
Yun-seog Nam, Hak-kyu Yoon, and Jae-Myung Choi(KEPCO NF)
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- PO4D09 Analysis of IFA-650.5 LOCA Test : FFRD Analysis by using FRAPTRAN 2.0P1 Code
Jang Soo Oh and Yong Sik Yang(KAERI)
- PO4D10 Finite Element Analysis of Unit Cell Inverted Core Fuel for Micro Lead-cooled Fast Reactor
Ji Won Mun and Ho Jin Ryu(KAIST)
- PO4D11 A COPA Fission Product Release Analysis for a Gen-IV Numerical Calculation Case
Young Min Kim and Eung Seon Kim(KAERI)
- PO4D12 Mechanical Property Evaluation of Proton Irradiated Inconel X-750
Sangeun Kim, Hyung-Ha Jin, I Seul Ryu, and Gyeong Geon Lee(KAERI)
- PO4D13 Evaluation of the Effect of Debris Clogging in the Fuel Bottom Nozzle on Fuel Performance
Taehyeon Kim and Donghee Lee(KHNP)
- PO4D14 FAC Assessment for SA106 Pipe with Elbows and Welds
Dong-Jin Kim, Sung-Woo Kim, Jong Yeon Lee, Kyung Mo Kim, Se Beom Oh, Gyeong Geon Lee,
Jongbeom Kim, Seong-Sik Hwang, Min Jae Choi, Yun Soo Lim, Sung Hwan Cho, and Hong Pyo Kim(KAERI)
- PO4D15 Development of Empirical Stress Correction Factor for Creep-Rupture Model of Alloy 690 Steam
Generator Tube
Jongmin Kim, Minchul Kim, and Joonyeop Kwon(KAERI)
- PO4D16 Identification of Magnetite Scale in Eggcrate Support Plate Region of Steam Generator Tube from MRPC
Probe Eddy Current Signals
Deok-Hyun LEE, Se-Beom OH, and Kyung-Mo KIM(KAERI)
- PO4D17 On the Synergistic Effects of Helium and Hydrogen in Bubble Formations and Materials Degradation
Sangeun Kim and Hyung-Ha Jin(KAERI), Hyeongchul Kim, Jinhyeok Kim, Chansun Shin(Myongji Univ.),
Joonoh Moon and Chang-Hoon Lee(KIMS)
- PO4D18 Analysis of Impedance Signal on Eddy Current Testing using FEM Simulation
Se-Beom Oh, Deok-Hyun Lee, Myung-Sik Choi, Jongbeom Kim, and Kyung-Mo Kim(KAERI)
- PO4D19 Probabilistic Model of PWSCC in Alloy 690 Steam Generator Tubing
DAYU FAJRUL FALAAKH and CHI BUM BAHN(PNU)
- PO4D20 Robust Canisters with a Nanoporous Oxide Layer for Spent Nuclear Fuel Storage
Jaewoo Lee, Jun Heo, and Sung Oh Cho(KAIST)
- PO4D21 Cr-Al Composite Cladding Prepared by Swaging and Electroplating
Hyeong Woo Min, Jae Hwan Ko, and Young Soo Yoon(Gachon Univ.), Yong Hee Kim(KAIST)
- PO4D22 Development of Multi-Walled Cold Drawing Process for Improved Accident Tolerant Fuel Cladding in
Light Water Reactors
Jong Woo Kim, Jae Hwan Ko, and Young Soo Yoon(Gachon Univ.), Yong Hee Kim(KAIST)
- PO4D23 Synthesis of Li-rich LiAlO₂ for Application of Ceramic Growth Materials for Nuclear Fusion
Unho Lee, Young Ah Park, Ji Hyeok Choi, and Young Soo Yoon(Gachon Univ.)
- PO4D24 Phase Evolution in Cobalt-Chromium Alloy Prepared by Direct Energy Deposition Method
Jinsung Jang, Ji Hoon Kang, Chang Hee Han, and Suk Hoon Kang(KAERI), Min Ha Shin(KIST)

5A

열수력 실험 A (Thermal-Hydraulic Experiment A)

5. 13 (목)

| 좌장 이연건(Yeon-Gun Lee), 배황(Hwang Bae)

| 발표장소 온라인

- 13:30 Program and Test Description of the Third Phase of OECD/NEA ATLAS International Joint Project
Kyoung-Ho Kang, Jongrok Kim, Byoung-Uhn Bae, Jae-Bong Lee, Yusun Park, Seok Cho, and Nam-Hyun Choi(KAERI)
- 13:50 Effect of Passive Safety Features on System Thermal Hydraulics
Seok Cho, Byoung-Uhn Bae, Yusun Park, Jae Bong Lee, Jongrok Kim, Nam Hyun Choi, and Kyoung-Ho Kang(KAERI)
- 14:10 Thermal Performance Test Facility for Nuclear Battery from a Conventional Dry Cask Using Hybrid Heat Pipe
Dong Hun Lee and In Cheol Bang(UNIST)
- 14:30 Gas Stratification and Condensation Heat Transfer in Steam-Air-Helium Mixture
Il Woong Park, In Yeop Kang, Sang Min Song, Si Hyuk Yang, Hyun Jin Yong, and Yeon-Gun Lee(JNU)
- 14:50 Natural and Forced Convection Heat Transfer of Single Heating Sphere in a Packed Bed
Je-Young Moon, Seong-Il Baek, and Bum-Jin Chung(KHU)
- 15:10 Natural Convection Heat Transfer of the Packed Bed Varying the Bed Height and Sphere Diameter
Hyun-Ha Ahn, Je-Young Moon, Dong-Hyuk Park, and Bum-Jin Chung(KHU)
- 15:30 Fluidelastic Instability of Staggered Tube Arrays with Preferentially Flexible Direction to Single Phase Cross Flow: Typical Results
Kang-Hee Lee, Heung-Seok Kang, Dong-Seok Oh, Chan Lee, Tae-Hyun Chun, Ik-Sung Im, Chang-Hwan Shin, Sung-Wook Lee, and Soo-Ho Kim(KAERI),
Jong-In Kim, Chang-Hoon Ha, Doo-Ho Hong, and Min-Ki Cho(DOOSAN)
- 15:50 Effects of Chromium-based Accident Tolerant Fuel Coating on Rewetting Temperature under Reflood Condition
Doyoung Shin, Namgook Kim, Joonyoung Bae, and Sung Joong Kim(HYU)

5B

열수력 실험 B (Thermal-Hydraulic Experiment B)

5. 14 (금)

| 좌장 조형규(Hyoung Kyu Cho), 김석 (Seok Kim)

| 발표장소 온라인

- 09:00 Hydraulic Characteristic of Two-Phase Natural Circulation Loop as PCCS and Visualization
Sun Taek Lim, Koung Moon Kim, and Ho Seon Ahn(INU), Dong-Wook Jerng(CAU)
- 09:20 Natural Convection Phenomena of the Air in the Vertical Parallel Plates under High Wall Temperature Conditions
Koung Moon Kim, Sun Taek Lim, and Ho Seon Ahn(INU), Dong-Wook Jerng(CAU)
- 09:40 Test Result on a Small Break Loss-of-Coolant Accident Simulation for the Control Rod Driving Mechanism Nozzle Rupture with a Failure of Safety Injection Pump using the ATLAS Facility
Jae bong Lee, Byoung-Uhn Bae, Yusun Park, Jongrok Kim, Seok Cho, Nam Hyun Choi, and Kyoung-Ho Kang(KAERI)

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- 10:00 Experimental Study on the Intermediate Break Loss of Coolant Accident (IBLOCA) with Total failure of Safety Injection Pumps
Yusun Park, Byoung Uhn Bae, Jongrok Kim, Jae Bong Lee, Seok Cho, Nam Hyun Choi, and Kyoung Ho Kang(KAERI)
 - 10:20 Influence of the Mass flux, Inclination and Void Fraction on the Flow Boiling CHF using a Hydrogen Evolution System
Jeong-Won Han, Hae-Kyun Park, and Bum-Jin Chung(KHU)
 - 10:40 Natural Convection Heat Transfer of Two Heating Spheres with Pitch-to-diameter Ratio
Seong-Il Baek, Je-Young Moon, Dong-ho Shin, and Bum-Jin Chung(KHU)
 - 11:00 Heat Transfer Surface Morphology and Oxidation Effect on the CHF under Vertical Flow Boiling Considering the RPV Manufacturing and Operating Condition
Jun Yeong Jung, Min Suk Lee, and Yong Hoon Jeong(KAIST)
 - 11:20 Commissioning Test of NEOUL-R Facility Designed for Critical Heat Flux Measurement under Rolling Motion
Geon-Woo Kim, Jin-Seong Yoo, Hee-pyo Hong, Goon-Cherl Park, and Hyoung Kyu Cho(SNU)

5C

5. 13 (목)

열수력 해석 (Thermal-Hydraulic Analysis)

| 좌장 윤범수(Bum-Soo Youn), 임상규(Sang Gyu Lim)

| 발표장소 온라인

-
- 09:00 Analysis of Reactor Pressure Vessel Upper Head SBLOCA+LSI at the ATLAS Experimental Facility using the MARS-KS 1.5
Hyunjoon Jeong and Taewan Kim(INU)
 - 09:20 Preliminary Analysis of SBLOCA for Innovative Small Modular Reactor (iSMR) using MARS-KS Code
Sang Gyu Lim, Gil Bum Kang, Seon Heo, Sang Won Lee, Do Hwan Lee, and Yong Hak Kim(KHNP)
 - 09:40 DNBR Evaluation for SLB Analysis by Multi-Dimensional Safety Analysis
Jae Ryong Lee, Yun Je Cho, and Han Young Yoon(KAERI)
 - 10:00 Numerical Study on Fluid-Thermal-Structure Interaction for a Solid Wire under Film Boiling
Van Toan Nguyen and ByoungJae Kim(CNU)

