KNS(P)-001-2020 추계학술발표회 프로그램

www.kns.org

KNS 2020 Autumn
온라인 추계학술발표회

KOREAN NUCLEAR SOCIETY

2020. 12. 16.(수)~18.(금)
Virtual Autumn Meeting
(http://2020Autumnmeeting.kns.org)

사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

www.kns.org

KNS 2020 Autumn

온라인 추계학술발표회

2020. 12. 16.(수)~18.(금)
Virtual Autumn Meeting
(http://2020Autumnmeeting.kns.org)

사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY

CONTENTS

학회장 인사말

하재주 학회장

원자력학회 회원 여러분.

오랫동안 회원 여러분들이 서로 만날 기회가 없었기에 코로나가 진정되기를 바라며 12월로 학회를 연기하였으나 온라인으로 학회를 전환하지 않을 수 없는 상황이 되었습니다. 위험에 대한 원전 스트레스 테스트와 같이 지금 코로나 사태도 전염병에 대한 우리 국민과 시스템의 스트레스 테스트가 아닌가 생각이 듭니다. 석유파동도 IMF도 극복한 저력있는 대한민국은 이 또한 훌륭히 극복할 것이라 확신합니다.

전 세계는 기후위기가 큰 화두입니다. 지구와 환경 보존을 넘어 이를 해결하기 위한 탄소중립은 무역과 경제의 핵으로까지 부상하였습니다. 전통적으로 반핵기조를 유지하던 미국의 민주당은 50여년 만에 탄소중립을 달성하기 위해서 원자력을 지지하는 입장으로 선회하였습니다. 모든 것이 풍부하여 많은 선택지가 있는 미국이 원자력의 역할이 중요하다고 인정한 것은 참으로 시사하는 바가 큽니다. 전기차, 4차산업, 수소경제 등 대표적인 저탄소화는 전기의 사용을 전제로 하므로 전력 수요는 급격히 늘어날 수밖에 없으며 전기 생산의 저탄소가 선행되지 않으면 실효를 거둘 수 없는 것은 자명합니다.

탄소중립2050을 목표로 하는 바이든 정부가 먼저 전력부분의 탄소중립을 2035년까지 달성하고자 하는 것은 이러한 지극히 논리적이고 과학적인 사고에 기반합니다. 이를 위해 대표적인 탄소발생원인 석탄과 가스의 사용을 억제하고 신재생과 원자력의 경쟁력을 높이는 정책을 채택한 것은 정치사회적인 동기로 탈원전을 먼저 선언하여 탄소중립2050 달성을 어렵게 만들어 딜레마에 빠진 우리나라와 대조를 이룹니다. 우리가 원자력에 몸을 담아서가 아니라 원자력이 기후위기에 대처할 수 있는 가장 효과적이고 효율적인 저탄소 청청에너지라는 것은 믿음이 아니라 과학적 사실이므로 탈원전 정책은 반드시 재고되어야 합니다.

신재생에너지가 전 세계적으로 폭발적인 성장을 하고 있습니다. 신재생은 전통적인 발전시스템에 비해 상대적으로 쉽게 할 수 있으므로 당연히 확대 성장할 것입니다. 하지만 원자력은 기술과 규제 등 국가적인 시스템을 갖추어야 하고, 지금의 대형원전은 매우 큰 전력망과 높은 초기 투자비, 긴 건설기간 등으로 건설할 수 있는 능력과 조건을 갖춘 나라가 한정적입니다. 만약 태양광처럼 원자력을 쉽게 이용할 수 있다면 원자력도 매우 큰 성장을 할 것입니다. 적은 비용으로 짧은 시간에 누구나 쉽게 건설하고 안전성 걱정 없이 운전할 수 있는 원자로가 있다면 저탄소 청청에너지로 가장 효율적이고 효과적인 원자력을 하지 않을 이유가 없습니다. 이것이 SMR이 가지는 비젼이며 미래입니다. 이 분야에서 우리는 그동안 상당한 선도적인 역할을 했습니다. 탈원전 정책으로 위축되지 않기를 간절히 빕니다.

우리나라와 같이 국토가 작고 큰 전력망을 가지고 있는 나라는 대형원전이 기저전력을 어느정도 담당하여 대규모의 전력을 안정적으로 공급하고 소형원전으로 신재생의 간헐성을 보완하는 시스템은 탄소중립을 달성하면서 미세먼지를 줄이고 국가 경쟁력까지 확보할 수 있는 최적의 정책이 될 것입니다. 또한 원자력을 활용하고 싶어도 여건이 되지 않아 못하는 나라에 SMR은 미래의 큰 시장입니다. 우리 그리고 세계의 미래는 그렇게 갈 수 밖에 없으며 다행히 우리는 모든 능력을 가지고 있습니다. 희망 아니 신념을 가지고 우리 모두 소임을 다 합시다.

2020년 12월

한국원자력학회장 하 재 주

한국원자력학회 2020 온라인 추계학술발표회 전체 일정

| 일정 2020년 12월 16일(수) ~ 18일(금)

※ 개회내용은 별도의 시상식없이 온라인학술발표회 시스템에 수상자 명단 및 사진 등 게시

<table>
<tr><th>구분</th><th colspan="3">내용</th></tr>
<tr><td rowspan="8">개회내용</td><td colspan="3">• 학회장 인사말 : 하재주 한국원자력학회장</td></tr>
<tr><td colspan="3">• 축　사 : 정병선 과학기술정보통신부 제1차관</td></tr>
<tr><td colspan="3">• 공로패 및 감사패 : 제32대 학회장 및 연임하지 않은 임원 등</td></tr>
<tr><td colspan="3">• 수상자 :</td></tr>
<tr><td colspan="3">학술상, 기술상, 학회지우수논문상, 학술발표회 우수논문상</td></tr>
<tr><td colspan="3">〈특별상〉
두산원자력기술상, HANA 기술상, 원자력과 사회소통상, 원자력 전산기술상, 퀴리상, 박창규 PSA 대학(원)생 논문상, 원자력리스크 및 중대사고 분야 우수연구자상</td></tr>
<tr><td colspan="3">한국원자력대상</td></tr>
<tr><td colspan="3">• 장학생 : 한국원자력학회(두산중공업㈜후원) 장학생</td></tr>
<tr><td>특별강연</td><td colspan="3">• 조성은 무진기연 대표이사 – 에너지 전환 시대의 원자력 산업계 현황과 전망
※ 온라인학술발표회 시스템에서 발표영상 스트리밍 서비스</td></tr>
<tr><td rowspan="4">논문발표</td><td rowspan="3">구두논문
ZOOM Live</td><td>12. 17(목)
오전</td><td>원자로 물리 및 계산과학(A)
원자력시설해체 및 방사성폐기물관리(A)
핵연료 및 원자력재료(A)
원자력 열수력(A)
원자력 안전(A) (B)
방사선 방호(A)
방사선 이용 및 기기(A)
양자공학 및 핵융합기술(A)
원자력계측제어, 인간공학 및 자동원격(A)</td></tr>
<tr><td>12. 17(목)
오후</td><td>원자로시스템기술(A)
원자로 물리 및 계산과학(B)
핵연료 및 원자력재료(B)
원자력 열수력(B)
원자력 안전(D)
방사선 이용 및 기기(B)
원전건설 및 운영기술(A)
원자력정책, 인력 및 협력(A)
원자력계측제어, 인간공학 및 자동원격(B)</td></tr>
<tr><td>12. 18(금)
오전</td><td>원자로시스템기술(B)
원자로 물리 및 계산과학(C) (D)
핵연료 및 원자력 재료(C)
원자력 열수력(C) (D)
원자력 안전(C)
원전건설 및 운영기술(B)</td></tr>
<tr><td>포스터논문</td><td>12. 16(금)
~ 18(금)</td><td>온라인학술발표회 시스템에 발표자료(Presentation files) 게시</td></tr>
</table>

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

축사

과학기술정보통신부
정병선 제1차관

안녕하십니까. 과학기술정보통신부 제1차관 정병선입니다.

한국원자력학회 온라인 추계 학술발표회 개최를 축하드립니다. 코로나19 상황의 장기화와 최근의 급격한 재확산으로 인해 어려운 상황을 맞이하고 있습니다. 정상적인 학술발표회 개최가 힘든 상황에서도 차질 없이 준비해주신 하재주 학회장님과 학회 관계자분들, 발표 및 토론을 통해 참여해주신 학회 회원님들 모두에게 감사드립니다.

한국원자력학회는 우리나라 원자력의 지속적인 발전에 기여한다는 목적 하에 설립되어, 반세기 이상 그 역할을 다하여 왔습니다. 정기적인 학술대회 개최와 간행물 발간, 포럼개최 등을 통하여 원자력 학술 및 기술 발전에 이바지하여 왔습니다. 또한 원자력계 전문가들간의 네트워크 형성 기회 제공과 대국민 원자력 홍보활동을 통하여 소통강화에도 크게 기여하였습니다. 학회의 노고에 감사드립니다.

원자력을 둘러싼 환경이 다방면에서 변화하고 있습니다. 후쿠시마 사고와 경주·포항 지진 이후 원전의 안전에 대한 국민의 요구가 지속적으로 증대되고 있으며, 고리1호기를 시작으로 한 본격적인 원전 해체에도 대비가 필요합니다. 또한 세계 원전시장은 대형원전 중심에서 중소형원자로(SMR) 중심으로 재편이 시작되고 있으며, 시장을 선점하기 위한 세계 각국의 기술경쟁이 심화되고 있는 상황입니다.

정부는 이러한 변화에 대응하여, 다가올 미래시장에 대비할 수 있도록 연구개발을 적극적으로 지원할 예정입니다. 먼저, 원전의 안전성을 증진하기 위한 연구개발에 지속적인 지원을 할 계획입니다. 특히 빅데이터, 로봇, 가상화 등 신기술을 접목한 안전 기술개발을 적극 추진 중입니다. 원전 해체를 위한 기술 적기 확보와 동남권해체연구소 구축도 예정대로 진행되고 있습니다. 또한 미래 SMR 시장 선점을 위한 혁신적 연구개발을 적극 지원하겠습니다. 이를 위한 인프라로서 혁신원자력연구단지 구축도 차질 없이 진행될 수 있도록 노력하겠습니다.

원자력 학계에서도 정부와 함께 지속적으로 노력해 주시길 부탁드립니다. 여러분들의 창의적인 아이디어와 실패를 두려워하지 않는 도전이 우리나라 원자력의 미래를 결정하게 될 것입니다. 특히, 원자력학회가 원자력 전문가들 간 아이디어 및 기술 공유와 소통의 매개체로서 역할을 다하여, 혁신의 인큐베이터로서 역할을 해주실 것으로 기대합니다.

다시 한번 한국원자력학회 온라인 추계 학술발표회 개최를 축하드립니다. 내년에는 코로나19가 종식되어 직접 여러분들을 뵙게 되길 기대하겠습니다. 한국원자력학회의 앞날에 무궁한 발전이 있기를 기원합니다. 감사합니다.

2020년 12월

과학기술정보통신부 제1차관 **정 병 선**

[논문발표자] 참가요령

1. 구두 발표는 실시간 온라인 발표(zoom)로 진행되며 '온라인학술발표회 전용페이지' 접속 후 개인 별 해당하는 발표 세션에 접속하여 실시간 발표를 진행합니다.

2. 포스터 발표는 발표자료(PPT 또는 PDF)를 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	40,000원
평생회원	연회비 10년분을 일시납 한 회원	70,000원
정회원A	2020년도 연회비 납부회원 2020년에 가입한 신규회원	
정회원B	2020년도 연회비 미납회원	95,000원
비 회 원	–	95,000원

[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 접속하여 참여 가능하며, 포스터 발표는 온라인학술발표회 페이지에 게시되는 발표자료에 학술발표회 기간 중 자유롭게 참여 가능하며 질의는 댓글로 남겨 주시면 발표자에게 알림 메일이 발송되며 확인 후 답변 드릴 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	40,000원
평생회원	연회비 10년분을 일시납 한 회원	70,000원
정회원A	2020년도 연회비 납부회원 2020년에 가입한 신규회원	
정회원B	2020년도 연회비 미납회원	95,000원
비 회 원	–	95,000원

※ 행사 기간 중에도 등록비 결제가 가능합니다.

한국원자력학회 제33대 임원진

회장

하재주

수석부회장

정동욱

부회장

김균태

김미숙

양준언

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


김균태


김민환


김찬형


김창회


방인철


이도환


이동원


이은기


이희석


장창희


정범진


정승영


차완식


최성열


한은옥

임명직 위원


김동억


김성중


노동석


문주현


박문규


박상길


박성윤


신동호


심형진


안호선


양준언


양진화


유동인


윤봉요


윤지웅


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


김용균


김용희


김윤재


김원주


김지현


김응수


김인규


김창락


선광민


신형기


이동원


임호곤


정명조


정범진

국외 위원


Akio Gofuku


Didier Jacquemain


John C. Jin


Jean Noirot


Horst-Michael Prasser


Shripad Revankar


Guanghui Su


Belle R. Upadhyaya

한국원자력학회 연구부회장/차기연구부회장 · 지부장

연구부회장/차기연구부회장

원자로시스템기술


김민환


이태호

방사선 방호


이희석


김희령

원자로물리 및 계산과학


이은기


홍서기

방사선 이용 및 기기


김찬형


문명국

원자력시설해체 및 방사성폐기물관리


차완식


임상호

양자공학 및 핵융합기술


이동원


권혁중

핵연료 및 원자력재료


장창희


양재호

원전건설 및 운영기술


이도환


류정수

원자력열수력


권태순


윤병조

원자력정책, 인력 및 협력


정범진


임채영

원자력 안전


김균태


박현선

원자력계측제어, 인간공학 및 자동원격


김창회


김종현

국내외 지부장

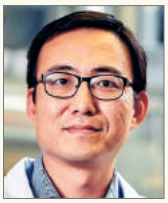

송종순
광주/전남/전북 지부


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

위원

김교윤

김동억

김응수

김태룡

박범서

어근선

윤봉요

윤종일

이승준

이은기

이정표

이희범

전경락

정재학

채수열

사무총장

남장수

실장

민현정

팀장

송지현

대리

이연화

대리

유진원

직원

노예진

공로패 및 감사패 (제32대 학회장 및 연임하지 않은 임원 등)

[공로패]

학회장

민병주

[감사패]

부회장

김만웅

전휘수

최재붕

황용석

사업이사

권민지

편집이사

심형진

홍보이사

서민원

국제협력이사

김용희

국제협력이사

김신애

기획이사

이영욱

기획이사

이윤실

특임이사

정승호

고급정책연구소장

김현준

특별강연

| 일시 2020년 12월 16일(수) ~ 18일(금)

조 성 은

(주)무진기연
대표이사

광주경영자총협회
부회장

에너지소통·혁신위원회
부위원장

에너지전환시대의 원자력 산업계 현황과 전망

안녕하십니까? 저는 무진기연 조성은 사장입니다. 우리 원자력 업계가 처한 현실 상황과 앞으로 어떤 방향으로 나아갔으면 하는지에 대해 오랜 세월 원자력 사업을 해 온 회사의 사장으로서 개인적인 소회를 밝히고자 합니다.