5D

5. 14 (금)

안전해석 현안 (Safety Analysis Issues)

| 좌장 이일석(Il-Suk Lee), 이석호(Suk Ho Lee)

| 발표장소 온라인

-
- 09:00 An Analysis on DVI SBLOCA for BANDI-60
Jeong Ju Kim, Jong Tae Seo, Han Rim Choi, and Jae Young Hun(KEPCO E&C)
 - 09:20 Development of Program Equivalent to RADTRAD for DBA Safety Evaluation
Seung-Chan LEE(KHNP)
 - 09:40 Effects of Fuel Relocation on LOCA Safety Analysis in APR1400
Joosuk Lee, Kyung-Won Lee, Kyunglok Baek, and Youngseok Bang(KINS)

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- 10:00 Modeling of Flow Blockage for Simulation of Steam Convection and Reflooding of 5×5 Rod Bundle Experiments in ATHER
Young Seok Bang, Byung Gil Huh, Deog Yeon Oh, and Joosuk Lee(KINS),
Jongrok Kim and Sang-Ki Moon(KAERI)
 - 10:20 Transport Loss Calculation in KAERI's Steam Generator Tube Rupture Experimental Set-up
Myeongseon Lee and Kwangsoon Ha(KAERI), Hyojin Lee(HNU)
-

5E **열수력 신기술 A (Advanced Thermal-Hydraulic Experiment A)**
5. 13 (목) | 좌장 김정우(Jung Woo Kim), 김동역(Dong Eok Kim) | 발표장소 온라인

- 13:30 Preliminary Study of Machine Learning Aided CFD Network to Reduce Computational Cost
Joongoo Jeon, Juhyeong Lee, and Sung Joong Kim(HYU)
 - 13:50 Application of Machine Learning Technique in Predicting Condensation Heat Transfer Coefficient and Droplet Entrainment Rate
Jee Min Yoo, Dong Hyun Lee, Dong Jin Hong, and Jae Jun Jeong(PNU)
 - 14:10 CFD Simulation of Air-water Film Flow for Reactor Vessel Upper Downcomer Using VOF-Slip Model
Chi-Jin Choi and Hyoung Kyu Cho(SNU)
 - 14:30 Feasibility Study on SPH for Application to Explosion and Structural Impact for Nuclear Safety
JinHyun Kim and Eung Soo Kim(SNU)
 - 14:50 Development of the Lumped Parameter Core Makeup Tank Model of SMART and Assessment using the SPACE Code
MinGi Kim, Adnan Wisudhaputra, and Jae Jun Jeong(PNU),
Jong-Hyuk Lee, Kyungdoo Kim, and Hyun-Sik Park(KAERI)
 - 15:10 Parallelization of MARS-KS Code for Full-Core Thermal-Hydraulics Simulation of LWRs
Nhan Hien Hoang, Y. K. Kwack, Y.S Kim, S.H Bae, and S.K Sim(EN2T)
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5F **열수력 신기술 B (Advanced Thermal-Hydraulic Experiment B)**
5. 14 (금) | 좌장 전병국(Byong Guk Jeon), 조항진(HangJin Jo) | 발표장소 온라인

- 09:00 Experimental Study for the Reflood Rate Effect on Emergency Core Cooling During LOCA Using a Thermo-Mechanics and Thermal-Hydraulics Coupled Experimental Facility (ICARUS)
Jongrok Kim, Jae Bong Lee, Kihwan Kim, Hae Seob Choi, Jong-Kuk Park, Young-Jung Youn, Hyosung Seol, and Sang-Ki Moon(KAERI)
 - 09:20 The Effect of the Time Constant of Pump Coastdown Curve on LOFA in a Research Reactor
Youngchang Ko, Huiyung Kim, and Byongjo Yun(PNU) Jong-Pil Park and DongHyun Kim(KAERI)
 - 09:40 Subcooled Flow Boiling with Analysis of Acoustic Signal Behavior
Do Yeong Lim, Ji Yong Kim, and In Cheol Bang(UNIST)
 - 10:00 Experimental Study of Sodium Heat Pipe by Calorimeter for H-MMR
Young Jae Choi, Seongmin Lee, and Yong Hoon Jeong(KAIST)
 - 10:20 Investigation of R123 Pool Boiling Performance of Anodic Aluminum Oxide Membrane based Nano Porous Heater Assembly
Ji Yong Kim and In Cheol Bang(UNIST)
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5G

열수력 해석 A (Thermal-Hydraulic Analysis A) – POSTER

| 좌장 이상익 (Sang-ik Lee), 이태범 (Tae-Bum Lee)

| 발표장소 온라인

- P05G01 Observation of Departure from Nucleate Boiling under Different Flow Rates
Byong Guk Jeon, Dong Hoon Kam, and Sang-Ki Moon(KAERI), Moonhee Choi(POSTECH)
- P05G02 Improvement and Evaluation for Henry-Fauske Critical Flow Model of SPACE Code
Bum-Soo Youn(KHNP)
- P05G03 Condensation Performance Evaluation of Evacuate Containment with Xenon, Air and CO₂ for Small Modular Reactor
Taeseok Kim and Sung Joong Kim(HYU)
- P05G04 Development of Trend Map on the Plant Initial Condition Using Sensitivity Study in the Non-LOCAs
Il Suk Lee, Sa Rah Kang, Kwang Won Seul, and An Dong Shin(KINS)
- P05G05 A Comparative Study on Four RCPs Coastdown at 50 Hz Condition for APR1400
Sang Jin Lee, Se Young Ro, Eun Ju Lee, and Jae Young Huh(KEPCO E&C)
- P05G06 Constitutive Equations Improvement Methodology of Reactor Safety Analysis Code using Experimental Data: Application to SUBO Experiment
ChoHwan Oh, DohHyeon Kim, and JeongIk Lee(KAIST)
- P05G07 Evaluation of PCM Condenser for Containment Passive Cooling Using CAP
Sung Gil Shin and Jeong Ik Lee(KAIST)
- P05G08 Application of Data Driven Modeling for MARS-KS Code to Improve Performance
Doh Hyeon Kim and Jeong Ik Lee(KAIST)
- P05G09 Simulation of Natural Circulation Characteristics Test of ATLAS using MARS-KS Code
Kyung Won Lee, Il Suk Lee, Jae Soon Kim, and Andong Shin(KINS)
-

5H

열수력 해석 B (Thermal-Hydraulic Analysis B) – POSTER

| 좌장 이재룡(Jae Ryong Lee), 최치웅(Chiwoong Choi)

| 발표장소 온라인

- P05H01 Study of Compressed CO₂ Energy System with Low-Temperature Storage Tank
Soyoung Lee, Yongju Jeong, and Jeong Ik Lee(KAIST)
- P05H02 A Sensitivity Study of Thermo-Electric Energy Storage System based on TES
Na young Kim(CAU), Soyoung Lee and Jeong Ik Lee(KAIST)
- P05H03 Influence of Channel Orientation on the Subchannel Analysis of Two-Phase Flow
Dae-Hyun Hwang and Seong-Jin Kim(KAERI)
- P05H04 The Concept Design of the Nuclear-Renewable Hybrid System: Component Designs for Different Nuclear-Renewable Heat Ratio
In Woo Son and Jeong Ik Lee(KAIST)
- P05H05 Preliminary Study on Thermal Margin of External Reactor Vessel Cooling Using MARS-KS1.4 Code with Newly Implemented CHF Correlations
Il Woong Park and Yeon-Gun Lee(JNU), Eung Soo Kim(SNU)
- P05H06 CFD Simulation on Hydraulic Performance of a Rectangular Mini Channel with Staggered Mini Pin Fins
Armanto Pardamean Simanjuntak, Benrico Simamora, and Jae-Young Lee(HGU)
-

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- P05H07 Concept Development of Boiling Condensing Small Modular Reactor (BCR)
Semin Joo and Jeong Ik Lee(KAIST)
 - P05H08 CFD Simulation of the Hydraulic Characteristics inside a butterfly valve using ANSYS CFX
Gong Hee Lee and June Ho Bae(KINS)
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5I