저희 ㈜무진기연은 30년 동안 오직 원자력 외길을 걸어온 원자력 전문업체로서 UAE 바라카 원전과 신고리5.6호기에 6가지 패키지를 공급하였습니다. 그리고 R&D를 통해 Refueling Machine, Single Stud Tensionner를 국산화하는 데 성공하였으며, 중수로 사용후연료건식저장설비(SWS)를 개발하여 해외 원전에 수출하였습니다. 최근에는 증기발생기 노즐댐 국산화에도 성공하는 등 원자력 전문업체로서 자부심을 가지고 있습니다. 그러나 탈원전 등의 미래를 생각하면 위축되는 바 없지 않고, 전력을 다해 사업에 매진해왔는데도 상황이 이렇게 되어 아쉽기만 합니다.

저희가 이러한 국산화 R&D를 선언했을 때 모두 반대하고 비웃었지만 끝내 국산화에 성공했고, 2017년 정부의 탈원전 선언으로 신고리5.6호기 건설이 중단되었을 때 모두 회피하는 원자력살리기협의회장 직책을 맡아 그야말로 현장을 발로 뛰어 공론화 성공을 이끌어 냈던 일도 있었습니다. 문제는 지금부터입니다. 탈원전 정책에 따라 생존을 위협받고 있는 원자력 생태계 보전을 위해 한수원은 많은 지원정책을 내놓았습니다만, 사실 이렇다 할 대책은 눈에 띄지 않는데 하루 빨리 대책을 마련해야 한다고 봅니다.

작년말, 광주전남 지역 오피니언 리더들을 중심으로 '에너지소통혁신위원회'를 발족하여 부위원장으로 참여하고 있고, 현재 분위기가 아주 좋습니다. 조금 늦은 감이 없지 않지만 향후 전국적이고 체계적인 사례로 확대되어 한수원과 국민 사이의 소통의 장으로서 귀감이 되었으면 좋겠습니다.

마지막으로, 향후 원자력 정책은 현 정부가 끝나고 다음 정부가 들어서면 원점으로 회귀할 수밖에 없지 않을까 생각합니다. 세계의 트렌드가 그렇고, 국내외 전력 시장의 구조가 그렇기 때문입니다. 어려운 시기지만, 용기를 잃지 않고 인내하면서 준비를 해나가고 산업계와 학계와 연구조직 등이 모두 한마음으로 뭉쳐 노력한다면 위기를 충분히 극복할 수 있다고 믿습니다.

2020 추계학술발표회 수상자 명단

한국원자력대상

| 성명 | **박 정 기** | 소속 | (사)한미친선군민협의회 회장 (前 한국전력공사 사장)

| 주요 공적 |

– 원자력 기술자립의 꿈을 실현하기 위하여 영광 3, 4호기 기술전수로 KSNP 한국형 원전의 초석을 다짐
– 2020년 2월 17일 APR1400 신형원자로 BNPP 1호기가 운영허가를 받아 중동 땅에 처음으로 대한민국 원전을 가동하는 기틀 마련
– 울진 1, 2호기 원전 건설 상업차관 계약 체결 (3,500만 US$)

학술상

| 성명 | **김 윤 재** | 소속 | 고려대학교 기계공학부 교수

| 주요 공적 |

– 유한요소손상해석을 이용한 주요 원전기기 파손모사 기법 개발 연구를 통해 극한환경에서의 기기의 구조적 안전성 평가를 가상적으로 수행할 수 있는 기반을 마련하고, 국제 협력을 통한 기술기준화 및 산업화 응용에 기여함.

기술상

| 성명 | **김 성 우** | 소속 | 한국원자력연구원 재료안전기술개발부 책임연구원

| 주요 공적 |

– 가동원전 구조재료의 부식열화에 대한 이해 증진과 새로운 분석기술 개발에 기여
– 국내원전 주요기기 부식손상 원인 분석 및 현장 기술 지원을 통해 안전성 향상에 기여
– 가동원전 원자로 헤드 관통관, 증기발생기 전열관, 이종금속용접부 소재 뿐만 아니라 미래 원자력 시스템 주요기기 소재의 경년열화 대응기술 기반 마련

두산원자력기술상

| 성명 | **송 명 준** | 소속 | 한국전력기술(주) 책임연구원

| 주요 공적 |

– 신형원전 제어시스템 개발로 원전의 경제성 향상에 기여
– 국내 원전 노물리시험 및 출력상승시험 기술지원으로 원전의 성능 및 안전성 검증
– 원전 제어시스템 성능검증 도구 개발로 고품질의 제어시스템 공급
– 수출형 원전 안전해석 기술개발로 수출 경쟁력 제고
– 리스크 기반 안전등급분류 방법론 개발 참여로 원전의 안전성 강화

2020 추계학술발표회 수상자 명단

HANA기술상

| 성명 | **김 용 수** | 소속 | 한양대학교 원자력공학과 교수

| 주요 공적 |

– Zr 합금 핵연료 피복관의 부식 및 수소화 재료 열화 거동 규명
– 고연소 핵연료의 노내 거동 및 성능 평가 해석 모델 개발
– 사용후핵연료 장기 건식 저장 안정성 평가 기술 개발

원자력과 사회소통상

| 단체명 | **사실과 과학 시민네트워크 (공동대표: 조기양, 신광조, 최영대)**

| 주요 공적 |

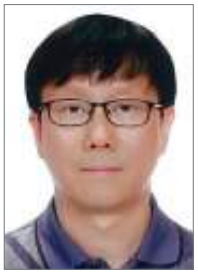
– 탈원전 반대 및 신한울 3,4호기 건설재개 촉구 서명운동, 소통활동 선도
– 신문광고, SNS, 세미나를 통해 원자력 관련 사실과 과학을 시민과 적극 공유

원자력 전산기술상

| 성명 | **박 동 규** | 소속 | ㈜미래와도전 부장

| 주요 공적 |

– 불연속벌점함수 기반 다목표 최적화 방법론 정립
– 다주기 노심 장전모형 최적화 방법론 정립
– 설계코드 연계 장전모형 최적화 코드(McFLOP, Genre_LP 등) 개발



원자력 리스크 및 중대사고 분야 우수연구자상

| 성명 | **한 상 훈** | 소속 | 한국원자력연구원 책임연구원

| 주요 공적 |

– 국내 PSA 도입기부터 PSA 소프트웨어 국산화 및 PSA 기술 개발에 크게 기여한 대표적인 연구자임

2020 추계학술발표회 수상자 명단

박창규 PSA 대학(원)생 논문상

백세진
(경희대학교)

퀴리상

김채원
(한국과학기술원)

서형주
(서울대학교)

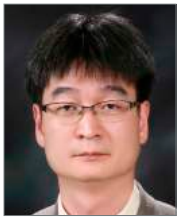
장재림
(울산과학기술원)

학회지 우수논문상

노승국
(경찰대학)

박성훈
(순천대학교)

손한성
(중부대학교)



심형진
(서울대학교)

이유호
(서울대학교)

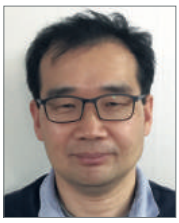
정용무
((전) 한국원자력연구원)

2020 추계학술발표회 수상자 명단

학술발표회 우수논문상 (2020 춘계학술발표회 발표논문)


김일진
(경희대학교)

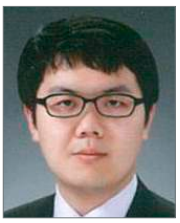

김동환
(서울대학교,
한국원자력연구원)


박성규
((주)액트)


부지환
(제주대학교)


신우섭
(경희대학교)


신지호
(한국과학기술원)


신진수
(한국원자력연구원)


유지민
(부산대학교)


전병일
(한국원자력연구원,
한국과학기술원)


정영은
(한국과학기술원)


조영범
(서울대학교)


최유리
(한국과학기술원)


Joanna Furtak
(KINGS)


XuanHa Nguyen
(한국과학기술원)

한국원자력학회(두산중공업㈜ 후원) 장학생


권준호
(한국과학기술원)


유지민
(부산대학교)


최원준
(한양대학교)


최정훈
(울산과학기술원)

www.kns.org

분과별 논제 및 발표자

제1분과 원자로시스템기술 (Reactor System Technology)

1A 12. 17 (목) 원자로시스템기술 A (Reactor System Technology A)

| 좌장 문주형(Joo Hyung Moon), 김찬수(Chan Soo Kim) | 발표장소 온라인

13:30 Innovative CVCS Design for SMRs
Chang Kyu Chung, Il Hwan Kim, Song Kyu Lee, and Byung Jin Lee(KEPCO E&C)

13:50 Sensitivity Analysis of Passive Safety System for SMART Natural Circulation Cooldown using MARS-KS
Sunghwan Bae, Younshil Kim, and Suk K. Sim(En2T)

14:10 ATOM Core Startup Simulation with 3-D TH-Coupled Quasi-Static Nodal Method
Yunseok Jeong, Ahmed Abdelhameed, and Yonghee Kim(KAIST)

14:30 Time-Dependent 3-D Multi-Physics Simulation of the Passively Autonomous Daily Load-Follow in ATOM SMR
Ahmed Amin E. Abdelhameed and Yonghee Kim(KAIST)

14:50 Impact of Truly Optimized PWR Lattice on Maximum Power of Natural Circulation Reactor
Steven Wijaya and Yonghee Kim(KAIST)

15:10 Boron-Free Small Modular Reactor Design by McCARD Burnup Calculation with T/H Feedback
Dokyun Kim and Hyung Jin Shim(SNU), Bong Ghi Kim, Jong Tae Seo, and Byung Jin Lee(KEPCO E&C)

15:30 Decay Heat Removal System Cooling Effect Analysis of STELLA-2 using MARS-LMR
Jewhan LEE, Yong-Bum LEE, Jung YOON, and Hyungmo KIM(KAERI)

15:50 Performance Analysis of Heat Pipe Design for Space Nuclear Reactor Application
Ye Yeong Park, Kyung Mo Kim, and In Cheol Bang(UNIST)

16:10 Startup Characteristic of a Horizontal Alkali-Metal Heat Pipe from a Frozen State
Sung Deok Hong and Chan Soo Kim(KAERI)

1B 12. 18 (금) 원자로시스템기술 B (Reactor System Technology B)

| 좌장 정종엽(Jong Yeob Jung), 배준호(Junho Bae) | 발표장소 온라인

09:00 Three-D TH-Coupled Simulation of Load-Follow Operation in a Low-Boron APR1400
Ahmed Amin E. Abdelhameed, Yunseok Jeong, and Yonghee Kim(KAIST)

09:20 Differences between Light Water and Heavy Water as Reflector in a Channel of CANDU6
Eun Hyun Ryu and Jong Yub Jung(KAERI)

09:40 Detailed Core Response Evaluation of SBO Induced Severe Core Damage Using ISAAC for M-CAISER Comparison Basis in Wolsong Plants
Y.M. Song, J.Y. Kang, D.G. Son, J.Y. Jung, and J.H. Bae(KAERI)

10:00 Modeling Background for Thermal-Hydraulic Analysis Tool of CANDU Fuel Channel
Jong Yeob Jung and Eun Hyun Ryu(KAERI), Sunil Nijhawan(Prolet Inc)

10:20 Preliminary Analysis of SB-LOCA-Induced Severe Accident at CANDU-6 Reactor using M-CAISER Code
Jun-young Kang, Yong Mann Song, Dong Gun Son, Jong Yeob Jung, Sang Ho Kim, and Jun Ho Bae(KAERI)

10:40 Effects of SRO on Dimensional Change in Type 304 Stainless Steel
SungSoo Kim and Jong Yeop Jung(KAERI), Young Suk Kim(MACTEC)

11:00 On the Origin of Precipitation of Hydrides in Zirconium Alloys
Young Suk Kim(MACTEC Corp.), Sung Soo Kim and Jong Yeob Jung(KAERI), JaeSoo Noh(ACT Co.)