안전해석 현안 (Safety Analysis Issues) – POSTER

| 좌장 이경원(Kyung Won Lee), 임상규(Sang Gyu Lim)

| 발표장소 온라인

-
- P05I01 Estimation of PCT95/95 for LBLOCA using Monte-Carlo and Wilks Method
Dong Gu Kang, Do Kyun Lim, Il Suk Lee, and Deog Yeon Oh(KINS)
 - P05I02 Preliminary Study on Passive Cooling of Instrumentation and Control Room Using PCM
Jai Oan Cho and Jeong Ik Lee(KAIST)
 - P05I03 Assessment of Model Uncertainty for Effective Thermal Conductivity of the SPACE in Crumbled Fuel
Jong Hyuk Lee, Seung Wook Lee, Chiwoong Choi, Byung Hyun You, and Kwi Seok Ha(KAERI)
 - P05I04 Evaluation of the Passive Auxiliary Feedwater System to Mitigate the the Loss of Ultimate Heat Sink Accident for APR1000
Hyoung Kyoum Ahn, Dong Min Kim, Seok Jeong Park, and Jae Young Huh(KEPCO E&C)
 - P05I05 Integral Effect Test Coupling Reactor Coolant System (RCS) and Containment for Direct Vessel Injection (DVI) Line Break Loss-of-Coolant-Accident (IBLOCA)
Byoung-Uhn Bae, Jae Bong Lee, Yusun Park, Jongrok Kim, Seok Cho, Nam Hyun Choi, and Kyoung Ho Kang(KAERI)
 - P05I06 Sensitivity Analysis of the Effect of SG Inventory on PAFS Performance
Kum Ho Han, Seong-Su Jeon, and Soon-Joon Hong(FNC Tech.), Do Hyun Hwang(KHNP)
 - P05I07 Preliminary Analysis of SBLOCA with Loss of Safety Injection Pump for ATLAS Facility using MARS-KS
Uiju Jeong(KHNP), Kyoung Ho Kang(KAERI)
 - P05I08 Preliminary Thermal-Hydraulic Analysis of Beam Tube Break (BTLOCA) Accident at HANARO
Byeonghee Lee, Young-Su Na, Sang-Baek Kim, and Seung-Cheol Jang(KAERI)
 - P05I09 Applicability of Non-Condensable Gas Model for S-CO2 Ingress to High Pressure Water
Jae Jun Lee and Jeong Ik Lee(KAIST)
 - P05I10 Assessment of Prediction Capability on Two-Phase Flow Pressure Drop Using MARS-KS
Jehee Lee, Dong-Young Lee, Kum-Ho Han, and Seong-Su Jeon(FNC Tech.), Ju-Yeop Park(KINS)
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5J

열수력 신기술 (Advanced Thermal-Hydraulic Experiment) – POSTER

| 좌장 김형대(Hyung-dae Kim), 유동인(Dong-In Yu)

| 발표장소 온라인

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- P05J01 A Study of Classifying Flow Regimes of MARS-KS Wall Heat Transfer Coefficient Data Using Unsupervised Learning
Jaehyung Sim, ChoHwan Oh, and Jeong Ik Lee(KAIST)
 - P05J02 Design and Pre-Test Scoping Analysis for a Large Scale PAFS Test Facility
Sang-Ki Moon, Byoung-Uhn Bae, Seok Kim, Yong-Seok Choi, and Seok Cho(KAERI),
Suk-Ho Lee, Sang-Gyu Lim, Jong Cheon, and Sang-Won Lee(KHNP)
 - P05J03 Prediction of SMART Plant Conditions in DBA using Machine Learning
Keon-Yeop Kim, Su-Won Lee, and Young-Suk Bang(FNC Tech.), Jin-Hee Park(KAERI)
 - P05J04 Experimental Research on Friction Factor of Glycerol Based DES
Myunghyun Pyo, Juan Bang, and Jaeyoung Lee(HGU)
 - P05J05 A Study on Supercritical CO2 Brayton Cycle for a Molten Salt Reactor
Sunghyun Yoo, Jeong-bean Seo, Wonkoo Lee, and Kwon-Yeong Lee(HGU)
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6A

5. 13(목)

확률론적안전성평가 I (Probabilistic Safety Assessment I)

| 좌장 김종현(Jonghyun Kim), 허균영(Gyunyoung Heo)

| 발표장소 온라인

- 13:30 An Application of New Dynamic PSA Framework to Large Break LOCA Scenario
Jong Woo Park and Seung Jun Lee(UNIST)
- 13:50 Monte Carlo Integration Approach for Uncertainty Analysis in PSA
Gyunseob Song and Mancheol Kim(CAU)
- 14:10 Quantification of Defense in Depth using Risk Model
Ho Gon Lim(KAERI)
- 14:30 Population Distributions by Different Depth Levels of HEPRI
Sung Hyun Park, Jihyun Kim, and Moosung Jae(HYU)
- 14:50 Findings from APR1400 Human Reliability Data Analysis: Human Performance in Digitalized Control Room
Yochan Kim and Jinkyun Park(KAERI), Mary Presley(EPRI)
- 15:10 A Framework of Human Reliability Analysis for Incorporating SAMG Strategies and Actions into Level 2 PSA
Jaewhan Kim, Young A Suh, Jinkyun Park, and Jaehyun Cho(KAERI)
- 15:30 Can We Determine the Complexity Level of a Proceduralized Task?
Jinkyun Park and Inseok Jang(KAERI)

6B

5. 14(금)

확률론적안전성평가 II (Probabilistic Safety Assessment II)

| 좌장 김민규(Minkyu Kim), 임학규(Hak Kyu Lim)

| 발표장소 온라인

- 09:00 Probabilistic Flood Assessment of Nuclear Power Plants Considering Local Intense Precipitation
Beomjin Kim, Minkyu Kim, Daegi Hahm, and Junhee Park(KAERI), Kun-Yeun Han(KNU)
- 09:20 Seismic Response Assessment of a Base-Isolated Frame Structure using Shaking Table Tests
Jae-Wook Jung and Min Kyu Kim(KAERI), Jung Han Kim(PNU)
- 09:40 Seismic Capacity Re-Evaluation of Korea NPP Equipment using Earthquake Experience and Shake Table Test Data
Eujeong Choi, Min Kyu Kim, and In-Kil Choi(KAERI)
- 10:00 A Study for Establishment of a Korean SMR EPZ Based on U. S. SMR Approach
Kilyoo Kim, Sangbaik Kim, and Seokjung Han(KAERI), Omar Natto(KACARE)
- 10:20 Preliminary RTNSS Analysis for SMART
JIN HEE PARK and YONG HOON JUNG(KAERI), YONG AH SEO(KINS)
- 10:40 Development of the COFUN-M Code for Multi-unit Level 2 PSA Uncertainty Analysis Code
Dohyun Lim, Youngho Jin, and Moosung Jae(HYU), Byeongmun Ahn(FNC Tech.)
- 11:00 Importance Analysis of SAMG Strategies on Level-2 PSA Risk
Sang Hun Lee, Jaehyun Cho, and Jaewhan Kim(KAERI)
- 11:20 Quantification of Risk Importance Measure using Cs-137 Radioactive Risk
Jaehyun Cho and Sang Hoon Han(KAERI)

6C

5. 13 (목)

중대사고 (Severe Accident)

| 좌장 임국희(Kukhee Lim), 안상모(Sang Mo An)

| 발표장소 온라인

초청발표

- 09:00 Status of Particle-Based Multi-physics Simulation for Nuclear Severe Accident
Eung Soo Kim, So Hyun Park, and Young Beom Jo(SNU)
- 09:30 Analysis of External Injection Effects for Low-Pressure Mobile Pumps using MELCOR Code
Hoyoung Shin and Moosung Jae(HYU)
- 09:50 An Assessment of Concrete Silo Responses to Blast Load Dependent on DIF Relations
Woo-Min Cho and Yoon-Suk Chang(KHU)
- 10:10 Combination of the Different Similarity Law for Transient Law Analysis of the RVACS
Min Ho Lee and In Cheol Bang(UNIST), Dong Wook Jerng(CAU)
- 10:30 Measurement of the Heat Load Imposed on the Reactor Vessel Depending on the Crust Layer in a Severe Accident
Joon-Soo Park, Hae-Kyun Park, and Bum-Jin Chung(KHU)
- 10:50 Review of the Contact Pressure Model for Evaluation of the Penetration Tube Ejection from a Reactor Lower Head during a Severe Accident
Kukhee Lim, Yong Jin Cho, Yoonhee Lee, and Jin-Seong Park(KINS)
- 11:10 Validation Study of Steam Explosion Code TRACER-II using KROTOS and TROI Tests
Kwang-Hyun Bang, Hyoung-Tak Kim, and Min-soo Kim(KMOU)
- 11:30 Introduction of Research Activities on Ex-vessel Debris Bed Cooling in the Pre-Flooded Reactor Cavity
Sang Mo An, Jaehoon Jung, Hwan Yeol Kim, and Yong Mann Song(KAERI)

6D

5. 14 (금)

원자력안전 (Nuclear Safety)

| 좌장 강형석(Hyung Seok Kang), 박진호 (Jin Ho Park)

| 발표장소 온라인

- 09:00 Aerosol Retention Test in Dry Steam Generator during Steam Generator Tube Rupture Accident Condition
Sung Il Kim, Jeong Yoon Oh, Byeong Hee Lee, and Seong Ho Hong(KAERI)
- 09:20 Implementation of pH Calculation Module for Chemical Behavior of Iodine in the Containment during Severe Accident
Yoonhee Lee and Yong Jin Cho(KINS)
- 09:40 Preliminary Analyses on the Importance of Iodine Chemistry Reactions in the Gas Phase
Yoonhee Lee and Yong Jin Cho(KINS)
- 10:00 Magnetic Suppression of Gas Entrainment for Sodium-Cooled Fast Reactor
Jong Hui Lee and Il Seouk Park(KNU)
- 10:20 Implementation of GPU-Based Adaptive Particle Refinement Numerical Scheme for Smoothed Particle Hydrodynamics: Preliminary Test for FCI Jet Breakup Simulation
Do Hyun Kim, Hae Yoon Choi, and Eung Soo Kim(SNU)
- 10:40 Risk Assessment of Oil Fire Scenarios for Domestic Nuclear Power Plant
Dae Il Kang and Yong Hun Jung(KAERI)
- 11:00 Benchmark Simulations of Cable Tray Fires in PRISME CFS and CFP Tests
Yong Hun JUNG and Dae Il KANG(KAERI)

6E

확률론적안전성평가 (Probabilistic Safety Assessment) – POSTER

| 좌장 김만철(Man Cheol Kim), 이승준(Seung Jun Lee)

| 발표장소 온라인

- P06E01 Analysis of Heat Removal Strategy during Reactor Cooling Pump Seal Failure
Ji-Hwan Cha(KINAC)
 - P06E02 The Design Effectiveness of Safety Features of PAFS in APR1000 Level 1 PSA
Jae Gab Kim, Kyung Soo Lee, Jin Kyoo Yoon, and Ho Seok(KEPCO E&C), Ho Rim Moon and Ji Yong Oh(KHNP)
 - P06E03 A Review on the Scope of Accident Management in the Accident Management Plan of Nuclear Power Plant
Min Shin Jung, Dong Hwan Jung, and Hak Kyu Lim(KINGS)
 - P06E04 Applying Mobile Equipments Usage to PRA Models
Jung Min Kim, Dong Hwan Jung, and Hak Kyu Lim(KINGS)
 - P06E05 Investigation of Existing Studies for Fuel Assemblies to Develop the Methodology for Fragility Analysis
Nahyun Kim and Minkyu Kim(KAERI)
 - P06E06 Floor Response Spectrum Analysis at Different Location of the Same Equipment in the Auxiliary Building of NPP Using 3D FEM
Hyung-Kui Park, Junhee Park, and In-Kil Choi(KAERI)
 - P06E07 Application of Probabilistic Safety Assessment to Korea Research Reactor
Yoon-Hwan Lee and Seung-Cheol Jang(KAERI)
 - P06E08 Development of the Preliminary Risk Profile for Hanaro Research Reactor
Seung-Cheol Jang, Yoon-Hwan Lee, Jeong-Gon Ha, SangBaik Kim, Sora Kim, and Goanyup Lee(KAERI)
 - P06E09 Development of Preliminary MACCS2 Input Model for the Level 3 PSA on the KAERI Site
Sora Kim, Byung-Il Min, Kihyun Park, Kyung-suk Suh, and Seung-Cheol Jang(KAERI)
 - P06E10 Development of the GIS-Based Population Data Conversion Program, POPCON
Seung-Cheol Jang, Sung-yeop Kim, and Sang-Hun Lee(KAERI)
 - P06E11 Validation & Verification of GIS-Based Population Data Conversion Program (POPCON)
Hyunae Park, Sung-yeop Kim, and Seung-Cheol Jang(KAERI)
-

6F

중대사고 I (Severe Accident I) – POSTER

| 좌장 정재훈(Jaehoon Jung), 이윤희(Yoonhee Lee)

| 발표장소 온라인

- P06F01 Consideration for Applying Machine Learning in Uncertainty Analysis Method of Severe Accident
Jaehyun Ham, Sang Ho Kim, and Rae-Joon Park(KAERI)
 - P06F02 Preliminary Prediction of Core Exit Temperature for Severe Accident using Machine Learning
Suwon Lee and Youngsuk Bang(FNC Tech.), Jaehyun Cho(KAERI)
 - P06F03 A CINEMA Code Analysis of the Simplified ERVC Loop in the SMART
Hyoung Tae Kim(KAERI)
 - P06F04 Analysis of IVR-ERVC Evaluation Characteristics for Small Reactor
Rae-Joon Park, Donggun Son, and Sang Ho Kim(KAERI)
 - P06F05 Discussion on Possibility of Early Film Collapse for Corium Particles during FCI based on Experimental Results from Unexpected Collision between Solid Sphere and Thermocouple
Seung Hyun Yoon and Yu Jung Choi(KHNP), Hee Cheon NO(KAIST)
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-
- P06F06 Evaluation of FCI with the Pre-Flooded Cavity Through Simple Models
Seung Hyun Yoon(KHNP), Jegon Kim(SEC), Moon Won Song(KAERI),
Hee Cheon NO(KAIST)
 - P06F07 Fundamental Experiment to Investigate the Effect of Steam Spike on Ex-vessel Debris Bed Shape
Ki Han Park, Seokgyu Jeong, and Sang Mo An(KAERI)
 - P06F08 Pressure Drop Test Facility for TROI Debris Bed and Shakedown Test Results
Hwan Yeol Kim, Keun Sang Choi, Ki Han Park, Chang Wan Kang, Seokgyu Jeong, JaeHoon Jung,
and Sang Mo An(KAERI)
 - P06F09 Simulations of Hydrogen Combustion at Wet Condition using OpenFOAM
Sangmin Kim and Jongtae Kim(KAERI)
 - P06F10 Current State of Gas Analysis System of SPARC Test Facility
Jinhyeok Kim, Jongtae Kim, Seongho Hong, and Kihan Park(KAERI)
 - P06F11 For Improvement of Hydrogen Mitigation Actions' Effect
Seong-Wan HONG and Jongtae KIM(KAERI), Sanjeev GUPTA(Becker Technologies)
 - P06F12 Preliminary Study on Reactingfoam for the Prediction of Hydrogen Flame Propagation
Ji-Woong Han, Dehee Kim, and Jongtae Kim(KAERI)

6G

중대사고 II (Severe Accident II) – POSTER

| 좌장 김병조(Byung Jo Kim), 김성일(Sung Il Kim)

| 발표장소 온라인

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- P06G01 Conceptual Design of Underground Toroidal Containment Extension Building for Increased Containment Integrity and Natural Decontamination Capability of Radioactive Materials during Nuclear Severe Accident Mitigation
Seong Woo Kang, Sana Ullah, and Man-Sung Yim(KAIST)
 - P06G02 A SIRIUS Validation for an Aerosol Deposition by a Turbulent Flow in the LACE-3A Test
Hyung Seok Kang, Donggun Son, and Kwang Son Ha(KAERI)
 - P06G03 Development of MELCOR Analysis Parameters for a TI-SGTR Accident in the OPR1000
Hyung Seok Kang, Sung Il Kim, and Kwang Soon Ha(KAERI)
 - P06G04 Introduction of High Speed Jet Pool Scrubbing Test Facilities
Jeong Yun Oh, Sung Il Kim, Seong Ho Hong, Ki Han Park, ChangWan Kang, and Jin Hyeok Kim(KAERI)
 - P06G05 Coolability Analysis of Initial Ex-vessel Molten Corium for Pre-Flooding Strategy
Jaehoon Jung, Hwan Yeol Kim, and Sang Mo An(KAERI)
 - P06G06 Methodology Development for 3D Analysis of Spray Cooling in a NPP Containment using Openfoam
Jaehoon Jung and Jongtae Kim(KAERI), Gun-Hong Kim(openCAE)
 - P06G07 Crust Formation and Growth in Analysis of Molten Corium and Concrete Interaction
Sang Ho Kim, Jae Hyun Ham, Hwan-Yeol Kim, Rae-Joon Park, and Jaehoon Jung(KAERI)
 - P06G08 Preliminary Review of SFUEL Code for Simulating the Severe Accident from the Spent Fuel Pool under the Complete Drainage Condition
Jong Hwa Park, Sang Ho Kim, Jaehyun Ham, and Rae Joon Park(KAERI)
 - P06G09 Development of Creep Strain Model for Alloy 690 Material
Seongjin Moon, Joonyeop Kwon, Jong-Min Kim, Bong-Sang Lee, Kwon-Jae Choi, and Min-Chul Kim(KAERI)
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7A
5. 13(목)

방사선 방호 (Radiation Protection)

| 좌장 김승현 (Song Hyun Kim), 김용민 (Yongmin Kim)

| 발표장소 온라인

- 09:00 Detailed Breast Models for ICRP Adult Female Mesh-Type Reference Computational Phantom
Bangho Shin, Chansoo Choi, Gahee Son, Haegin Han, Sangseok Ha, Sungho Moon,
and Chan Hyeong Kim(HYU), Yeon Soo Yeom(NCI)
- 09:20 Development of Thyroid Model for ICRP Reference Pediatric Computational Phantoms
Chansoo Choi, Bangho Shin, Haegin Han, Sangseok Ha, Sungho Moon, Gahee Son,
and Chan Hyeong Kim(HYU), Yeon Soo Yeom(NCI)
- 09:40 Development of Calculation Module for Radionuclides Transport and Removal in the Dose and Accident
Effects Analysis
Seung-Chan LEE(KHNP)
- 10:00 Assessment of Occupational Radiation Exposure from Industrial Radiography Practice
Soja Reuben Joseph and Juyoul Kim(KINGS)
- 10:20 A Study on Method for Accurate Radioactive Dose Rate Calculation in Thick Shields
Jounghwa Lee, Do Heon Kim, and Choong-Sup Gil(KAERI)
- 10:40 Correlation Analysis between Tritium Concentration in the Atmosphere and Meteorological Variables
around Wolsong Nuclear Power Plant
So Yun Jeong, Jae Wook Kim, Young Seo Kim, Han Young Joo, and Joo Hyun Moon(Dankook Univ.)
- 11:00 A Machine Learning-Based Approach to the Prediction of Accidental Source Term
Ahmed Abd El-Hameed and Juyoul Kim(KINGS)
- 11:20 A Study on the Enrichment Determination using the Standard-Less Gamma Spectrometry Technique
Woojin Kim and Jaeyeong Jang(KINAC)
- 11:40 Detection Efficiency Calculation and Evaluation for Condenser Off-Gas Radiation Monitoring System
Wonku Kim, Junhyeok Kim, Jinwhan Kim, Kilyoung Ko, Eunbie Ko, Gyohyeok Song, Hyunwoong Choi,
Jisung Hwang, and Gysung Cho(KAIST), Kukhee Lee and Dongman Shin(KHNP)
- 12:00 Coded-Aperture Gamma Imager for the Measurement of Ambient Dose Equivalent Rate
JIHWAN Boo, Seoryeong Park, Suyeon Hyeon, and Manhee Jeong(JNU)

7B

방사선 방호 (Radiation Protection) – POSTER

| 좌장 김경오 (Kyung-O Kim), 김홍철 (Hong-Chul Kim)

| 발표장소 온라인

- P07B01 Analysis of Gamma Radioactivity Concentration of Coffee and Investigation of Harmfulness using High
Purity Germanium Detector
Sangbok Lee, Jeongsoo Park, Seokhwan Lee, Kwanggyun Choi, and Seunggeon An(Sunkwang T&S),
Haeun Seok and Yongsuk Jang(Gachon Univ.), Donghyeok Choi(Yonsei Univ.)