11:20 Flow Pattern Modeling of Thermal-Hydraulic Analysis Tool for CANDU Fuel Channel
JONG YEOB JUNG and EUN HYUN RYU(KAERI), SUNIL NIJHAWAN(Prolet Inc)

1C 원자로시스템기술 C (Reactor System Technology C) – POSTER

| 좌장 이송규(Song Kyu Lee), 임성원(Sung Won Lim) **| 발표장소** 온라인

PO1C01 Review of Stratification Issues in the Liquid Air Storage Tank for the Liquid Air Energy Storage Integrated to PWR Steam Cycle
Jin Young Heo, Jung Hwan Park, and Jeong Ik Lee(KAIST)

PO1C02 Thermodynamic Analysis of Mechanically Integrated Liquid Air Energy Storage System with Nuclear Power Plant
JungHwan Park, JinYoung Heo, and JeongIk Lee(KAIST)

PO1C03 A Feasibility Study on the Application of 1D-Computational Fluid Dynamics to Small Line Break Analysis
YoungLong Lee, YongSang Ko, KunWoo Yi, and KyongIn Ju(KEPCO E&C)

PO1C04 Thermodynamic Study of Compressed CO_2 Energy Storage System Integrated to a Conventional PWR Thermally and Mechanically Simultaneously
Yong Jae Chae, Yong Ju Jeong, and Jeong Ik Lee(KAIST)

PO1C05 Thermodynamic Analysis of Hydrogen Production Integrated Pressurized Water Reactor
Seunghwan Oh and Jeong Ik Lee(KAIST)

PO1C06 Reactor Coolant Gas Vent System Performance Analysis Using Commercial Tool
Hyun A Kim, Yong Sang Ko, and Kyong In Ju(KEPCO E&C)

PO1C07 A Feasibility Study to Prevent Unnecessary CEA Movement due to RCS Hot-leg Thermal Stratification
Seulbin Park, Jihong Min, Juhan Lee, Inho Song, and Gyucheon Lee(KEPCO E&C)

PO1C08 A Study on the Safety of Hanbit Units 5 and 6 Reactor Coolant during Zinc Injection
Seong Han Bae(KHNP), Lee Gyeong Jin(CSU)

PO1C09 Effects of Channel Size on Thermal Sizing of Printed Circuit Steam Generators with Micro Straight Semicircular Channels Connected by Cross Bridges
Seok Kim and Sang Ji Kim(KAERI)

PO1C10 Preliminary Computational Study on Conduction Thermal Resistance for a Printed Circuit Heat Exchanger with Monitoring Channels
Cheong Bong Chang, Hyunjun Cho, Hun Sik Han, and Sang Ji Kim(KAERI)

PO1C11 Evaluation of Passive Containment Cooling System using Passive Heat Sink Tank for Small Modular Reactor
kyung jun Kang, han–ok Kang, young–in Kim, and jong–wook Kim(KAERI)

PO1C12 Concept of Hybrid Residual Heat Removal System Through using Air and Sea Water for Ship SMR
kyung jun Kang, yong Hwan Yoo, and Soo hyoung Kim(KAERI)

PO1C13 An Experimental Setup for Investigation of Thermal Oscillation Induced by Dryout in Printed Circuit Steam Generator
Jin Su Kwon, Doh Hyeon Kim, and Jeong Ik Lee(KAIST), Sang Ji Kim(KAERI)

PO1C14 Preliminary Study on the Concept of Boiling Condensing Reactor for Natural Circulation PWR Type SMR
Jeong Yeol Baek, Yong Jae Chae, and Jeong Ik Lee(KAIST)

PO1C15 Concepts of Passive Residual Heat Removal System for 130 MWth Nuclear Powered Ship
Yong Hwan Yoo, Yoonhan Ahn, Yong Se Kwon, and Soo Hyoung Kim(KAERI)

PO1C16 Evaluation on Accident Source Term based on the Regulations
Sungwook Choi, Seongho Song, and Bon–Seung Koo(KAERI)

PO1C17 Thermodynamic Study of SCO_2 Recompression Brayton Cycle with Main Compression Intercooling or Re-Heating for Light Water Reactor
Jihun Lim, Jae Hyung Park, Doyoung Shin, Joongoo Jeon, and Sung Joong Kim(HYU)

PO1C18 Detailed Core Response Evaluation of Small LOCA Induced Severe Core Damage Using ISAAC for M-CAISER Comparison Basis in Wolsong Plants
Y.M. Song, J.Y. Kang, and J.H. Bae(KAERI)

1D 원자로시스템기술 D (Reactor System Technology D) – POSTER

| 좌장 김대희(Dehee Kim), 오진호(Jinho Oh) **| 발표장소** 온라인

PO1D01 Measurement of Flow Uniformity in the Heat Exchanger Design for a SFR Steam Generator
Kim MyungHo, Nguyen VanToan, and Kim ByoungJae(CNU), Jung Y.H. and Choi S. R.(KAERI), Im S.H.(ISCU)

PO1D02 Implementation and Validation of the MAEROS Aerosol Model in ISFRA SFR Severe Accident Analysis Program
Churl Yoon and Seok Hun Kang(KAERI)

PO1D03 Proposal of a New Convective Heat Transfer Correlation for Sodium-to-Sodium Heat Exchanger
Jonggan Hong, Jewhan Lee, and Jaehyuk Eoh(KAERI)

PO1D04 Dynamic Simulation of Startup in PGSFR
Eui Kwang Kim, Huee–Youl Ye, Sun–Rock Choi, and Jae–Hyuk Eoh(KAERI), T. Lee and R. B. Vilim(ANL)

PO1D05 Structural Integrity Evaluation for Decay Heat Exchanger of TRU Burner Reactor
Seok–Hoon Kim and Sung–Kyun Kim(KAERI)

PO1D06 SFR Control Logic and Performance Evaluation for a Large Load Rejection Event
Huee–Youl Ye, Euikwang Kim, Hyunwoo Lee, and Sunrock Choi(KAERI),
Taeseung Lee and Richard B. Vilim(ANL)

PO1D07 Evaluation of Sodium Leak Detection Time in SFR
Dehee Kim, Jongtae Kim, and Sun Rock Choi(KAERI)

PO1D08 Pressure Ratio and Enthalpy Rise as Performance Indicators for S-CO_2 Compressor based on Similitude
Yongju Jeong, Seongmin Son, Seong Kuk Cho, and Jeong Ik Lee(KAIST)

PO1D09 Comparison of Mechanical Properties for Alloy 800H Base and Weld Metals
Woo–Gon Kim, Injin Sah, Eung–Seon Kim, and Min–Hwan Kim(KAERI), INC Kusuma and Seon–Jin Kim(PKNU)

PO1D10 Vibration System Analysis of Magnetic Journal Bearing for MMR Condition
Dokyu Kim and Jeong Ik Lee(KAIST), SeungJoon Baik(KAERI)

PO1D11 Preliminary Core Design for Thorium Based Gas Cooled Reactor
Seung Uk Yoo and Chang Je Park(Sejong Univ.)

PO1D12 Effect of Large Backswept Angle S-CO_2 Compressor to System Part Load Performance
Bong Seong Oh, Seong Kuk Cho, and Jeong Ik Lee(KAIST)

제2분과

원자로 물리 및 계산과학 (Reactor Physics and Computational Science)

2A
12. 17 (목)

원자로해석 방법론 I (Reactor Analysis Method – I)

| 좌장 이은기(Eun Ki Lee), 이현철(Hyun Chul Lee) | 발표장소 온라인

09:00 Source Expansion Nodal Method Solution for the Generalized SP3(0) Equations
Jorge Gonzalez–Amoros and Han Gyu Joo(SNU)

09:20 Validation of Uncertainty Propagation Formulation in Monte Carlo Burnup Analysis by Direct Stochastic Sampling Method
Ho Jin Park(KAERI)

09:40 An AFEN Response Matrix Method in the Two-Dimensional Trigonal Geometry
Jae Man Noh(KAERI)

10:00 Uncertainty Propagation Analysis in Time-Dependent Monte Carlo Calculations with Combing Technique
Seong Jeong Jeong and Hyung Jin Shim(SNU)

10:20 Verification of a Depletion Solver in RAST-K Fast Reactor
Tuan Tran, Siarhei Dzianisau, Tung Nguyen, and Deokjung Lee(UNIST)

10:40 Higher Order PN Solver in Method of Characteristics Code STREAM
Anisur Rahman, Alexey Cherezov, and Deokjung Lee(UNIST)

11:00 In-Situ APEC Leakage Correction for Homogenized Group Constants of Baffle-Reflector Region
Seongdong Jang and Yonghee Kim(KAIST)

2B
12. 17 (목)

원자로물리 및 일반 (Reactor Analysis General – I)

| 좌장 박창제(Chang Je Park), 박호진(Ho Jin Park) | 발표장소 온라인

13:30 A Study on APEC-Corrected Macroscopic Depletion in 2-D Nodal Analysis
Seongdong Jang, and Yonghee Kim(KAIST)

13:50 Estimation of Time-Dependent Kinetics Parameters by Monte Carlo Transient Simulation
Sang Hoon Jang and Hyung Jin Shim(SNU)

14:10 Comparison Between Generalized Equivalence Theory (GET) and Super-Homogenization (SPH) Method in the Framework of Pinwise Nodal Analysis
Taesuk Oh and Yonghee Kim(KAIST), Hwanyeal Yu(KEPCO NF)

14:30 Analysis of the Axial Offset Anomaly of OPR1000
Kang–Hyun Kim and Man Gyun Na(CSU)

14:50 Pin Level Analysis of the NEA/OECD Main Steam Line Break Benchmark Exercise II
Alberto Facchini, Jun Teak Hwang, and Han Gyu Joo(SNU)

15:10 Effective Thermal Conductivity of UO_2
Bohyun Yoon and Kunok Chang(KHU)

15:30 Developing a Long-Term Fuel Management Strategy for APR1400
Yessenkeldi Kok, Hwan Soo Kim, Rafael Monteiro, and Chang Joo Hah(KINGS)

2C
12. 18 (금)

원자로해석 방법론 II (Reactor Analysis Method – II)

| 좌장 이덕중(Deok Jung Lee), 이환수(Hwan Soo Lee) | 발표장소 온라인

09:00 Feasibility of Fast Pinwise Nodal Core Simulation Using GPUs
Seoyoon Jeon, Namjae Choi, and Han Gyu Joo(SNU)

09:20 An In-Scattering Transport Correction by the Neutron Leakage Conservation Method and Its Application to the DeCART Multigroup Library
Kyunghoon Lee(KAERI), Kang Seog Kim(ORNL)

09:40 An Improved Deterministic Truncation of Monte Carlo Solutions for Nuclear Reactor Analysis
Inhyung Kim and Yonghee Kim(KAIST)

10:00 Application of Convolutional Neural Network to Feul Loading Pattern Optimization by Simulated Annealing
Hyunbin Jang and Hyun Chul Lee(PNU), Ho Cheol Shin and DoYeon Kim(KHNP CRI)

10:20 Preliminary Results of Linear Source Approximation for Three-Dimensional Neutron Transport Calculation in STREAM
Jiwon Choe and Deokjung Lee(UNIST), Sooyoung Choi(UM)

10:40 Initial Development of Depletion Capability in the GPU-Based Monte Carlo Code PRAGMA
Kyung Min Kim, Namjae Choi, Han Gyu Lee, and Han Gyu Joo(SNU)

11:00 Optimization of the GPU-Based Depletion Solver in nTRACER
Han Gyu Lee and Han Gyu Joo(SNU)

2D
12. 18 (금)

원자로물리 및 일반 II (Reactor Analysis General – II)

| 좌장 박동환(Dong Hwan Park), 김경오(Kyung O Kim) | 발표장소 온라인

09:00 Analysis of APR1400 Restart After Unplanned Shutdown: An Investigation on Xenon Oscillation and Boron Dilution Rate
Rafael Monteiro and Chang Joo Hah(KINGS)

09:20 Macroscopic Cross-Section Generation for Nodal Code RAST-K Using Artificial Neural Network
Siarhei Dzianisau, Jiwon Choe, Alexey Cherezov, and Deokjung Lee(UNIST)

09:40 Development of Multi-Group Cross Section Processing Program for MUST Unstructured Discrete Ordinate Transport Code
Myeong Hyeon Woo, Duy Long Ta, and Ser Gi Hong(HYU)

10:00 Resonance Parameter Adjustment using Continuous-Energy Monte Carlo Perturbation Calculation
Dong Hyuk Lee and Hyung Jin Shim(SNU)

10:20 Neutronic Analysis of the Moderator Effect for an Ultra Long Cycle SMSFR (Small Modular Sodium-Cooled Fast Reactor)
Yu Yeon Cho and Ser Gi Hong(HYU)

10:40 Investigation of Unified IFBA-GAD Burnable Absorber for Soluble Boron Free Reactivity Control
Yeaeun Lim(PNU), Jae Kyeong Lim(KHU), U Gyu Jeong(UNIST), Ho Cheol Shin and YuGwon Jo(KHNP CRI)

11:00 Preliminary Neutronic Analysis Results of Accident Tolerant Fuel Loaded OPR-1000 with STREAM/RAST-K 2.0 Code
Yunki Jo, Eun Jeong, Alexey Cherezov, and Deokjung Lee(UNIST)

11:20 Application of Truly-Optimized PWR Lattice on the Soluble-Boron-Free Small Modular Reactor ATOM
Xuan Ha Nguyen, Seongdong Jang, and Yonghee Kim(KAIST)

2E 원자로물리 및 계산과학 (Reactor Physics and Computational Science) – POSTER

| 좌장 윤주일(Joo Il Yoon), 최성훈(Sunghoon Choi) **| 발표장소** 온라인

PO2E01 Verification of RAST-K Hexagonal Transient Solver with OCED/NEA Benchmark Problem of KALININ-3 NPP
Jaerim Jang, Alexey Cherezov, Yunki Jo, Tuan Quoc Tran, Siarhei Dzianisau, Woonghee Lee, Jinsu Park, and Deokjung Lee(UNIST)

PO2E02 Verification of RAST-K Hexagonal Analysis Module with SNR and VVER-440 Benchmarks
Jaerim Jang, Tuan Quoc Tran, Siarhei Dzianisau, Woonghee Lee, and Deokjung Lee(UNIST)

PO2E03 Implementation of Photon Transport in STREAM
Nhan Nguyen Trong Mai, Kyeongwon Kim, Matthieu Lemaire, and Deokjung Lee(UNIST), Sooyoung Choi(UM)

PO2E04 Implementation of Photonuclear Reactions in UNIST Monte Carlo Code MCS
Matthieu Lemaire, Hyunsuk Lee, Douglas Fynan, and Deokjung Lee(UNIST)

PO2E05 Prediction of OPR-1000 Neutronic Design Parameters Using Convolutional Neural Network for Fuel Loading Pattern Optimization
Hyunbin Jang and Hyun Chul Lee(PNU), Ho Cheol Shin and DoYeon Kim(KHNP CRI)

PO2E06 Group Constants Generation using MCS Monte Carlo Code for Fast Reactor Analysis
Tung Dong Cao Nguyen, Tuan Quoc Tran, Hyunsuk Lee, and Deokjung Lee(UNIST)

PO2E07 Convolutional Neural Network Applied Core Peaking Factor Analysis and Sensitivity Study for SMART Core
Kibeom Park, Tonkyu Park, and Sungkyun Zee(FNC Tech.), Bon Seung Koo(KAERI)

PO2E08 DeCART Solutions of APR1400 Reactor Core Benchmark Problems
Seungsu Yuk and Jin Young Cho(KAERI)

PO2E09 A Preliminary Study on 950 ℃ VHTR Core Design
Seungsu Yuk, and Chang Keun Jo(KAERI)

PO2E10 Dynamic Burnup Studies of Seaborg Compact Molten Salt Reactor by Serpent 2
Vutheam Dos, Kyeongwon Kim,and Deokjung Lee(UNIST), Eirik Eide Pettersen and Jacob Groth–Jensen(Seaborg Tech.)

PO2E11 Neutronics Analysis of SMR with Natural Circulation using STREAM/RAST-K 2.0
U Gyu Jeong(UNIST), Yeaeun Lim(PNU), JaeKyeong Lim(KHU), HoCheol Shin and YuGwon Jo(KHNP CRI)

제3분과 원자력시설해체 및 방사성폐기물관리 (Nuclear Facility Decommissioning and Radioactive Waste Management)

3A 원자력시설해체 및 방사성폐기물관리 I (Nuclear Facility Decommissioning and Radioactive Waste Management I)

12. 17 (목)

| 좌장 김희령(Hee Reyoung Kim), 임상호(Sang Ho Lim) | 발표장소 온라인

09:00 Basic Design Development of Spent Nuclear Fuel Dry Storage Module for PWR
YONGDEOG KIM, KIYOUNG KIM, TAEHYEON KIM, DONGHEE LEE, and SUNGHWAN CHUNG(KHNP)

09:20 Update of AMORES Programs for Automatic Criticality Safety Evaluation of the Transport CASK
Geon Hee Park, Dong Jin Kim, and Ser Gi Hong(HYU), Ara Go and Dae Sik Yook(KINS)

09:40 Feasibility Examination of Machine Learning Based Process Monitoring Approach using Cathode Potential in Electrorefining to Enhance Pyroprocessing Safeguards-Ability
Young-Eun Jung and Man-Sung Yim(KAIST)

10:00 Accelerator-Driven System and Inert Matrix Fuel
Tae-Yeon Lee(PAL)

10:20 Residual Stress Measurement on Air Laser Peened Inconel 690 using the Contour Method
Hwasoo Kang and Yongsoo Kim(HYU), Yongdeog Kim and Donghee Lee(KHNP)

10:40 Analysis of the Cutting Shape in the Underwater Plasma Cutting Process for the Horizontal Position
Dae-Won Cho, Dong-Hyun Kim, Ryoon-Han Kim, and Jeong Suh(KIMM),
Yun Lee, and Nam-Kyun Kim (KEPCO KPS)

11:00 Approach for Development of Tritium (3H) Removal Technology from Contaminated Water using Adsorption Methods
Jeong Hee Lee, YongMin Park, Sang-woo Noh, Gi Beom Park, Seung-il Kim, and Duk-won Kang(eLIM Global)

11:20 Co^{2+} Adsorption Performance of Zeolite Powder and 3D Printed Filter
Sujeong Lee and Hojin Ryu(KAIST)

11:40 Development of a Boron Separation/Enrichment Process using Electro-Chemical Technology and Coagulation Process to Treat the Concentrated Boron
Woohyeon Rhee, Sungjoo Kang, Minhyuk Yoon, Kukjin Seo, Seungil Kim, and Duckwon Kang(eLIM Global)

3B 원자력시설해체 및 방사성폐기물관리 (Nuclear Facility Decommissioning and Radioactive Waste Management) – POSTER

| 좌장 유정보(Jung Bo Yoo), 유승환(Seung-Hwan Yu) | 발표장소 온라인

P03B01 Study on the Change in Properties of Uranium Dioxide by Co-doping of Trivalent and Tetravalent Elements
Jeongmook Lee, Hye Ran Noh, Dong Woo Lee, Jong-Yun Kim, and Sang Ho Lim(KAERI), Hyun Myung Choe(Sogang Univ.)

P03B02 Formation of Nanoporous Oxide Layer for SCC Protection on TIG Welded Type 304 Stainless Steel Used in Nuclear Spent Fuel Dry Storage
JUN HEO, Jae Woo Lee, Ju Hyuk Lee, Sang Yoon Lee, Heon Yong Jeong, and Sung Oh Cho(KAIST)

P03B03 Study on the Prediction of the Quantity of Low and Intermediate Level Radioactive Wastes Generated with Considerations for the Changes in Domestic Nuclear Power Generation Policies
Sun Il Kim, Ki Tae Yang, and Jong Soon Song(CSU), Gung Jun Nam(KHNP)

P03B04 Study on the Removal of Corrosion Oxide Layers in the Heat Transport System of PHWR
Naon Chang(HYU), Heechul Eun, Huijun Won, Wangkyu Choi, Seonbyeong Kim, and Yongsoo Kim(KAERI)

P03B05 Fabrication of MXene-Based Fabrics for Radioactive Cs Removal
Minseok Lee and Hojin Ryu(KAIST)

P03B06 A Study on the Manufacture of Rigid Pellets for the Dispersible Radioactive Waste by Roll Compaction
Sang Hyun Lim, Jun Yeol An, and Jong Soon Song(CSU), Ki Hong Kim(Radin)

P03B07 Behavior of Frictional Shallow Anchors Subjected to Vertical Loadings in Rock
Daehong Kim(JRIST), Seungho Lee(SangJi Univ.)

P03B08 Regulation on Radiation Safety in Management of the Orphan and used Radioactive Sources at High Levels of Radiation in the World and Vietnam
Huy Chu Quang(KAIST)

P03B09 On The Effect of using Short-Term Data for Prediction of Long Term Creep Behavior of Concrete for Decommissiong Waste Package
Jong-Bum Kim, S.K. Kim, K.S. Seo, and J.C. Lee(KAERI)

P03B10 Revolutionary Implications of Nuclear Waste Disposals by Quantum Entanglement: Prospective Frontier of Nuclear Engineering by the U.S. National Quantum Computing Initiative
Tae Ho Woo(CUK)

P03B11 Experience Review on Recycling of Cable Generated Decommissioning of NPPs
Jae-Yong Lee, Kyung-Min Kim, Min-Seung Ko, and Yong-Soo Kim(HYU)

P03B12 Cold Immobilization of As-Spent 3D Printed Ceramic Filter
Muhmood ul Hassan, Sujeong Lee, and Ho Jin Ryu(KAIST)

P03B13 Estimation of Misaligned Position in Drop Test of IP-2 Type Metallic Container
Jongmin Lim, Yun Young Yang, and Ju-chan Lee (KAERI)

제4분과

핵연료 및 원자력재료 (Nuclear Fuel and Materials)

4A
12. 17 (목)

핵연료 및 성능평가(Advanced Fuel and Evaluation)

| 좌장 김동주(Dong-Joo Kim), 이영호 (Young-Ho Lee) | 발표장소 온라인

09:00 Numerical Modelling of Oxide Dispersed Strengthened Zircaloy-4 Cladding for Investigating Elastic Modulus Via Finite Element Method
Dong-Hyun Kim, Jong-Dae Hong, Hyochan Kim, and Jaeyong Kim(KAERI), Hak-Sung Kim(HYU)

09:20 Modelling of High Burnup Fuel Pulverization Behavior by FRAPCON4.0 / FRAPTRAN 2.0
Jae joon Kim, Faris B. Sweidan, and Ho jin Ryu(KAIST)

09:40 Development of an Advanced Cladding Mechanical Model and Its Application for Thermal Hydraulics Coupled Failure Analysis of SiC LWR Fuel Cladding during LBLOCA
Hyuntaek Rho and Youho Lee(SNU)

10:00 Development of ATF Pellet with High Thermal Conductivity and Fission Gas Retention Capability
Dong-Joo Kim, Keon Sik Kim, Dong Seok Kim, Yang-Hyun Koo, Ji-Hae Yoon, Jae Ho Yang, Heung Soo Lee, and Hyun-Gil Kim(KAERI), Kwang-Young Lim and Seung-Jae Lee(KEPCO NF)

10:20 Oxidation Behavior of UO_2-Mo Composite Pellets
Jae Ho Yang, Dong-Joo Kim, Dong Seok Kim, Ji-Hae Yoon, and Heung Soo Lee(KAERI)

10:40 Effect of Steam on UO_2 Pellet Oxidation in Fuel Rod using Thermodynamic Calculation
Taesik Jung, Yeonsoo Na, Minjae Joo, Kwangyoung Lim, Yoonho Kim, and Seungjae Lee(KEPCO NF)

11:00 Simulation of the High Burnup Structure of UO_2 under a Thermal Gradient using the Hybrid Phase-Field Potts Kinetic Monte Carlo Model
Faris B. Sweidan and Ho Jin Ryu(KAIST)

11:20 Development of NEST Experimental Setup for Large Deformation Test of Cladding with Neighboring Rod Effect using DIC Techniques
Jong-Dae Hong, Dong-Hyun Kim, Hongryul Oh, Gyeongha Choi, and Hyo-Chan Kim(KAERI)

4B
12. 17 (목)

가압경수로 부식 및 완화기술(PWR Corrosion and Mitigation)

| 좌장 이봉상 (Bong Sang Lee), 임연수 (Yun-Soo Lim) | 발표장소 온라인

13:30 Development of PWSCC Initiation Model for Alloy 182 Welds Considering Thermal Aging and Cold Work Effects
Jae Phil Park and Chi Bum Bahn(PNU), Seung Chang Yoo and Ji Hyun Kim(UNIST)

13:50 Effect of Zinc Concentration on General Corrosion Behavior and Oxide Films of Alloy 690TT in Simulated PWR Primary Water
Dong-Seok Lim, Soon-Hyeok Jeon, and Do Haeng Hur(KAERI), JongHyeon Lee(CNU),
Jinsoo Choi and Kyu Min Song(KHNP CRI)

14:10 Cracking and Surface Oxidation Behavior of Proton-Irradiated Type 316 Stainless Steel in PWR Primary Water
Yun Soo Lim, Seong Sik Hwang, Dong Jin Kim, Min Jae Choi, and Jong Yeon Lee(KAERI)

14:30 Oxidation Resistance Improvement Mechanism of Si in FeCrSi Alloy at High Temperature Steam Environment
Joonho Moon, Sungyu Kim, and Chi Bum Bahn(PNU), Ji Hyun Kim(UNIST), Michael P. Short(MIT)

14:50 Corrosion Behavior of Fe-Cr-Al Alloys with Yttrium Addition on 360 ℃ Simulated Pressurized Water Chemistry Condition
Taeyong Kim, Seung Chang Yoo, Junhyuk Ham, Yunju Lee, Song In Young, and Ji Hyun Kim(UNIST),
Sungyu Kim and Chi Bum Bahn(PNU)

15:10 Chemistry Analysis of Crud in Fuel Cladding under Various Heat Flux Conditions
Yunju Lee, Junhyuk Ham, Seung Chang Yoo, Dae Hyeon Park, and Ji Hyun Kim(UNIST)

15:30 Evaluation 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.)

15:50 Experimental Evaluation of TiN Coating on Fouling Resistance of PWR Fuel Cladding
JUNHYUK HAM, YUNJU LEE, SEUNG CHANG YOO, and JI HYUN KIM(UNIST)

4C
12. 18 (금)

미세조직 평가 및 모사(Microstructure Evaluation and Simulation)

| 좌장 김성우(Sung Woo Kim), 반치범(Chi Bum Bahn) **| 발표장소** 온라인

09:00 Preliminary Experimental Study of High Temperature Interaction between Uranium Nitride Pellet and Eutectic Lead-Bismuth Coolant
Gyeonghun Kim and Sangjoon Ahn(UNIST)

09:20 Spent Fuel Temperature Behaviors during Loss-of-Coolant-Accident in a Spent Fuel Pool Accident Scenario
Sun-Ki Kim(KAERI)

09:40 Spinodal Decomposition in the Fe-Cr Alloys: Effect of Inhomogeneous Elasticity and Dislocation
Wooseob Shin, Kunok Chang, and Jeonghwan Lee(KHU)

10:00 Investigation on the Effect of Al on the Spinodal Decomposition of Fe-Cr-Al System:A GPU Accelerated Phase-Field Method
Jeonghwan Lee and Kunok Chang(KHU)

10:20 Induction of Korean Standards Materials into KEPIC-MH and Method to Activate the Application
Jae Yoon Choi and Hyun Jae Joo(KEA)

10:40 Statistical Assessment of Charpy Data Agreement between Two Heating Methods
Bong-Sang Lee, Kwon-Jae Choi, Min-Chul Kim, Gil-Soo Kim, and Young-Gwan Jin(KAERI)

11:00 Defect Structure of Irradiated Graphite Depending on The Incident Angle of Neutrons: A Molecular Dynamics Study
jiho Kim and kunok Chang(KHU)

4D

핵연료 및 원자력재료(Nuclear Fuel and Materials) – POSTER

| 좌장 박정환(Jung-Hwan Park), 임광영(Kwang-young Lim) **| 발표장소** 온라인

P04D01 Investigation of the Fuel Rod Interaction Forces on the Spacer Grid of Nuclear Fuel Assembly
Amy Gichuru and Ihn Namgung(KINGS)

P04D02 Modal Analysis of Nuclear Fuel Assembly using the Model Reduction Method
Subhan Muhammad and Ihn Namgung(KINGS)

P04D03 Hollow Billet Fabrication for Hot Extrusion of Annular Metallic Fuel
Jung Won Lee, Ki Ho Kim, Sang-Gyu Park, and Jeong Yong Park(KAERI)

P04D04 Coating Method Dependence of Tribological Behaviors in CrAl-Coated Zr Cladding
Young-Ho Lee, Jung-Hwan Park, Dong-Jun Park, Yang-Il Jung, Byoung-Kwon Choi, SungChan Yoo, and Hyun-Gil Kim(KAERI)

P04D05 A Comparative Study of the Mechanical Test Metrics for Fuel Cladding after Simulated LOCA Test
Dong Jun Park, Yang Il Jung, Jung Hwan Park, Byoung Kwon Choi, Young Ho Lee, Sung Chan Yoo, and Hyun Gil Kim(KAERI)

P04D06 Design of Optimal Coating Layer Thicknesses for an 800-㎛ UCO TRISO of a Small Prismatic HTR
Young Min Kim, Chang Keun Jo, and Eung Seon Kim(KAERI)

P04D07 Application of High Temperature Oxidation Model for Coated Cladding in FRAPTRAN-2.0
ChangHwan SHIN, JangSoo OH, Jong-Dae Hong, and JaeYong Kim(KAERI)

P04D08 Implementation of the High Temperature Oxidation Model for the Zircaloy Cladding in the MERCURY
ChangHwan SHIN, SungUk LEE, and HyoChan KIM(KAERI)

P04D09 Uncertainty Study on Effective Thermal Conductivity of Accident Tolerant Fuel
JangSoo Oh, Changhwan Shin, and JaeYoung Kim(KAERI)

P04D10 Low Linear Power Oxide Fuel Performance Evaluation for Micro Lead-Cooled Fast Reactor
Ji Won Mun, Hyeong-Jin Kim, Faris B. Sweidan, and Ho Jin Ryu(KAIST)

P04D11 Variation of the Stochastic Strengths of TRISO Coating Layers over Irradiation
Young Min Kim and Chang Keun Jo(KAERI)

P04D12 Inter-Diffusion between U-Zr-Ce Metallic Fuel and HT9 Cladding at High Temperature
Ju-Seong Kim, June-Hyung Kim, Byoung-Oon Lee, and Jin-Sik Cheon(KAERI)

P04D13 Creep Life Assessment of Alloy 690 Steam Generator Tube using Larson-Miller Parameter
Jongmin Kim, Woogon Kim, Minchul Kim, and Joonyeop Kwon(KAERI)

P04D14 Effects of Surface Condition of Small Tensile Specimen for Evaluation of Irradiated Material on Tensile Properties of 316 Stainless Steel
Min-Chul Kim, Semi Hyun, Seokmin Hong, Kwon-Jae Choi, and Bong-Sang Lee(KAERI)

P04D15 Application of Pipe Thinning Caused FAC Measurement Technology using Magnetostrictive Strip Guided Ultrasonic Non-Destructive Inspection
JongYeon Lee, Jongbeom Kim, KyungMo Kim, SeBeom Oh, and Dong Jin Kim(KAERI)

P04D16 Discrimination between Carbon Steel Loose Part and Magnetite Scale on Secondary Side of Steam Generator Tubes from MRPC Probe Eddy Current Signals
Deok Hyun LEE, Myung Sik CHOI, Se Beom OH, and Kyung Mo KIM(KAERI)

P04D17 Effects of Stress Type on the Corrosion Behavior of Alloy 600 in the Simulated Secondary Water
Byung Joon Bae, Jeoh Han, and Do Haeng Hur(KAERI), Jongsup Hong(Yonsei Univ.)