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- P07B02 A Study on the Estimation of Gamma-Ray Source Positions Using Machine Learning with the Data of Different Activity Sources
Jinhong Kim, Siwon Song, Seunghyeon Kim, Jae Hyung Park, Jin Ho Kim, Taeseob Lim, and Bongsoo Lee(CAU)
- P07B03 Quality Improvement Measures of Education for Radiological Emergency Preparedness
Sohyeon Lee, Goanyup Lee, Bongseok Kim, HyunKi Kim, Donghan Yoo, and Kanghyeon Lee(KAERI)
- P07B04 A Preliminary Study on Modeling for Inverse Tracking Through the Markov Chain Monte Carlo
Shin Ae Kim and Yunjong Lee(KAERI)
- P07B05 Portable LaBr₃ Detector Characterization and Radioactivity Calculation using the InterSpec and GADRAS-DRF
Jaeyeong Jang and Woojin Kim(KINAC)
- P07B06 Improvement of Measurement Method for Low Level Tritium in Exhaust Air
Jeong-Min Park and Yi-Sub Min (KAERI)
- P07B07 Development of Foodchain Model for Estimating Radionuclide Concentration in Marine Organisms Following Nuclear Accident
Sora Kim, Byung-Il Min, Kihyun Park, Jiyeon Kim, and Kyung-suk Suh(KAERI)
- P07B08 Dose Assessment Resulting from Gaseous Effluent Released from Nuclear Research Facility Based on Representative Person Concept
Yong Ho Jin, Ki Hoon Kim, Hyun Su Seo, and Kwang Pyo Kim(KHU)
- P07B09 Further Study on the Photoneutron Source for Bragg Edge Imaging
Mahdi Bakhtiari(POSTECH), Nam-Suk Jung and Hee-Seock Lee(PAL)
- P07B10 Application of Kernel-Convolution Method for Photon Dose Estimation in BNCT
Chang-Min Lee(POSTECH), Hee-Seock Lee(PAL)
- P07B11 Development of Screening Criteria for the Activated Components of LINAC for Medical Use
Byeonghyeon Park, Jonghoon Park, Jaeho Lee, and Minchul Song(KINS), Namsuk Jung(PAL)
- P07B12 Correction for Loss of Collected Charge in the Cavity Ionization Chamber
Ha-Seok Chai, Sang-hoon Seo, Hoon Son, Chan-Soo Moon, Seok-ho Hah, and Young-Keun Jeong(ILRAD)
- P07B13 Study on the Relationship between Thermoluminescent(TL) Sensitivity and Thermoluminescent Material LiF:Mg,Cu,Si Powder Particle Size
Ha-Seok Chai, Jong-Sil Kim, Woo-Sik Hwang, Chan-Soo Moon, and Young-Keun Jeong(ILRAD)
- P07B14 Establishment of Source Classification for Radiation Protection Optimization to Public
Hyun Su Seo, Ki Hoon Kim, Yong Ho Jin, and Kwang Pyo Kim(KHU)

방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A

5. 13(목)

방사선 기기 개발 및 응용 (Development and Application of Radiation Devices)

| 좌장 곽성우(Sung-Woo Kwak), 지영용(Young-Yong Ji) | 발표장소 온라인

- 09:00 Monte Carlo Simulation Study for Optimizing Detection Efficiency of Inorganic Scintillators
Hyeonmin Lee, Woo Nyun Choi, Seungbin Yoon, and Hee Reyoung Kim(UNIST)
- 09:20 Feasibility Study for Compton Computed Tomography (CT) for Radioactive Waste Drum Monitoring
Junyoung Lee, Hyun Su Lee, Sehoon Choi, and Chan Hyeong Kim(HYU),
Sang Hyon Choi and Kyeong Min Kim(KIRAMS)
- 09:40 MCNPX-Polimi Simulation for Development of a Stereo Gamma Camera
Seoryeong Park, Jihwan Boo, Suyeon Hyeon, and Manhee Jeong(JNU)
- 10:00 Thermal Aging Effects of CF-3 Cast Austenitic Stainless Steel Studied by Positron Annihilation Lifetime Spectroscopy
Jaegi Lee, Jongbeom Kim, Young Su Jeong, Young Rang Uhm, and Gwang-Min Sun(KAERI),
Sung-Sik Kang and Jin-Gyem Kim(KINS)
- 10:20 Development of Radiation Dosimetry System for Gamma-ray Detection
Ki Taek Han, Sung Jin Noh, Jeho Min, Su Jeong Oh, and Han-KI Jang(KARA)
- 10:40 Biological Dose Calculation on Dual-Layered Dual Energy Computed Tomography Images for Carbon Ion Therapy
Euntaek Yoon, Seongmoon Jung, Jaeman Son, Bitbyeol Kim, Chang Heon Choi, Jung-in Kim,
and Jong Min Park(SNUH)
- 11:00 Gamma-Ray Source Detection with Coded-Aperture Gamma Imager in a Complex Gamma-Ray/Neutron
Environment for Nuclear Safeguard
Jihwan Boo, Seoryung Park, Suyeon Hyeon, and Manhee Jeong(JNU)
- 11:20 Preliminary study of CdS/ZnS Quantum Dot-Loaded Plastic Scintillator for Detection of Cs137
Contaminated Soil
SuJung Min and JaeHak Cheong(KHU), ByungChae Lee, ChangHyun Roh, and SangBum Hong(KAERI)

8B

5. 13(목)

동위원소 및 중성자 이용 (Utilization of Radioisotopes and Neutrons)

| 좌장 이승곤(Seung-Kon Lee), 선광민(Gwang Min Sun) | 발표장소 온라인

초청발표

- 13:30 Industrial Applications and Future Forecast of Low Energy Electron Accelerator
Byungnam Kim(KAERI)
- 14:00 Future Atomic Energy Based Space Power Modeling for Journey beyond Martian Orbit – Celebrating the
MARS 2020's Touchdown on Red Planet
TAE HO WOO(CUK)
- 14:20 Study on Separation Efficiency of Yb/Lu according to the Types of Ammonium Ion
Aran Kim and Kanghyuk Choi(KAERI)
- 14:40 BNCT Dosimetry with Thermoluminescent Dosimeter
Sangmin Lee, Jungyoung Lee, Geunsub Kim, and Sung-Joon Ye(SNU)
- 15:00 Verification Study of the Dose Calculation Algorithm for Carbon Beam Therapy based on Dual Energy CT
Image and LEM IV Biological Model
Wook-Geun Shin, Euntaek Yoon, Bitbyeol Kim, Seongmoon Jung, Jae Man Son, Jong Min Park,
Jung-in Kim, and Chang Heon Choi(SNUH)

8C

방사선이용 및 기기 (Radiation Utilization and Instrumentation) – POSTER

| 좌장 홍진태(Jintae Hong), 임윤묵(Youn-Mook Lim)