P04D18 Oxide Film Characterization of Fe-Based Alloys for Potential Accident Tolerant Fuel Application in Simulated PWR Environment
Su Hyun Park, Chaewon Kim, Chae Won Jeong, Hyeon Bae Lee, and Changheui Jang(KAIST)

P04D19 Oxide Fouling on Venturi Flowmeter at Nuclear Power Plants : Root Causes and Its Mitigation Method
Dong Seok Lim, Hyun Chul Lee, and Young Jin Kim(FNC Tech.), Wonjun Choi and Chi Bum Bhan(PNU)

P04D20 Corrosion Behavior of Cr-Alloy Coated Zircaloy-4 in Water Vapor Environment at 1573K
Jung-Hwan Park, Yang-Il Jung, Dong-Joon Park, Young-Ho Lee, Byung-Kwon Choi, and HyunGil Kim(KAERI)

P04D21 Study of Trivalent Cation Doped Uranium Oxides through In-Situ X-ray Diffraction
Dong Woo Lee, Jeongmook Lee, Tae-Hyeong Kim, Jonghwan Park, Jong-Yun Kim, and Sang Ho Lim(KAERI)

제5분과 원자력 열수력 (Nuclear Thermal Hydraulics)

5A 12. 17 (목) 원자력 열수력 해석–I (Thermal Hydraulic Analysis – I)

| 좌장 조윤제(YunJe Cho), 임상규(Sang Gyu Lim) | 발표장소 온라인

09:00 SPH Simulation of Premixed Methane/Air Combustion in a Micro-Planar Combustor
Jin Woo Kim, Tae Soo Choi, Do Hyun Kim, and Eung Soo Kim(SNU)

09:20 Development of the Resolved Fluid-Solid SPH Coupling using Rigid Body Dynamics
Hae Yoon Choi and Eung Soo Kim(SNU)

09:40 Modification of MARS-KS Field Equation for Considering Hydraulic Volume Change due to Blockage
Yunseok Lee and Taewan Kim(INU)

10:00 Numerical Simulation of Explosion using Smoothed Particle Hydrodynamics with Variable Smoothing Length
JinHyun Kim, Su–San Park, So–Hyun Park, and Eung Soo Kim(SNU)

10:20 Numerical Modeling of Bubble Sliding and Merge for Heat Flux Partitioning Model on Horizontal Tube
Jae Soon Kim and Hyoung Kyu Cho(SNU)

10:40 Improvement of the MARS Subcooled Boiling Model for the Prediction of OFI
Myeong Kwan Seo, Byong Jo Yun, and Jae Jun Jung(PNU), Tae Wook Ha(KAERI)

11:00 Identification of Flex Strategy Success Window for Extended SBO using BEPU and AI
Salama Alketbi and Aya Diab(KINGS)

11:20 CHF Model Development for Subcooled Condition in Narrow Rectangular Channel
Jung Hyun Song, Jun Yeong Jung, and Yong Hoon Jeong(KAIST), Soon Heung Chang(HGU)

5B 12. 17 (목) 원자력 열수력 해석–II (Thermal Hydraulic Analysis – II)

| 좌장 권혁(Hyuk Kwon), 김강훈(KangHoon Kim) | 발표장소 온라인

초청발표

13:30 Nuclear Safety and R&D (Part-I)
WonPil Baek(KAERI)

14:00 Nuclear Safety and R&D (Part-II)
WonPil Baek(KAERI)

14:30 Preliminary Safety Analysis Results of Lead Cooled Fast Reactor Design using MARS Code
Ji Yong Kim, Tung Dong Cao Nguyen, Deokjung Lee, and In Cheol Bang(UNIST)

14:50 APR1400 MFLB Safety Analysis using MARS-KS CTF Sub-Channel Analysis Module and Parallelization Challenges
Nhan Hien Hoang, Younshil Kim, Young–Kyun Kwack, Sung–Hwan Bae, and Suk–Ku Sim(EN2T)

15:10 Coupling Between Subchannel Analysis Module of CUPID and Fuel Rod Analysis Code FINIX for Transient Simulation: Preliminary Analysis
Jang Keun Park and Hyoung Kyu Cho(SNU)

15:30 MARS-KS Simulation of a Vertical Heat Pipe with Finned Air-cooled Condenser
Sangmin Park, Jonghwi Choi, and Hyungdae Kim(KHU)

15:50 Multi-Physics Simulation for Load Follow Operation
Abd El Rahman Abou El Ala, and Aya Diab(KINGS)

16:10 BEPU Evaluation for APR1400 MSLB Accident using Artificial Intelligence
Salama Alketbi, Abd El Rahman Abou El Ala, Osama ALatawneh, Muhammad Wazif Bin Mohd Sallehhudin, and Aya Diab(KINGS)

5C 원자력 열수력 실험 (Thermal Hydraulic Experiments)

12. 18 (금) | **좌장** 김동억(Dong Eok Kim), 배병언(Byoung-Uhn Bae) | **발표장소** 온라인

초청발표

09:00 Experimental study in KAERI for Containment Thermal Hydraulics of Advanced PWR
Byoung-Uhn BAE(KAERI)

09:40 A Preliminary Study of Subcooled Flow Boiling Critical Heat Flux on Cr-Coated Zr-Based Tube for Accident-Tolerant Fuel Cladding Application
Namgook Kim, Hong Hyun Son, and Sung Joong Kim(HYU)

10:00 CFD Analysis of Heat Removal Capability in a Natural Circulation Loop with Phase Change Material
Hyunseop So, Insik Ra, Giyoung Tak, and Haeyong Jeong(Sejong Univ.)

10:20 Flow Structure Visualization Inside Subchannels of 6x12 Rod Bundle: A Preliminary Report
Hyeokjun Byeon, Seok Kim, Hae-Seob Choi, Byong Guk Jeon, Young-Jung Youn, and Sang-Ki Moon(KAERI)

10:40 The Dropwise Condensation Heat Transfer Characteristics of CNT/OTS Layered Surface Associated with Non-Condensable Gas Effect
Taeseok Kim and Sung Joong Kim(HYU), Jaemin Lee, and Wonjoon Choi(KU)

11:00 Deep Learning and Acoustic Signal-based Pool Boiling Monitoring System
Do Yeong Lim and In Cheol Bang(UNIST)

11:20 Decay Heat Removal Characteristics of Full-Scale Hybrid Control Rod-Heat Pipe for Advanced Spent Fuel Dry Storage Cask Design
Kyung Mo Kim and In Cheol Bang(UNIST)

5D 원자력 안전해석 현안 (Safety Analysis Issues)

12. 18 (금) | **좌장** 강동구(Dong Gu Kang), 강상희(Sang Hee Kang) | **발표장소** 온라인

초청발표

09:00 Thermal Hydraulics and Fuel Combined Research for Resolving Nuclear Safety Issues
Yongsik Yang(KAERI)

09:40 Peak Cladding Temperature Prediction using Deep Learning
Osama Sharif Alatawneh and Aya Diab(KINGS)

10:00 Direction of Near-Term Research to Support Regulations in the Field of LOCA
YOUNG SEOK BANG, DEOG YEON OH, JOOSUK LEE, IL SUK LEE, ANDONG SHIN, and CHAE YONG YANG(KINS)

10:20 CAP Code Version-Up to 3.0 and Its Application to Pressure and Temperature Analysis
Soon-Joon HONG, Seong-Su JEON, Yeon Jun CHOO, Je-Hee LEE, Jae-Ho BAE, Bicer EROL, and Bub-Dong CHUNG(FNC Tech.), Young-In KIM(KAERI)

10:40 Major Outcomes of the Second Phase of OECD-ATLAS International Joint Project
Kyoung-Ho Kang, Jong-Rok Kim, Byoung-Uhn Bae, Jae-Bong Lee, Yusun Park, Seok Cho, and Nam-Hyun Choi(KAERI)

11:00 Experimental Study on the Counterpart Test of LSTF 1% SBLOCA at Reactor Pressure Vessel Top with Accident Management Action
Yusun Park, Jongrok Kim, ByoungUhn Bae, Jae Bong Lee, Seok Cho, Nam Hyun Choi, and Kyoung Ho Kang(KAERI)

11:20 Experimental Study for Effect of SIP Flow Rate on Cold Leg 4 inch Upward Break Scenario in ATLAS Facility
Jongrok Kim, Byoung Uhn Bae, Yusun Park, Jae Bong Lee, Seok Cho, Nam Hyun Choi, and Kyoung Ho Kang (KAERI)

11:40 Extension of MARS-KS Motion Model to MULTID Component Modifying Volume Connection Information for Marine Reactor Simulation
Sang Wook Park, Hyung Joo Seo, and Hyoung Kyu Cho(SNU)

5E 원자력 열수력 해석 I (Thermal Hydraulic Analysis I) – POSTER

| **좌장** 허재석(Jaeseok Heo), 이재룡(Jae Ryong Lee) | **발표장소** 온라인

P05E01 Prediction of Critical Heat Flux (CHF) Using Artificial Neural Network
Wazif Sallehhudin, Salama AlKetbi, Osama AlAtawneh, and Aya Diab(KINGS)

P05E02 Evaluation of the Operator Actions to Maintain the Fuel Integrity During the Small Break LOCA with Safety Injection Failure for Westinghouse Type 2-loop Plant
Hyoung Kyoun Ahn, Dong Min Kim, Chan Eok Park, Gyu Cheon Lee, and Jae Young Huh(KEPCO E&C)

P05E03 An Investigation of Accuracy Enhancement by Reconstructing MARS-KS Constitutive Relations with ANN using Data Augmentation
Jaehyung Sim, ChoHwan Oh, and Jeong Ik Lee(KAIST)

P05E04 Assessment of Effective Thermal Conductivity Model of the SPACE for Fuel Axial Relocation in Ballooning Fuel Rods
Jong Hyuk Lee, Seung Wook Lee, Chiwoong Choi, Byung Hyun You, and Kwi Seok Ha(KAERI)

P05E05 Study for Analyzing the Radiological Consequence of Small Line Break Outside of Containment in Design Basic Accident
Seung–Chan LEE, Duk–Joo Yoon, and Min–Jeong Kim(KHNP)

P05E06 Simulation of Crash Cooling during SBO Transient in CANDU-6 Plants
Seon Oh YU, Sung Chu SONG, Kyu Byung LEE, and Kyung Lok BAEK(KINS)

P05E07 Numerical Study for the Effect of the Contraction Ratio on the Cavitating Venturi Internal Flow Pattern
Gong–hee Lee and June–ho Bae(KINS)

P05E08 Modification of Laminar and Transition Single Phase Heat Transfer Model in SPACE Code for Research Reactor Application
Dongwook Jang, Hyung Min Son, and Cheol Park(KAERI)

P05E09 A Study on the Behavior of Humid Air in Sampling System for Leak Detection
Dae Kyung Choi and Choengryul Choi(Elsoltec), Tae–Soon Kwon and Dong–Jin Euh(KAERI)

P05E10 Prediction of Natural Circulation Flow in ULPU-V Facility Loop using the Wall Boiling Model for Inclined Surface
Gi Su Lee and Byoung Jae Kim(CNU)

5F 원자력 열수력 해석 II (Thermal Hydraulic Analysis II) – POSTER

| **좌장** 이승욱(Seung–Wook Lee), 최치웅(Chiwoong Choi) | **발표장소** 온라인

P05F01 Simulation of OECD-ATLAS A5.1 Test with MARS-KS Code
Kyung Won Lee, Andong Shin, and Il Suk Lee(KINS)

P05F02 Clustering Study on Constitutive Equations for using Integral Effect Test Data to Improve Accuracy of a Reactor Safety Analysis Code
ChoHwan Oh, DohHyeon Kim, Jaehyeong Sim, Sung Gil Shin, and Jeonglk Lee(KAIST)

P05F03 Preliminary Investigation of Pressure Effect of the Emergency Cooldown Tank on Accident Grace Period of Small Modular Reactors
Jae Hyung Park, Doyoung Shin, Hoichul Jung, and Sung Joong Kim(HYU)

PO5F04 Application of Data Driven Modeling for MARS-KS Code Constitutive Equation
Doh Hyeon Kim and Jeong Ik Lee(KAIST)

PO5F05 Accident Analysis of Steam Line Break with Common Cause Failure in Digital Instrumentation and Control Systems
Ki Moon Park, Jong Cheol Park, Chan Eok Park, Gyu Cheon Lee, and Jae Young Huh(KEPCO E&C)

PO5F06 An Evaluation on Degree of Conservatism in Pressurizer Level Calculation in Safety Analysis during a Pressurizer Level Control System Malfunction Event
Se Young Ro, Sang Jin Lee, Eun Ju Lee, Ung Soo Kim, Min Soo Park, and Jae Young Huh(KEPCO E&C)

PO5F07 Preliminary Simulation Results for 6x12 Rod Bundle Test using OpenFOAM
Byong Guk Jeon, Seok Kim, Hyeokjun Byeon, and Sang-Ki Moon(KAERI), Gun Hong Kim(openCAE)

PO5F08 Sensitivity Analysis for the Effect of Pipe Pressure Loss on PAFS Performance
Seong-Su Jeon, Kum-Ho Han, and Soon-Joon Hong(FNC Tech.), Do-Hyun Hwang(KHNP)

PO5F09 Simulation of OECD-ATLAS B2.1 Test using MARS-KS Code
Kyung Won Lee and Andong Shin(KINS)

5G 원자력 열수력 실험 (Thermal Hydraulic Experiments) – POSTER

| 좌장 조형규(Hyoung Kyu Cho), 박유선(Yu-sun Park) **| 발표장소** 온라인

PO5G01 Performance Test of Micro Thermocouple for Water Leakage Detection System
Jongrok Kim, WooShik Kim, Won-Man Park, and Tae-Soon Kwon(KAERI)

PO5G02 Experimental Study of Reflooding Heat Transfer on Cr-layered Cladding under Atmospheric Pressure
Doyoung Shin, Namgook Kim, and Sung Joong Kim(HYU)

PO5G03 Analysis of the Flow Characteristics of Debris in the Nuclear Power Plant and Development of Debris Transport Visualization Test Facility
MinBeom Heo, BumKyu Kim, DongSeok Lim, and YongJae Song(FNC Tech.)

PO5G04 Preliminary Study on S-CO_2 Leakage to High Pressure Water
Jae Jun Lee and Jeong Ik Lee(KAIST)

PO5G05 Established a Test Facility to Visualize Debris Transportation
Dong Seok Lim, Beom kyu Kim, Min Beom Heo, and Yong Jae Song(FNC Tech.)

PO5G06 Pretest of Rainbow Schlieren Deflectometry for Measurement of Thermal Boundary Layer Thickness
Jihoon Han and Hyungdae Kim(KHU)

5H 원자력 안전해석 현안 (Safety Analysis Issues) – POSTER

| 좌장 이경원(Kyung Won Lee), 이석호(Suk Ho Lee) **| 발표장소** 온라인

PO5H01 The Concept Design of the New Cycle Layout of the Nuclear-Solar Hybrid System
In Woo Son and Jeong Ik Lee(KAIST)

PO5H02 Deterministic Sensitivity Studies and Correlation Analysis for Evaluating the Impact of Uncertainty Variables on LBLOCA Consequence
Dong Gu Kang, Joo Suk Lee, Il Suk Lee, and Deog Yeon Oh(KINS)

PO5H03 A Sensitivity Study of Compressed CO_2 Energy Storage with High Temperature TES
Soyoung Lee, Yongju Jeong, Yong Jae Chae, and Jeong Ik Lee(KAIST)

PO5H04 Study of Printed Circuit Steam Generator Numerical Modeling Methodology Using CFD
Sung Gil Shin, Jin Su Kwon, and Jeong Ik Lee(KAIST), Sang Ji Kim(KAERI)

PO5H05 Main Control Room Safety in the Condition of Main Steam Line Break with Containment Temperature
Seung-Chan LEE(KHNP)

제6분과 원자력 안전 (Nuclear Safety)

6A 확률론적안전성평가 (Probabilistic Safety Assessment)

12. 17 (목) | **좌장** 정우식(Woo Sik Jung), 임호곤(Ho Gon Lim) | **발표장소** 온라인

09:00 Application of Shannon Decomposition to Event Tree Quantification
Jongsoo Choi(KINS)

09:20 Preliminary Study on Monte Carlo Simulation for Fault Tree Quantification using Importance Sampling and Copula
Kyungho Jin and Gyunyoung Heo(KHU)

09:40 Determining Cue Presentation Time for Diagnosis Error Probability of THERP-Like Methods using Confidence Interval of Performance Time
Yochan Kim and Jaewhan Kim(KAERI)

10:00 Fault Tree Modeling for Dependency of Human Failure Events in PSA
Ji Suk Kim and Man Cheol Kim(CAU), SangHoon Han(KAERI)

10:20 Sensitivity Study for Local Air Cooler Operation using MACST for Domestic CANDU Nuclear Power Plants
KOOSAM KIM, BEOMSEOK KIM, SEHOON OH, and HOCHANG YANG(ACT Co.,)

10:40 Methods for Frequency Gap Adjustment between Level 1 and PDS Sequences
Seong Kyu Park(ACT Co.,), Woo Sik Jung(Sejong Univ.)

11:00 A Dynamic PSA Framework Based on System Performance through Thermal-Hydraulic Simulation
Jong Woo Park and Seung Jun Lee(UNIST)

6B 중대사고 I (Severe Accident I)

12. 17 (목) | **좌장** 연제원(Jei-Won Yeon), 김종태(Jongtae Kim) | **발표장소** 온라인

09:00 Transient Analysis of Corium Coolability Considering Water Ingression into Debris Bed and Corium-to-Vessel Gap
Moon Won Song, Jegon Kim, and Hee Cheon NO(KAIST), Dongyeol Yeo(UM), Seunghyun Yoon(KAERI)

09:20 A Theoretical Study to Compare Flame Characteristics of H2 and CO Flames for Containment Safety Analysis
Joongoo Jeon, Juhyeong Lee, and Sung Joong Kim(HYU), Yeon Soo Kim(KINS)

09:40 Coupling of MELCOR and OpenFOAM for an Analysis of Containment Hydrogen Behaviors
Jongtae Kim and Dehee Kim(KAERI), Gun-Hong Kim(openCAE)

10:00 CFD Simulation of Liquid-Liquid Jet Breakup: Kelvin-Helmholtz Instability
Min-Soo Kim, Hyoung-Tak Kim, and Kwang-Hyun Bang(KMOU)

10:20 Numerical Analysis of Algebraic Heat Flux Model using OpenFOAM CFD
Ralph Carlo Evidente, Hyun Sun Park, and Seokwon Whang(POSTECH)

10:40 Effects of Gamma Irradiation on pH Changes of NaI and Methyl Alkyl Ketone Solutions
Jei-Won Yeon(KAERI)

11:00 Concentration Measurement of Volatile Iodine Species Formed by Thermal Decomposition of Iodate Salt
Minsik Kim, JaeHoon Kim, and Jei-Won Yeon(KAERI)

6C
12. 18 (금)

화재방호 및 중대사고 II (Fire Protection and Severe Accident II)

| **좌장** 박래준(Rae-Joon Park), 이윤희(Yoonhee Lee) | **발표장소** 온라인

09:00 A Case Study on the Quantification of Fire-Specific Human Failure Events through Scoping
Sun Yeong Choi, Dae Il Kang, and Yong Hun Jung(KAERI)

09:20 MELCOR Calculation for Fission Product Plateout under High Temperature Gas-Cooled Reactor Conditions
Sung Nam Lee, Nam-il Tak, and Chang Keun Jo(KAERI)

09:40 Modeling Accident Tolerant Fuels for APR1400 using MAAP5.05
Sung-Min Cho and Hyoung-Ki Kim(KEPCO E&C)

10:00 Evaluation for Accident Mitigation Effectiveness of External Injection at WH600 using MELCOR
Yerim Park, Seoungwoo Kim, Youngho Jin, Dong Ha Kim, and Moosung Jae(HYU)

10:20 Assessment of In-Vessel Retention Strategy for A Large Scale PWR
Abd El Rahman Abou El Ala, Aya Diab, and Alexandra Udrescu(KINGS)

10:40 Blast Effect Assessment for a Dry Storage Facility
Woo-Min Cho and Yoon-Suk Chang(KHU)

6D
12. 17 (목)

원자력안전현안 (Nuclear Safety Issue)

| **좌장** 이승준(Seung Jun Lee), 함대기(Daegi Hahm) | **발표장소** 온라인

13:30 A Study for Establishment of SMART EPZ Reflecting the Frequency of Source Terms
Kilyoo Kim, Sangbaik Kim, Taewoon Kim, and Seokjung Han(KAERI)

13:50 Independent Evaluation Approaches to Safety Culture Survey of Operational Organization: Regulatory Perspective
Jeeyea AHN, Wooseok JO, Byung Joo MIN, and Seung Jun LEE(UNIST), Manwoong KIM(KINS)

14:10 Case Study for CDF Calculation based on Seismic Margin Assessment
DongWon Lee and NamHeoyng Lim(CNU)

14:30 Development of a Two-Stage DQFM for Efficient Multihazard Risk Quantification for Nuclear Facilities
Eujeong Choi, Jeong Gon Ha, and Daegi Hahm(KAERI), Shinyoung Kwag(HNU)

14:50 Influence of Nuclear Safety Culture on Incident History of Nuclear Power Plants in Korea
Jeeyea AHN, Wooseok JO, Byung Joo MIN, and Seung Jun LEE(UNIST), Manwoong KIM(KINS)

15:10 Fragility Assessment of Overhead Transmission Towers under Typhoon and Earthquake Multi-Hazard Events
Ashkan B. Jeddi, Abdollah Shafieezadeh, and Jieun Hur(OSU), Minkyu Kim and JeongGon Ha(KAERI)

15:30 Probabilistic External Flood Hazard Assessment at NPP Site
Beomjin Kim, Minkyu Kim, Daegi Hahm, and Junhee Park(KAERI), Kun-Yeun Han(KNU)

15:50 CFD Thermal Analysis at the Self-Sealing PCM Placed Liner Plate Panel
Yonadan Choi and Yong Hoon Jeong(KAIST)

6E

확률론적안전성평가 (Probabilistic Safety Assessment) – POSTER

| **좌장** 허균영(Gyunyoung Heo), 김만철(Man Cheol Kim) | **발표장소** 온라인

P06E01 Sensitivity Analysis of Simplified CCF Application in a Fault Tree with the Different Design Configuration
Jiseung Yoon, Dongwook Kim, and Ho Seok(KEPCO E&C)

PO6E02 Sensitivity Analysis via Modelling FLEX/MACST Equipment into a PSA Model
Young A Suh, Jaewhan Kim, and Mee-Jeong Hwang(KAERI)

PO6E03 Probabilistic Safety Analysis of the Inadvertent Boron Dilution Accident for Domestic 2-LOOP Nuclear Power Plant
Yoonsik Kwon(KEPCO NF and HYU), Sungju Cho and Jaeyong Chang(KEPCO NF), Moosung Jae(HYU)

PO6E04 Development of a Human Error Analysis Program, COHEP
Jihyun Kim, Mina Cho, and Moosung Jae(HYU)

PO6E05 The Effectiveness of EDG Cross-Tie in Single-Unit SBO for Risk Reduction in Low Power and Shutdown Operation
Won Jik Kim, Jae Gab Kim, and Inchul Ryu(KEPCO E&C)

PO6E06 Screening Analysis Procedures of Relay for Seismic PSA
Jaechul LEE and Woojoo KIM(KEPCO E&C)

PO6E07 In-Cabinet Response of a Battery Charger for Nuclear Power Plants and Chattering during Shaking Table Tests
Sangjin Lee and In-Kil Choi(KAERI), Dong-Uk Park(PNU)

PO6E08 Comparison of Semi-Infinite and Finite Clouds Effects for the External Exposure Dose Calculation in Level 3 SUPSA and MUPSA
Jae-Ryang Kim, Gee Man Lee, MyungWoong Kwak, and Woo Sik Jung(Sejong Univ.), SeokJung Han(KAERI)

PO6E09 A Few Alternative Criteria of Risk Assessment and Safety Decision Making for Improving Risk Communication and Public Acceptance on Nuclear
Yong-Hee Lee (KAERI)

6F 중대사고 (Severe Accident) – POSTER

| 좌장 이병희(Byeonghee Lee), 황석원(Seokwon Whang) **| 발표장소** 온라인

PO6F01 Containment Pressure and Distribution of Fission Products for SMART-100 under the SBLOCA with ERVC and Spray using MELCOR1.8.6
Jong-Hwa Park, Sang Ho Kim, Jae-Hyun Ham, and Rae-Joon Park(KAERI)

PO6F02 Conceptual Design and Modeling of Passive Decay Heat Removal System of Nuclear Reactor Applicable to Ships
SEOK HUN KANG and Yongwhan Yoo(KAERI)

PO6F03 Preliminary Analysis of TMI-2 Severe Accident using CINEMAComputer Code
Rae-Joon Park, Dong Gun Son, Jun Ho Bae, and Kwang Soon Ha(KAERI)

PO6F04 Sampling Methods for Uncertainty Analysis Using MAAP5
Daehyung Lee and Seonhong Yoon(KEPCO E&C)

PO6F05 CFD Simulation of Flame Propagation Speed for Premixed Hydrogen Flame using Flamelet Model in OpenFOAM
Sangmin Kim and Jongtae Kim(KAERI)

PO6F06 Surface Flow Simulation of Falling Films on a Vertical Plane
Sun Rock Choi, Dehee Kim, and Jongtae Kim(KAERI)

PO6F07 Analysis of Non-Explosive TROI Particles for Debris Coolability Study
Hwan Yeol Kim, Ki Han Park, Keun Sang Choi, Chang Wan Kang, JaeHoon Jung, and Sang Mo An(KAERI)

PO6F08 Prediction of Fission Product Plateout Distributions in the Primary Circuit of the MHTGR-350 Using the POSCA Code
Nam-il Tak, Sung Nam Lee, and Chang Keun Jo(KAERI)

PO6F09 Measurement of Void Fraction in the Horizontal Jet Pool Scrubbing Regime by Using Optical Fiber Probe
Ki Han Park, Sung Il Kim, and Chang Wan Kang(KAERI)

PO6F10 Validation of the KICHE Iodine Chemistry Models for Radiolysis of Aqueous Iodine
Churl Yoon, Sung Il Kim, and Kwang Soon Ha(KAERI), Thi Thanh Thuy Nguyen(Environment & Energy Technology)

PO6F11 Analysis of Suppression Pool Effect during DCH in SMART100 using MELCOR
Jaehyun Ham, Sang-Baik Kim, Rae-Joon Park, and Jaehoon Jung(KAERI)

PO6F12 Behavior Analysis of Molten Fuel Discharged Directly into Water without Free-Fall in Air
Sang Ho Kim, Seong-Wan Hong, Rae-Joon Park, and Jaehoon Jung(KAERI)

PO6F13 Hydrogen Stratification Breakup Model with Modified Froude Number
Youngsu Na(KAERI)

PO6F14 Preliminary Analysis of Iodine Behavior in ISLOCA
Youngsu Na and Kwang Soon Ha(KAERI)