| 발표장소 온라인

- P08C01 Preliminary Test of Multi-Layer Faraday Cup for Quality Assurance of Proton Beam Energy
Gwang-il Jung, Sang-pil Yoon, and Myung-kook Moon(KAERI)
- P08C02 Analysis on Static Noise Margin and Single Event Upset of 10T SRAM for Radiation Tolerance
Eunju Jo and Inyong Kwon(KAERI)
- P08C03 Design of Radioactive Krypton Detection System using PIPS Detector
Mee Jang, Jinhung Lee, Hyuncheol Kim, Won Young Kim, and Wannoo Lee(KAERI)
- P08C04 Enhancement of Physical Properties of Boehmite/HDPE Nanocomposite Film by Electron Irradiation
Ju Hyuk Lee, Heon Yong Jeong, Sang Yoon Lee, and Sung Oh Cho(KAIST)
- P08C05 Fabrication and Performance Test of Scintillator Free-Replaceable Type Detector for Comparison of Inorganic Scintillator Performance
Seungbin Yoon, Hyeonmin Lee, Woo Nyun Choi, and Hee Reyoung Kim(UNIST)
- P08C06 Characteristics of 3D Printed Plastic Scintillator for Thermal Neutron Measurement with Pulse Shape Discrimination
Kyungmin Kim, Dong Geon Kim, Sangmin Lee, Jaebum Son, and Yong Kyun Kim(HYU)
- P08C07 Apply the Light Guide to Improve the Light Collection Efficiency of the Gamma Ray
Suyeon Hyeon, Jihwan Boo, Seoryeong Park, and Manhee Jeong(JNU)
- P08C08 SNM Detection with Coded-Aperture Gamma Imager for Nuclear Safeguard
JIHWAN Boo, Seoryung Park, Suyeon Hyeon, and Manhee Jeong(JNU)
- P08C09 Synthesis of Nano-Grained ZnWO₄ Thin Film Scintillator by Thermal Evaporating Deposition Method
Heon Yong Jeong, Ju Hyuk Lee, and Sung Oh Cho(KAIST)
- P08C10 A Study on the Development of Drum Radioactivity Uniformity Index (DRUX) and Improvement of Drum Scanning Accuracy
Jichang Ryu, Chanjun Park, and Jungsuk Park(KEPCO NF), Jaehyun Park and Gyuseong Cho(KAIST)
- P08C11 Development of Remote Monitoring System for Deep Learning-Based Radiation Test Capsule
Chul-Ying Lee, Kee-Nam Choo, Man-Soon Cho, Yoon-Taeg Shin, Sung-Jae Park, and Sung-Woo Yang(KAERI)
- P08C12 Gamma-Ray Spectroscopy based on a LaBr₃(Ce) Scintillator to Detect Various Kinds of Radionuclides Simultaneously with High Resolution
Jae Hyung Park, Si Won Song, Taeseob Lim, Seunghyeon Kim, Jinhong Kim, Jin Ho Kim, and Bongsoo Lee(CAU), Sang Hun Shin(FNC Tech.)
- P08C13 Chlorine, Iron, and Gold Ion Beam Extraction with 1.7 MV Tandem Accelerator at KOMAC
Nam Woo Kang, Kye-Ryung Kim, Kyumin Choe, and Hyeok-jung Kwon(KAERI)
- P08C14 Uniformity Evaluation Study for Thick Electrode Using Non-contact Mass Estimation Method
Jiseok Kim, Hye In Song, Hanjin Kim, Boyoung Han, and Harim Lee(KAERI)
- P08C15 Development of 6-Inch Wafer Loading System 1-MV Electrostatic Accelerator at KOMAC
Won-Hyeok Jung, Yong-Sub Cho, Hyeok-Jung Kwon, Han-Sung Kim, and Kye-Ryung Kim(KAERI)
- P08C16 Measurements of Light-Output Ratios Using Inorganic and Organic Scintillators to Identify Gamma-Ray Emitting Radionuclides
Seunghyeon Kim, Siwon Song, Taeseob Lim, Jae Hyung Park, Jinhong Kim, Jin Ho Kim, and Bongsoo Lee(CAU)
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- P08C17 **Non-Destructive Evaluation of Insect Infestation on Mango Fruit: Optimal Scan Time of X-ray Computed Tomography**
Taeyun Kim, Jaegi Lee, Gwang-Min Sun, Byung-Gun Park, and Hae Jun Park(KAERI),
Deuk-Soo Choi(APQA), Sung-Joon Ye(SNU)
- P08C18 **A Preliminary Study on the Characteristics of Neutron and Gamma Ray Pulse Shape Discrimination using EJ276G Plastic Scintillator.**
Gyohyeok Song, Wonku Kim, Hyunwoong Choi, Jaehyun Park, and Gyuseong Cho(KAIST), Hyunduk Kim(IRIS)
- P08C19 **Rolling Effects on Advanced Reduced-Activation Alloy Studied by Positron Annihilation Lifetime Spectroscopy**
Young Su Jeong, Jaegi Lee, Young Bum Chun, Young Rang Uhm, and Gwang-Min Sun(KAERI),
Yongmin Kim(DCU)
- P08C20 **Investigation of Polyethylene Electrolyte Membrane in Different Thickness with Positron Annihilation Lifetime Spectroscopy**
Junyoung Lee, Jaegi Lee, YoungSu Jeong, Gwang-Min Sun, and Young Rang Uhm(KAERI),
Sung-Joon Ye(SNU)
- P08C21 **The Development of the Data Processing Device for RMS Redundancy in KOMAC**
Yi-Sub Min and Jeong-Min Park(KAERI), C.W. Lim(REMTECH)
- P08C22 **Feasibility Study of Fast Neutron Activation Analysis of Iron with LaBr₃:Ce Scintillation Detector**
Mingi Eom, Jaegi Lee, Taeyun Kim, Byung-Gun Park, Bo-Young Han, and Gwang-Min Sun(KAERI),
Sung-Joon Ye(SNU)
- P08C23 **Analysis of Beam Characteristics by Filter Design using Monte Carlo Simulation**
JaeHyun Park, Gyohyeok Song, Hyunwoong Choi, and Gyuseong Cho(KAIST), KyungDon Choi(UCSF),
Sujeoung Sim and Hyunduk Kim(IRIS)
- P08C24 **Study of Applied Voltage on Ionization Chamber for Radon Detector**
Hyunwoong Choi, Gyohyeok Song, Jaehyun Park, Das Sopan, Hojong Chang, and Gyuseong Cho(KAIST), Hyunduk Kim(IRIS)
- P08C25 **Plan for Ion Beam Analysis Systems Based on 3-MV Tandem Accelerator**
Kye-Ryung KIM, Hyeok-Jung KWON, Nam-Woo KANG, Kui-Young KIM, and Yong-Sub CHO(KAERI)
- P08C26 **Neutron Spectrometers in the KSTAR Tokamak**
Youngseok Lee, Jong-Gu Kwak, and Hee-Soo Kim(KFE)
- P08C27 **Determination of an Optimal Radiation Scintillator for Verification Equipment of Spent Nuclear Fuel of Heavy Water Reactor**
Sung-Woo Kwak, Minyoung Chung, and Ickhyn Shin(KINAC)
- P08C28 **Degradation of Lithium Fluoride Thin Targets on Carbon Backing Irradiated with 68 MeV 170 Beams at EMMA Facility of TRIUMF**
Yonghyun Kim, Jaebum Son, Kihong Park, and Yongkyun Kim(HYU), Barry Davids(TRIUMF)
- P08C29 **Study on Hydrous Tin(IV) Oxide Adsorbent for a ⁸²Sr/⁸²Rb Generator System**
Yeong Su Ha, Yeonji Lee, and Kye-Ryung Kim(KAERI)
- P08C30 **Method of Separating Carrier-Free Ho-166 and Purification using Chromatography**
KANGHYUK CHOI and ARAN KIM(KAERI)
- P08C31 **Radiopharmaceutical Distribution Device for Pediatric Cancer**
Eun-Ha Cho(KAERI)
- P08C32 **Fabrication and Operation Test of Beam Wobbler Using Halbach Dipole Magnets for KOMAC RI Production Beamline**
Yong-Sub Cho, Yeong Su Ha, Hyeok-Jung Kwon, Sang-Pil Yoon, and Kye-Ryung Kim(KAERI)
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- P08C33 **Development of Titanium Drive-in Solid Target for a Compact Fast Neutron Generator**
Doo-Hee Chang, Tae-Seong Kim, Jong Gab Jo, and Sun-Ho Kim(KAERI), Seok Kwan Lee(JA Vacuum)
- P08C34 **Evaluation of Activity and Displacement Per Atom of Fast Neutron Irradiated Al₂O₃/SS316L**
Sang-hwa Lee and Byung-Gun Park(KAERI), Young ku Jin and Dong min Kim(Hongik Univ.)
- P08C35 **Synthesis of Luminescent Graphene Quantum Dots by Ion-beam Assisted Chemical Vapor Deposition**
Jun Mok Ha, Seoung Ho Lee, Young Jun Yoon, Jae Kwon Suk, Young Seok Hwang, Chan Young Lee, Cho Rong Kim, Sunmog Yeo, and Jae Sang Lee(KAERI)
- P08C36 **Quantitative Estimation of Heating by Delayed Gamma Rays for In-Reactor Testing at HANARO**
Seongwoo Yang, Keenam Choo, and Mansoon Cho(KAERI)
- P08C37 **Electron-Beam Induced Graft Polymerization to Improve the Surface Hydrophilicity of Medical Grade Elastomer**
S. K. Park and D. Y. Choi(KITECH), W. C. Lee and S. H. Yoo(JBNU)
- P08C38 **Fabrication of Reduced Graphene Oxide by Electron Irradiation**
Na Eun Lee, Sang Yoon Lee, Hyung San Lim, and Sung Oh Cho(KAIST)
- P08C39 **Analysis of Fission Products during Long-Term Shutdown of Research Reactor**
Byung-Gun Park and Myong-Seop Kim(KAERI)

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

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

5. 13(목) | 좌장 이동원(Dong Won Lee), 권혁중(Hyeok-Jung Kwon) | 발표장소 온라인

- 09:00 Annual Fast Neutron Emission of KSTAR
Jong-Gu Kwak, Youngseok Lee, and Heesoo Kim(KFE)
- 09:20 Progress in Vapor Adsorption Test using Molecular Sieve for Helium Coolant Purification System
Chang Wook Shin, Eo Hwak Lee, Suk-Kwon Kim, Hyung Gon Jin, and Dong Won Lee(KAERI),
Seok-Kwon Son, Mu-Young Ahn, and Soon Chang Park(KFE)
- 09:40 Lattice Confinement Nuclear Fusions Using Photon Showered Erbium: Another Kind of Room Temperature Fusion Discovery in NASA's Glenn Research Center
TAE HO WOO(CUK)