PO6F15 Thermal Hydraulic Behavior of Feeding SG in Severe SGTR Accident
Youngsu Na and Sung Il Kim(KAERI)

PO6F16 Validation of a Bulk Condensation Model for a Steam Jet Simulation
Dehee Kim and Jongtae Kim(KAERI)

PO6F17 Implementation of Larson-Miller Creep Model to CINEMA Code for Simulation of Steam Generator Tube Rupture Accident in APR1400
Hyoung Tae Kim and Kwang Soon Ha(KAERI)

PO6F18 Numerical Analysis for Liquid Droplet Behavior in the CALIST Test Using OpenFOAM
Hyung Seok and Jongtae Kim(KAERI), Seokwon Whang and Hyun Sun Park(POSTECH)

PO6F19 An Aerosol Transport Analysis in the Marviken Test by SIRIUS Code
Hyung Seok Kang, Donggun Son, and Kwang Soon Ha(KAERI)

PO6F20 Effects of Interference Grid on Melt Jet Breakup and Particle Size Distribution: MATE-MM-1 & 2 Test Cases
Mayank Modak, Hyun Sun Park, Evidente Ralph Carlo, and Woo Hyun Jung (POSTECH),
Yu Jung Choi and Mi Ro Seo (KHNP)

PO6F21 Analysis of Pyrolysis Kinetic Behaviors for CR/EPR Cable via TG Analysis
Min Ho Kim, Min Chul Lee, and Seok Hui Lee(INU), Sang Kyu Lee and Ju Eun Lee(KINS)

6G 원자력안전현안 (Nuclear Safety Issue) – POSTER

| 좌장 이승우(Seung Woo Lee), 전호준(Ho Jun Jeon) **| 발표장소** 온라인

PO6G01 Regulatory Guidance on the Reliability and Performance of Nuclear Passive Safety Systems
Ibrahim Alahmad(KAIST), Sukho Lee(KINS)

PO6G02 Sensitivity Analysis on the MSLB Scenario for LCO Condition of APR1400 using CAP Code
KYUNGHO NAM(KHNP)

PO6G03 An Empirical Comparative Study on Recognition of Nuclear Safety and Recognition of the Cause of Nuclear Accident in Korea and Japan
Sung-Ha Park(POSCO)

PO6G04 Preliminary Study on the Drone Sabotage to NPP
YongTae Kim, JongSung Kim, and WooSik Jung(Sejong Univ.)

PO6G05 Performance Comparison of RHR Systems with Different Pump Performance Curves
Dongkyung Sohn, Dong Hung Lee, and Gong-Hee Lee(KINS)

PO6G06 Coping Duration Assessment using R.G. 1.155 Methodology on Shin-kori 5&6
Geehyu Park and Hakkyu Lim(KINGS)

제7분과

방사선 방호 (Radiation Protection)

7A
12. 17 (목)

방사선 방호(Radiation Protection)

| 좌장 이철우(Cheol Woo Lee), 정남석(Nam-Suk Jung) | 발표장소 온라인

09:00 Estimation of Thermal Neutron Flux with Thermoluminescent Dosimeters
Sangmin Lee, Hyegang Chang, Junyoung Lee, and Sung-Joon Ye(SNU)

09:20 Radioactive Material Dispersion Modeling using Physics Informed Neural Network
Gibeom Kim and Gyunyoung Heo(KHU)

09:40 Neutron Flux Calculation for BNCT with Monte Carlo-Diffusion Hybrid Method
Chang-Min Lee(POSTECH), Nam-Suk Jung and Hee-Seock Lee(PAL)

10:00 Photopeak Unfolding from Plastic Gamma Spectra using a Convolutional Auto Encoder
Byoungil Jeon, Junha Kim, Eunjoong Lee, and Myungkook Moon (KAERI), Gyuseong Cho(KAIST)

10:20 Review of Technology Development Status of Mobile Radiation Monitoring Systems
Han Young Joo, Jae Wook Kim, So Yun Jeong, Young Seo Kim, and Joo Hyun Moon(Dankook Univ.)

초청발표

10:40 Current Issues of Internation System of Radiation Protection (국제방사선방호 체계 현안)
Kun-woo Cho(KINS)

11:20 Pediatric Lens Dose Coefficients for Photons and Electrons : Dosimetric Impact of Detailed Eye Models for ICRP Paediatric Mesh-Type Reference Computational Phantoms
Haegin Han, Chansoo Choi, Bangho Shin, Sungho Moon, Sangseok Ha, and Chan Hyeong Kim(HYU), Thang Tat Nguyen(HUST), Yeon Soo Yeom(NCI)

7B

방사선 방호(Radiation Protection) – POSTER

| 좌장 김순영(Soon Young Kim), 이희석(Hee-Seock Lee) | 발표장소 온라인

P07B01 Preliminary Study on the Radioactive Source Position Estimation using Plastic Scintillating Fiber and Machine Learning
Jinhong Kim, Seung Hyun Kim, Si Won Song, Jae Hyung Park, Jin Ho Kim, Tae Seob Lim, and Bongsoo Lee(CAU)

P07B02 Development of Airborne Gamma-Ray Spectrometer Based on a CZT Detector
Young-Yong Ji, Sungyeop Joung, Byung Il Min, and Kyung-Suk Suh(KAERI)

P07B03 Preliminary Study of a Cold Neutron Source using Electron Linac for Bragg Edge Imaging
Mahdi Bakhtiari(POSTECH), Nam-Suk Jung and Hee-Seock Lee(PAL)

P07B04 Radiological Health Effects from Uranium Deposits in Tanzania
Hilali Hussein Ramadhan and Juyoul Kim(KINGS)

P07B05 Radiological Dose Assessment of Nigeria Research Reactor NiRR-1
Soja Reuben Joseph and Juyoul Kim(KINGS)

P07B06 Assessment of Radiation Dose Resulting from Liquid Effluent Based on Representative Person Concept
Hyun Su Seo, Ki Hoon Kim, Yong Ho Jin, and Kwang Pyp Kim(KHU)

P07B07 Statistical Analysis of Domestic Frequency for Diagnostic Radiography
Hyun Jun Na, Min Young Lee, Hyeung Woo Nam, Ye Ji Yun, and Kwang Pyo Kim(KHU)

P07B08 Preliminary Study of Radiological Environmental Impact Assessment for 5MW Nuclear Research Reactor in Kenya
Stacy Achoki(KAIST), Byeongsoo Kim(KINS)

P07B09 Preliminary Study on the National Radiation Monitoring Program for Uranium Mining in Tanzania
Tunu Valentine Kaijage(KAIST), Dong Myung Lee(KINS)

P07B10 The Current Status of Norm Industries in Zimbabwe and Suggestion of Regulatory Framework
WILBERT TSOKA(KAIST), YONG–JAE KIM(KINS)

제8분과 방사선 이용 및 기기 (Radiation Utilization and Instrumentation)

8A 12. 17 (목) 방사선 기기 개발 및 응용(Development and Application of Radiation Devices)

| 좌장 소지용(Ji-Yong So), 최창헌(Chang Heon Choi) | 발표장소 온라인

09:00 Estimation of Effective Atomic Number using Dual-Energy Imaging of CT Simulator for Radiation Therapy
Bitbyeol Kim, Seongmoon Jung, Jaeman Son, Chang Heon Choi, Jung-in Kim, and Jong Min Park(SNUH)

09:20 Dose Calculation on Dual Energy CT Images for Carbon Ion Therapy using TOPAS: a Monte Carlo Study
Euntaek Yoon, Seongmoon Jung, Jaeman Son, Bitbyeol Kim, Chang Heon Choi, Jung-in Kim, and Jong Min Park(SNUH)

09:40 Comparison of X-ray Computer Tomography and Magnetic Resonance Imaging for Detection of Pest Infestation in Prunus Persica
Taeyun Kim, Jaegi Lee, Gwang-Min Sun, Byung Gun Park, and Hae Jun Park(KAERI), Deuk-Soo Choi(APQA), Sung-Joon Ye(SNU)

10:00 Neutron Spectrum Unfolding Using Response Matrix and 1D-CNN for CLYC-7 Neutron Spectrometer
Sukwon Youn, Jimin Lee, Hyungjoo Cho, Mingi Eom, and Sung-Joon Ye(SNU), Uk-won Nam, Jeonghyun Pyo, Won-Kee Park, and Bongkon Moon(KASI)

10:20 Deep Learning-Based Compton Background Reduction in X-ray Fluorescence Spectrum
Mingi Eom, Taeyun Kim, Jimin Lee, Hyungjoo Cho, Yoonho Na, and Sung-Joon Ye(SNU)

10:40 Development of High-Speed Multi-Channel Data Acquisition System for Large-Area Compton Camera (LACC)
Junyoung Lee, Hyun Su Lee, Jaerin Jung, Sehoon Choi, Doyeob Kim, and Chan Hyeong Kim (HYU)

11:00 Image Quality Comparison for Different Type of SiPM Coupled with GAGG(Ce) Scintillator Arrays for the Coded-Aperture Gamma Ray Imaging
Seoryeong Park, Jihwan Boo, and Manhee Jeong(JNU)

11:20 Comparison of Pulse-Shape Discrimination (PSD) Performance Using the Pixelated Stilbene and Plastic Scintillator (EJ-276) Arrays for the Hand-Held Dual-Particle Imager
Jihwan Boo, Seoryeong Park, and Manhee Jeong(JNU)

8B 12. 17 (목) 동위원소 및 중성자 이용(Utilization of Radioisotopes and Neutrons)

| 좌장 박병건(Byung-Gun Park), 이승곤(Seung-Kon Lee) | 발표장소 온라인

초청발표

13:30 Current Status of Medical Physics Research on Particle Therapy
Jin Sung Kim(YUHS)

14:00 Design of Module Type Radioactive Applicator using Monte-Carlo Simulation for Skin Cancer
Jeong Ho Kim, Hyun Jung Cho, Ji Won Sung, Hyung Min Jin, Jung-in Kim, Jong Min Park, and Chang Heon Choi(SNUH)

14:20 Annealing Effects on Advanced Reduced-Activation Alloy Studied by Positron Annihilation Lifetime Spectroscopy
Young Su JEONG, Young Rang Uhm, Gwang min Sun, Young Bum Chun, and Jaegi Lee(KAERI), Yongmin Kim(DCU)

14:40 Investigation of Advanced Reduced-Activation Alloy (ARAA) with Coincidence Doppler Broadening Spectroscopy
Junyoung Lee, Jaegi Lee, YoungSu Jeong, GwangMin Sun, YoungRang Uhm, and YoungBum Chun(KAERI), Sung-Joon Ye(SNU)

15:00 Separation of No-Carrier Added Radiolanthanides from Neutron-Irradiated Metal Oxides
Aran Kim and Kanghyuk Choi(KAERI)

15:20 Small Angle Neutron Scattering Study on Nano-Dispersoids in CoCrFeMnNi High-Entropy Alloy
SeungHyeok Chung and Ho Jin Ryu(KAIST)

15:40 Neutron Diffraction Analysis on Particulate Reinforced Metal Matrix Composites and Its Verification Using FEM
Taegyu Lee and Ho Jin Ryu(KAIST), Hobyung Chae and Soo Yeol Lee(CNU)

8C 방사선이용 및 기기(Radiation Utilization and Instrumentation) – POSTER

| 좌장 양성우(Seongwoo Yang), 김영수(Young Soo Kim) **| 발표장소** 온라인

P08C01 The Size Effect of Powdered Scintillator on High-Resolution X-ray Imaging System
Heon Yong Jeong, JuHyuk Lee, Jun Heo, and Sung Oh Cho(KAIST)

P08C02 Study of Temperature Effect on Ion Implanted Silicon Detector for In-containment Radiation Monitoring System
Jongheon Kim, Kihong Pak, Junesic Park, Jaebum Son, Jihun Moon, and Yong Kyun Kim(HYU)

P08C03 Scintillator Array Sensor for Position Measurements of Radioactive Sources
Jae Hyung Park, Si Won Song, Tae Seob Lim, Jinhong Kim, Seung Hyeon Kim, Jin Ho Kim, and Bongsoo Lee(CAU)

P08C04 Study on Improvement of Scan Survey System Performance using Collimator
Junha Kim and Gyuseong Cho(KAIST), JungJun Lee(KINS), Sangbum Hong, Eunjoong Lee, and Bumkyoung Seo(KAERI), Byungchae Lee(CBNU)

P08C05 Synthesis of Fluorescent Fluorinated Graphene Quantum Dots by Plasma Treatment
Na Eun Lee, Sang Yoon Lee, Hyung San Lim, Heon Yong Jeong, and Sung Oh Cho(KAIST)

P08C06 Evaluation of Acid-Akali-Acid Pre-Treatment for Environmental Wood Samples at DU
Sang-Hun Lee, Dae-Uk Kang, Jeong-Bin Lee, Myung-Ji Kim, Sae-Hoon Park, and Yu-Seok Kim(DU)

P08C07 A Study on the Atmospheric Environment Using AMS: The Effect of Neutron Rays on the Atmosphere Generated by Nuclear Power Plants at Different Altitudes
Je-Ho Jang, Jae-hyeon Park, Seung-won Lee, Sae-Hoon Park, Sang-Hun Lee, and Yu-Seok Kim(DU)

P08C08 Preliminary Study on Ion Exchange Absorber for the Development of 82Sr/82Rb Generator
Yeong Su Ha, and Kye-Ryung Kim(KAERI)

P08C09 Carbon Dioxide Concentration Changes Produced from Fossil Fuels at Gyeong-Ju in 2020
Seung-Gyu Lee, Yong-Ha Son, Chang-Gu Je, Ho-Won Kang, Sae-Hoon Park, Sang-Hun Lee, and Yu-Seok Kim(DU)

P08C10 Electromagnetic Design of 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)

P08C11 Preliminary Shielding Design Results for Sr-82/Rb-82 Generator Prototype Development
Kye-Ryung Kim, Pilsoo Lee, Yeong Su Ha, Sang-Pil Yoon, and Yong-Sub Cho(KAERI)

P08C12 Present and Future of Theranostic Radioisotopes
Seoung-Oh Yang and Chang Yong Yoon(DIRAMS), Kanghyuk Choi(KAERI)

P08C13 High Current Proton Beam Extraction for Neutron Production Using RFT-30 Cyclotron
Eun Je Lee, Jang Ho Ha, and Myung Kook Moon(KAERI)