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

| 좌장 김석권(Suk-Kwon Kim), 이동원(Dong Won Lee) | 발표장소 온라인

- P09B01 Preliminary Test of the KOMAC Linac BPM at the Test Bench for Upgrade
Kyumin Choe, Young-Gi Song, Hae-Seong Jeong, Han-Sung Kim, and Hyeok-Jung Kwon(KAERI)
- P09B02 Measurement and Comparison of Large Area Beam Current with the Metal Vapor Vacuum Arc Ion Source
Seung Ho Lee, Yong-Sub Cho, Han Sung Kim, and Hyeok-Jung Kwon(KAERI)
- P09B03 Irradiation Beam Line Design of the 1 MeV/n RFQ at KOMAC
Hyeok-Jung Kwon, Dong-Hwan Kim, Han-Sung Kim, Won-Hyeok Jeong, Jeong-Jeung Dang, Seunghyun Lee, and Yong-Sub Cho(KAERI)
- P09B04 Installation of Test-Stand for Conditioning of the Microwave Ion Source at KOMAC
Dae-Il Kim, Mun-Ho Jo, Kyung-Hyun Kim, Seong-Gu Kim, Hae-Seong Jeong, and Myung-Kook Moon(KAERI),
Yu-Seok Kim(Dongguk Univ.)
- P09B05 Implementation of the Control System and the Data Processing Logic for the Mass Flow Controller of the MWIS
Sung yun Cho, Jae Ha Kim, Young Gi Song, Dae Il Kim, and Myung Kook Moon(KAERI)
- P09B06 Data Acquisition System for Monitoring Input Array of Pulse Beams in KOMAC
Young-Gi Song, Sung-Yun Cho, Jae-Ha Kim, Sang-Pil Yoon, and Myung-Kook Moon(KAERI)
- P09B07 Effects of Grooved Wall in TBM to Reduce the Maximum Temperature of the Breeder Pebbles
Seong Dae Park, Dong Won Lee, Suk-Kwon Kim, and Hyung Gon Jin(KAERI), Mu-Young Ahn(KFE)
- P09B08 KAERI Heavy Ion Irradiation Facility: Status and Improvement Plans
Dae-Sik Chang, Sung-Ryul Huh, Yong-Sub Cho, Hyung Gon Jin, Jeong-Tae Jin, Byung-Hoon Oh,
Suk-Kwon Kim, and Dong Won Lee(KAERI), Seok-Kwan Lee(JAVac)
- P09B09 Status of the HeSS Test Facility for ITER HCCR's HCS
Eo Hwak Lee, Chang Wook Shin, Suk-Kwon Kim, and Dong Won Lee(KAERI), Mu-Young Ahn(KFE)
- P09B10 NOx Removal by Corona Plasma Generated by Nanosecond Pulse Modulator
Sang Uk Lee and Kyoung-Jae Chung(SNU)
- P09B11 Electrical and Pressure Characteristics of Wire Explosions of Various Wire Types to Simulate Reactivity Initiated Accident (RIA)
Ja Hyun Ku, Sang Uk Lee, Yu Yeon Kim, and Kyoung-Jae Chung(SNU)
- P09B12 Development of Plasma-Based Simulator for Reactivity-Initiated Accident (RIA) Research
Yu Yeon Kim, Sang Uk Lee, Ja Hyun Ku, and Kyoung-Jae Chung(SNU)
- P09B13 Device Configuration for Correction of Neutron Generation in Tokamak
Hee Soo Kim, Yeong Sok Lee, and Kap Rae Park(KFE)

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

10A

5. 13 (목)

원전건설 및 운영기술 1 (Plant Construction & Operation 1)

I 좌장 김민규(Minkyu Kim), 문일환(II-Hwan Moon)

I 발표장소 온라인

- 13:30 Design of Electrical Human Performance Optimization Training Facility
Choong-koo Chang, Jae-cheon Jung, and Erastus Mwangela Musyoka(KINGS)
- 13:50 Effects of Advanced Amines on Fouling Behavior of Alloy 690TT Tube in Simulated Secondary Water of PWRs
Yong-Beom Lee, Ji-Min Lee, Do Haeng Hur, and Soon-Hyeok Jeon(KAERI), JongHyeon Lee(CNU)
- 14:10 Preliminary Study on Fatigue Damage of Band Split PSD
Wonho Lee, Jinseok Park, and Jongmin Kim(KEPCO E&C)
- 14:30 Local Damage Analysis of Dry Storage Facility under Aircraft Engine Impact
Belal Almomani, Tae-Yong Kim, and Yoon-Suk Chang(KHU)
- 14:50 Dynamic Behavior of Submerged Spent Fuel Storage Rack
Byungchun HWANG, Kikwang SUNG, Jungyong KIM, and Jongmin KIM(KEPCO E&C)

10B

5. 14 (금)

원전건설 및 운영기술 2 (Plant Construction & Operation 2)

I 좌장 구경희(Gyeong-Hoi Koo), 이동원(Dong-Won Lee)

I 발표장소 온라인

- 09:00 Nonlinear Earthquake Behavior of a Rectangular Liquid Storage Tank to Three-Directional Ground Motion
Chae Been Lee, Van Hieu Nguyen, Mau Nhat An Nguyen, Dinh Tuan Nguyen, and Jin Ho Lee(PKNU)
- 09:20 Risk-Based Approach for Determining Shutdown of Operating Nuclear Power Plants in an Earthquake
Young-Sun Choun and Tae-Hyun Kwon(KAERI)
- 09:40 Study on the Effect of Opening and Loading Direction on the Strength of RC Shear Wall using Numerical Model
Hyun Su Moon and Junhee Park(KAERI)
- 10:00 Evaluation of Tensile Behavior for Large-Diameter CIP Anchor Bolts with Embedded Plate
Junhee Park(KAERI)
- 10:20 Seismic Response of Essential Service Water Pump Considering Nonlinear Behavior of Anchorage
Gyeonghee An and Junhee Park(KAERI)
- 10:40 Evaluation of Isolator Capacity and Seismic Response of an Isolated Nuclear Power Plant for Clearance to Stop Requirements
Gyeonghee An and Minkyu Kim(KAERI)
- 11:00 Estimation of the Correlation Coefficient for the Response Variable of the Probabilistic Seismic Fragility Curve
Si Young Kim and Jung Han Kim(PNU)
- 11:20 The Investigation on Cable Aging Condition Monitoring Technology Trends and Findings
Kyung-Heum Park and Han-Soo Kim(KHNP)

10C

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

| 좌장 김종욱(Jong-Wook Kim), 김태순(Tae-Soon Kim)

| 발표장소 온라인

- PO10C01 Study on Improvement Direction for Regular Inspection of Nuclear Power Plants(Focusing on the Field of Operational Technology Capability)
ChanGyu HAN(KINS)
- PO10C02 Prediction of Remaining Life of Photo-Coupler Embedded in Control Board of Nuclear Power Plant through Accelerated Life Test
Young-Suk Jung, Young-II Oh, Eun-Kyung Lee, and Jae-Soo Noh(ACT Co.), Chan-Sei Yoo(KETI), Hong-Ki Jang and Jong-Ho Kim(Woojin Ntec), Joong-Soon Jang(Ajou Univ)
- PO10C03 Fatigue Test for 316 Stainless Steel in a High Dissolved Hydrogen Environment
Taesoon Kim(KHNP CRI), Hyeonbae Lee(KAIST)
- PO10C04 Heat Balance of Supercritical Carbon Dioxide Power Cycles for Thermal Energy Storage System
Huee-Youl Ye, Sunrock Choi, Jonggan Hong, and Jaehyuk Eoh(KAERI)
- PO10C05 Experimental Study of Condensation Heat Transfer Performance on an Outer Super-Hydrophobic Tube with Various Materials
Kwon-Yeong Lee, Min-Hyung Lee, Hong-Ik Lee, and Eon-Jong Jung(HGU), Woonbong Hwang and Young-Hoon Shin(POSTECH)
- PO10C06 Seismic Analyses of Spent Fuel Storage Rack for Research Reactor
Taejin Kim, Sangjin Lee, and Jinho Oh(KAERI)
- PO10C07 Seismic Behavior Analysis of Electrical Cabinets due to Rocking in Shaking Table Test
Sung-Wan Kim, Da-Woon Yun, Bub-Gyu Jeon, and Dong-Uk Park(SESTEC)
- PO10C08 Limit State Assessment of a 3-Inch Carbon Steel Pipe Tee of Nuclear Power Plant
Sung-Wan Kim, Da-Woon Yun, and Bub-Gyu Jeon (SESTEC), Min-Kyu Kim(KAERI)
- PO10C09 Nonlinear Seismic Response Analysis of APR 1400 MS Line of Base-Isolated NPP
Da-Woon Yun, Bub-Gyu Jeon, and Sung-Wan Kim(SESTEC), Min-Kyu Kim(KAERI)
- PO10C10 Effects of Ground Motion Input on Responses of Structure and Equipment
Kwangsub Jung, Tae-Hyun Kwon, and In-Kil Choi(KAERI)
- PO10C11 Dynamic Responses According to Seismic Analysis Procedures in Korea and Japan
Yongbog Kim, Ilhwan Moon, DoYeon Kim, and Yongsun Lee(KEPCO E&C), Heekyun Kim(Econing)
- PO10C12 Preliminary Probabilistic Seismic Hazard Assessment for KAERI Site
Jeong-Gon Ha and Seung-Chul Jang(KAERI), Hyun Jae Yoo and Tae Seob Kang(PKNU)
- PO10C13 A Review on the International Research Status on Seismic Analysis Program of Fuel Assembly
Hyunsuk Nam and Taesoon Kim(KHNP CRI), Jongseong Moon and JeongKyu Kim(KEPCO E&C)
- PO10C14 Structural Analysis of the IV-CEDM Lower Support
Jiseung Moon, Wonho Lee, Jinseok Park, and Jongmin Kim(KEPCO E&C)
- PO10C15 Dynamic Behavior Analysis of Single Door Cabinet based on Experimental Test Data
hoyoung Son and buseog Ju(KHU), bubgyu Jeon(SESTEC)

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

11A

5. 13 (목)

북한탈핵의 함의와 안전조치 기술개발 (Implication of North Korea Denuclearization and Safeguard Technology Development)

| 좌장 이나영(Na Young Lee), 정원표(Won Pyo Jeong)

| 발표장소 온라인

- 09:00 Assessing a Drone Threat to Nuclear Facilities
Jeong-ho Lee(KINAC)
- 09:20 Analysis of Domestic Safeguards Approaches: Different Views between the ROK and U.S.
Ickhyun Shin(KINAC)
- 09:40 A Study on the Improvement of Nuclear Safety-Security Interface Management
Min BAEK and Sunghun OH(KINAC)
- 10:00 The Implication of the Latest DPRK Nuclear and Delivery System Development and Its Implication to the Nuclear Sectors in the ROK
Yongsoo Hwang(KAERI), Joocho Whang(KHU)
- 10:20 Analysis of DPRK's Nuclear Strategy for Developing Modeling Indicators
Yonhong Jeong, SeungHo Jeong, Yein Seo, and Byung-Woo Shin(KINAC)
- 10:40 A Roadmap for DPRK's Denuclearization Under the Consideration of Nuclear Latency
Junho Kwon and Man-Sung Yim(KAIST)

11B

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

| 좌장 정범진(Bum-Jin Chung), 이현철(Hyun Chul Lee)

| 발표장소 온라인

- P011B01 An Analysis of Training Requirements in the Course for Personnel in Charge of Accounting for and Control of SNM
Byung-Woo Shin(KINAC)
- P011B02 A Public Awareness Improvements of Nuclear Energy by Correcting Wrong Information
Seungil Ha, Kwangheon Park, Eunjeong Jo, and Gitae Kim(KHU)
- P011B03 Unannounced Safeguards Inspection and Its Efficiency Assessment
Ickhyun Shin(KINAC)
- P011B04 Sensitivity Analysis of Threshold of Overlapping Pixels to the Pixel-Object Fusion Change Detection for Countering Nuclear Proliferation
Nam Kyung Kim(KINAC)
- P011B05 Effects of Weather on the Performance of Intrusion Detection Sensors
Wooseub Kim, Sundo Choi, Inseon Back, Hyeseung Kim, and Ji-Hwan Cha(KINAC)
- P011B06 A Study on Method of Improving the Export License for Nuclear Power Plant Technology
Beomseok SHIN(KINAC)

-
- PO11B07 Study on International Transfer Procedures According to Administrative Arrangement of the ROK-US Bilateral Nuclear Cooperation Agreement
Sujeong Kim(KINAC)
- PO11B08 Study on International Transfer Procedures According to Supplementary Arrangement of the ROK-CAN Bilateral Nuclear Cooperation Agreement
Sujeong Kim(KINAC)
- PO11B09 Biosignal-Based Recognition Tests to Mitigate Insider Threat in Nuclear Facilities
Chul Min Kim, Hyeon-Jeong Suk, and Man-Sung Yim(KAIST)
- PO11B10 Improvement of Nuclear Material Accounting and Control Reporting Process in the ROK
Wonjong Song(KINAC)
- PO11B11 The Radioisotope Ratio Signature of Core Denuclearization Facility in Democratic People's Republic of Korea
Yeoryeong Jeon, Da Yeong Gwon, Jiyoung Han, and Yongmin Kim(DCU)
- PO11B12 Study on the Establishment of Wireless Networks in Restricted Areas for Denuclearization
Dong Yeong Kim, Jihye Seo, and Myungsoo Kim(KINAC)
- PO11B13 Estimation of North Korea's Uranium Production using Bayesian Network
Yein Seo, Yonhong Jeong, and SeungHo Jeong(KINAC)
- PO11B14 Development of the Collection System to Provide the Information of Denial List
Sujeong Kim and Sangjun Lee(KINAC)
- PO11B15 A Study to Suggest the Sequences and Considerations of Soil Sampling for Nuclear Verification
Jihye Seo, Dong Yeong Kim, and Myungsoo Kim(KINAC)
- PO11B16 A Study on the Current Status of the Domestic Regulatory Frame for Localization Measures of Insider Threat Prevention
Chan Kim(KINAC)
- PO11B17 Research on the Evaluation of the Perimeter Lighting Layout to Operate the Surveillance System for the Physical Protection of Nuclear Facilities
inseon Back(KINAC)
- PO11B18 A Study on the Benefits of Support for Updating the International Target Value through the Member State Support Program (MSSP)
Donghyuk LIM and Wonjong Song(KINAC)
- PO11B19 Review on the Personal Information in the APPRE
sangcheol Hyung(KINAC)
- PO11B20 A Fundamental Study on the Regulation for Safety/Security Standards for Performance Test of Spent Nuclear Fuel Transportation Package
Chan Kim(KINAC)
- PO11B21 Analysis on Government Policy and Public Opinion on Spent Nuclear Fuel
Jisong Jeong and Seungkook Roh(KNPU), Hyunjin Kim(KINAC)
- PO11B22 A Review of U.S. Nuclear Policy by Parties' Platforms
Jae Eun Choi(KONICOF)
- PO11B23 A Preliminary Study on Support Policies of Oversea Competitors to Enhance Competitiveness NPPs Technologies Exports in Korea
Woocheol Choi, Kinam Kwon, Jaechan Park, Jin Young Chung, Jungho Song, Tae hoon Jeon, and Minsu Ju(BRNC Inc.)
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원자력 계측제어, 인간공학 및 자동원격 (Nuclear I&C, Human Factors and Automatic Remote Systems)

12A 5. 13 (목)

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

| 좌장 이윤희(Yoon Hee Lee), 김지태(Ji Tae Kim)

| 발표장소 온라인

- 09:00 Methodology for MAAP5 to Track RELAP5 Results for an Application of a Severe Accident Module in Nuclear Power Plant Simulators
Keo-Hyoung Lee(FNC Tech.), Kyeong-Min Kim, Joo-Youl Lee, and Jong-Beom Lee(KHNP)
- 09:20 Prediction of Golden Time for SIS Recovery during LOCAs via Rule-Dropout Deep Fuzzy Neural Networks
Hye Seon Jo, Young Do Koo, Ji Hun Park, and Man Gyun Na(CSU)
- 09:40 Priority Design of Safety Related Component Control for Autonomous Operation System in NPP
Yun Goo Kim and Dae Seung Park(KHNP)
- 10:00 A Study on Improving the Level of Automation for Small and Modular Reactor Operation using Computer-based Operating Procedures
Sa Kil Kim, Kwang Il Jeong, and Joon Ku Lee(KAERI)
- 10:20 An Experimental Investigation of Human Performance Differences Depending on Simulator Complexity
Jeong Hun Choi(KHNP), Sungheon Lee, Bumjun Park, Changsang Park, and Jonghyun Kim(CSU), Ronald L Boring and Jooyoung Park(INL)
- 10:40 Integrated Monitoring and Action Support System (I-MAS) for Mitigating Accidents in the Nuclear Facility
Hyun-Chul Lee and Tong-Il Jang(KAERI)
- 11:00 Optimization of Binary Decision Diagram Heuristics from Reinforcement Learning
Young Ho Chae and Poong Hyun Seong(KAIST)
- 11:20 A Brief Review of Linear Support Vector Machine for Machine Learning Programming
Yong Suk Suh, Seung Ki Shin, Dane Baang, Sang Mun Seo, and Jong Bok Lee(KAERI)

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

| 좌장 최종균(Jong Gyun Choi), 손준영(Jun Young Son)

| 발표장소 온라인

- 13:30 A Research Proposition for Failure Analysis of Digital I&C System for Cyber Security
Jinsoo Shin and Jae-Gu Song(KAERI)
- 13:50 Development of a Multi-Layer State Estimation Method for Functional Impact and Recoverability Analysis Under Cyber Attacks in NPPs
Chanyoung Lee, Young Ho Chae, and Poong Hyun Seong(KAIST)
- 14:10 Cyber-Attack Path Suggestion System by using Markov Model and Dijkstra's Algorithm
Young Ho Chae, Chanyoung Lee, and Poong Hyun Seong(KAIST)

-
- 14:30 Development of a Nuclear Power Plant Safety and Cyber Security Combined Risk Analysis Method Based on Probabilistic Safety Assessment
Sang Min Han and Poong Hyun Seong(KAIST)
 - 14:50 Introduction of Performance Measure Cases for Nuclear Cyber Security Inspection
Kookheui Kwon and Seungmin Kim(KINAC)
-

12C

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

| 좌장 이현철(Hyun-Chul Lee), 구서룡(Seo Ryong Koo)

| 발표장소 온라인

-
- PO12C01 The Development of Abnormal Scenarios and Generating AI Training Data for Operator Support System
Dae Seung Park and Yun Goo KIM(KHNP)
 - PO12C02 Setpoint Evaluation Technique Considering Instrument Uncertainty Change
Chang Jae Lee, Woo Goon Kim, and Ki Hoon Jung(KEPCO E&C)
 - PO12C03 Development of Information Displays based on Severe Accident Management Guidelines and R.G 1.97 rev.5
Inseok Jang and Chang Hwoi Kim(KAERI)
 - PO12C04 A Scrutinized Step Proposed to a More Effective Human Error Investigation for Including Violations and Their Countermeasures
Yong Hee Lee(KAERI)
 - PO12C05 Performance Test for Shinkori Units 5&6 Simulator
kyungmin Kim, Jong-Beom Lee, Chanho Sung, and Jooyoul Lee(KHNP)
 - PO12C06 Computerized Procedure System Centered HFE V&V for Shinkori Units 5&6
Chanho Sung, Jooyoul Lee, Jungho Kim, and Kyungmin Kim(KHNP)
 - PO12C07 Necessity of Establishing a Security Model for Cyber Threat Assessment
Seungmin Kim and Kookheui Kwon(KINAC)

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