P08C14 Feasibility Study on Neutron Retrospective Dosimetry Using Minority Carrier Life Time Measurement
Hani Baek, Byung–Gun Park, Min Young Kang, Hyoung Taek Kim, Jung Il Lee, and Gwang Min Sun(KAERI), Chansun Shin(MJU)

P08C15 Preliminary Design of a Multi-Purpose Compact Accelerator-Driven Neutron Source
Doo–Hee Chang, Jong Gab Jo, Tae–Seong Kim, Yong–Sub Cho, Dae–Sik Chang, Hyeok–Jung Kwon, and Han–Sung Kim(KAERI)

P08C16 Copper Neutron Target Design and Installation in KOMAC
Soobin Lim, Jaehyung Park, Kyung–Jae Chung, and Y.S. Hwang(SNU), Dong Hwan Kim, Jeong–Jeung Dang, and Pilsoo Lee(KAERI)

P08C17 Time-of-Flight Measurement on the Neutron with a Maximum Energy in KOMAC
DongHwan Kim, Soobin Lim, Kyoung–Jae Chung, Yong–Seok Hwang, and JaeHyung Park(SNU), Pilsoo Lee, Jeong–Jeung Dang, Hyeok–Jung Kwon, and Han–Sung Kim(KAERI)

제9분과

양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

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

12. 17 (목)

| 좌장 이동원(Dong Won Lee), 권혁중(Hyeok–Jung Kwon) | 발표장소 온라인

09:00 Monte Carlo Simulation Study for Verification of Target and Beamline on μSR Facility in RAON
Kyungmin Kim, Kihong Pak, Jae Young Jeong, Junesic Park, Sangmin Lee, and Yong Kyun Kim(HYU), JuHahn Lee(IBS)

09:20 Commissioning Test on Vapor Adsorption and Desorption using a Small Scale AMSB
Seok–kwon Son, Soon Chang Park, Mu–young Ahn, and Seungyon Cho(NFRI), Chang Wook Shin(KAERI)

09:40 Thermal Characteristics of HCCR Test Blanket Modules during a Loss of Flow Accident
Seong Dae Park, Dong Won Lee, Jae–Sung Yoon, and Suk–Kwon Kim(KAERI), Seungyon Cho(NFRI)

10:00 Status of CANS at Home and Abroad and Introduction to New On-Site Neutron Source Development Project with 30 MeV Cyclotron for Neutron Radiography
Dong Won LEE, Bongki JUNG, Suk–Kwon KIM, Seong Dae PARK, Chang Wook SHIN, Myung Kook MOON, Chang–Hee LEE, and Eun Je LEE(KAERI)

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

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

PO9B01 The Multiple Ion Charge State Measurement of the Metal Vapor Vacuum Arc Ion Source at the KOMAC
Seung Ho Lee, Yong Sub Cho, Han Sung Kim, Jeong Jeung Dang, and Hyeok Jung Kwon(KAERI)

PO9B02 Beam Transport Calculation and Beamline Design for μSR Facility in RAON
Kihong Pak, Junesic Park, Jae Young Jeong, Jae Chang Kim, Tae Hoon Kim, Dong–geon Kim, and Yong Kyun Kim(HYU), Ju Hahn Lee(IBS)

PO9B03 Heat Load Estimation of the Cryomodule for 200-MeV Energy Upgrade at KOMAC
Hyeok–Jung Kwon, Jeong–Jeung Dang, Seunghyun Lee, Han–Sung Kim, and Yong–Sub Cho(KAERI)

PO9B04 Application Development for Archiving Data and Operating Status Analysis at KOMAC
sung–yun Cho, Jae–ha Kim, and Young–gi Song(KAERI)

PO9B05 Development of Trigger Control System for Beam Diagnostics at KOMAC
Young–Gi Song, Sung–Yun Cho, Jae–Ha Kim, and Jeong–Jeung Dang(KAERI)

PO9B06 Implementation of the Integrated Data Processing Program for KOMAC Beam Emittance
Jae–Ha Kim, Young–Gi Song, Sung–yun Cho, Seunghyun Lee, San–Pil Yun, and Jeong–Jeung Dang(KAERI)

PO9B07 Effect of Oxygen Content in Silicon Suboxide Nanoparticles on UV Radiation Shielding
Jaewoo Lee, Sangyoon Lee, Jun Heo, and Sung Oh Cho(KAIST)

PO9B08 Feasibility on a Microwave-Heating for the Volumetric Heating of Li_2TiO_3 Pebbles
Yang–il Jung and Hyun–Gil Kim(KAERI), Alice Ying and Mohamed Abdou(UCLA), Kyoung–Seok Moon and Young Jun Joo(GNU)

PO9B09 Fabrication of Small Mock-Ups using TIG Welding for the KO HCCR TBM
Jae Sung Yoon, Suk–Kwon Kim, Seong Dae Park, and Dong Won Lee(KAERI), Yi Hyun Park(NFRI)

PO9B10 SPH Simulation for Pinch Plasma using Resistive MHD Model
Su–San Park, Jin Hyun Kim, So–Hyun Park, and Eung Soo Kim(SNU)

PO9B11 Performance Test for the Helium Circulator of the HeSS Test Facility
Eo Hwak Lee, Suk–Kwon Kim, Hyung Gon Jin, Chang Wook Shin, and Dong Won Lee(KAERI), Seungyon Cho(KFE)

PO9B12 Experimental Analysis of Density Peaking in KSTAR Plasma
Cheol–Sik Byun, Yong–Su Na, and Chanyoung Lee(SNU)

PO9B13 Mechanical Analysis of Single Load for HCCR TBM-set at Preliminary Design Phase 3
Seong Dae Park, Dong Won Lee, Jae–Sung Yoon, and Suk–Kwon Kim(KAERI), Seungyon Cho(NFRI)

PO9B14 Experimental Study for Vapor Adsorption Characteristic using Molecular Sieve in Air Flow
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(NFRI)

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

10A 원전건설 및 운영기술 1 (Plant Construction & Operation 1)

12. 17 (목) | 좌장 김민규(Min Kyu Kim), 문일환(Il-Hwan Moon) | 발표장소 온라인

13:30 Development of Input Ground Motion for Seismic Analysis of Silo Structure in Low-And Intermediate-Level Radioactive Waste Disposal Facility
Jeong-Gon Ha and Min Kyu Kim(KAERI)

13:50 Effect of Angles Against the Ground on Seismic Assessment of a Dry Storage Facility
Dong-Hyeon Kwak and Yoon-Suk Chang(KHU)

14:10 Seismic Response Analysis of Isolated Nuclear Power Plant with Experiment-Based Bearing Models
Gyeong Hee An and Min Kyu Kim(KAERI)

14:30 Evaluation of Maximum Shear Strength of RC Shear Wall by Multi-Directional Loading Test
Junhee Park(KAERI), Yun-Byeong Chae(ODU)

14:50 Study on the Seismic Fragility Assessment of Interconnected Electrical Cabinets
Sung Gook Cho and Kashif Salman(Innose Tech)

15:10 Seismic Analysis of Nuclear Power Plant Structures to High-Frequency Earthquakes Considering Crack Effects
Jae-Wook Jung, Jeong-Gon Ha, and In-Kil Choi(KAERI)

15:30 Random Vibration Analysis for Random Excitation at APR1400 Reactor Vessel Closure Head in Normal Operating Condition
Yongtae Jang, Jungyong Kim, and Jongmin Kim(KEPCO E&C)

15:50 Failure Behaviors of Pipe Elbows under a Large Amplitude Cyclic Loads
Sang Eon Kim, Jin Ney Hong, and Jin Weon Kim(CSU), Dae Young Lee and HeungBae Park(KEPCO E&C)

10B 원전건설 및 운영기술 2 (Plant Construction & Operation 2)

12. 18 (금) | 좌장 구경회(Gyeong-Hoi Koo), 이성호(Sung-Ho Lee) | 발표장소 온라인

09:00 Introduction to Revision of KEPIC-QAI (Authorized Inspection)
Su-yeon Park and Hyun-jae Joo(KEA)

09:20 Document Management System Development and Advanced Status of Nuclear Reactor Construction Project
Kook-Nam Park, Young-Cheol Go, and Youngse Kwon(KAERI) , Yoon-Ho Shin and Sung-Kyu Lee(DBVC)

09:40 Aerosol Loss Calculation in KAERI's Steam Generator Tube Rupture Experimental Set-Up
Myeong Seon Lee and Kwang Soon Ha(KAERI), Hyo Jin Lee(HNU)

10:00 Study of Gamma Irradiation Effect on Mechanical Properties and Structure of Nitrile Butadiene Rubber and Ethylene Propylene Diene Rubber
Inyoung Song and Ji Hyun Kim(UNIST), Deahwan Kim and Taehyun Lee(KIMM)

10:20 Impact of Zinc Concentration on Fuel Crud in a Simulated Primary Water of PWRs
Hee-Sang Shim, Kyeong-Su Kim, Hye-Min Park, and Do Haeng Hur(KAERI),
Jin-Soo Choi and Kyu Min Song(KHNP CRI)

10:40 Reaction of Dissolved Zinc with Fuel Crud in Simulated PWR Coolant at 325 ˚C
Do Haeng Hur, Kyeong-Su Kim, and Hee-Sang Shim(KAERI), Jinsoo Choi and Kyu Min Song (KHNP CRI)

10C 원전건설 및 운영기술 (Nuclear Power Plant Construction and Operation Technology) – POSTER

| 좌장 김종욱(Jong–Wook Kim), 김태순(Tae–Soon Kim) **| 발표장소** 온라인

PO10C01	Delay Causes in Electrical Projects Commissioning Ashrafa Seif, Joanna Furtak, and Wooyong Jung(KINGS)
PO10C02	Preliminary Study for Risk Schedule Management of NPP Project: An Illustrative Example Myeongjae Shin, Usman Ismaila, and Wooyong Jung (KINGS)
PO10C03	Validation of Valve Factor From Performance Prediction for Flexible Wedge Gate Valves Tae–Kyung Oh and Jin–A Jang(KEPCO E&C)
PO10C04	The Improvement of OPR1000 and APR1400 Emergency Operating Guidelines to Cope with the Multiple Failure Accidents and Beyond Design Basis External Event Jae Min Park, Dong Hyun Cho, Chang Gyun Lee, and Jae Young Huh(KEPCO E&C)
PO10C05	A Study on Improvement of Operator's Measures for Abnormal Occurrence of Main Feed Water Pump Pan Gil Kim(KHNP), Gyeong Jin Lee (CSU)
PO10C06	Simulative Study on Battery Back-Up Time Extension Sungbaek Park and Yung–Mi Kim(KINS)
PO10C07	Lead Factor Improvement of Surveillance Capsule Assembly in Reactor Vessel Taesoon Kim(KHNP CRI), Jaehyung Kang(KEPCO E&C)
PO10C08	Interfacial Electrokinetic Properties of Magnetite Particles and Steam Generator Tube Surfaces Ji–Min Lee, Yong–Beom Lee, Soon–Hyeok Jeon, and Do Haeng Hur(KAERI)
PO10C09	Development of Ion Exchange Resin Saturation Loop for IASCC Test Facility in Hot Cell Sung Hwan Cho, Sung Woo Kim, and Dong Jin Kim(KAERI), Jong Hyeon Lee(CNU)
PO10C10	Software Development to Select and Scale Recorded Earthquake Compatible with Target Response Spectrum Jeong–Gon HA and Tae–Hyun Kwon(KAERI)
PO10C11	Application of Bayesian Updating to Seismic Fragility Analysis of Piping System Shinyoung Kwag(HNU), Seunghyun Eem(KNU), Yonghee Ryu(NC state), Buseog Ju(KHU)

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

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

12. 17 (목)

| 좌장 이나영(Na Young Lee), 이현철(Hyun Chul Lee) | 발표장소 온라인

13:30 Vital Area Identification in a Nuclear Power Plant and Regulatory Revision
Jeong-ho Lee(KINAC)

13:50 Development of System Dynamics Model for Estimating DPRK's Fissile Material Stockpile
Yonhong Jeong and SeungHo Jeong(KINAC)

14:10 Nuclear Capability Development and the Political Spectrum of Governments
Chul Min Kim, Hyeon Seok Park, and Man-Sung Yim(KAIST)

14:30 Application Status of Korean Equipment Qualification Accreditation Program
Hanna Cho and Hyung Jin Shim(SNU)

14:50 Review on the Adequacy of the Penalty Regulations Related to Nuclear Inspections
Sangcheol Hyung(KINAC)

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

| 좌장 최영성(Young Sung Choi), 정원표(Won Pyo Jeong) | 발표장소 온라인

PO11B01 An Analysis of Issues for the Implementation of Online Nuclear Nonproliferation Training
Byung-Woo Shin and Sung Yoon Park(KINAC)

PO11B02 ISO 9001:2015 QMS for Nuclear Nonproliferation and Security Training Program
Dong-hyun KIM(KINAC)

PO11B03 A Conceptual Design of Chat-Bot Service System for Improving Risk Communication and Public Acceptance on Nuclear
Yong Hee Lee(KAERI)

PO11B04 Research Trend Analysis of Nuclear Technology using Topic Modeling
GYURI BAE(Sejong Univ.)

PO11B05 Case Study on the Insider Threat Mitigation at Nuclear Facilities: United Kingdom and Japan
Chan Kim(KINAC)

PO11B06 Fundamental International Regulatory Framework for Physical Protection of Spent Fuel in Transit
Chan Kim(KINAC)

PO11B07 Initial Strategies to Effectively Verify Denuclearization
Minsoo KIM, Hojung DO, and Jung-Hyun LEE(KINAC)

PO11B08 An Analysis of Magnox Type Gas-Cooled Reactors using Calder Hall Reactor and YongByon Reactor
Hansol Ko and Beom Seok Shin(KINAC)

PO11B09 What Experts Care About in Satellite Observation: A Quantitative Analysis for Countering Nuclear Proliferation
Jae-Jun Han and Nam Kyung Kim(KINAC)

P011B10 Development of System Dynamics Model for Estimating Spent Nuclear Fuel Stockpile
Yonhong Jeong and SeungHo Jeong(KINAC)

P011B11 Implementation of the Safeguards-By-Design (SBD) for Small Modular Reactors
Joo Hyung Moon(KAERI), Donghyuk Lim(KINAC)

P011B12 A Study of Performance Specification of CdWO4 Scintillator Based Partial Defect Detector
Yeongjun Kim and Man-Sung Yim(KAIST), Haneol Lee(KINAC)

P011B13 Untact-Era Based Modeling for Cybersecurity using Blockchain Algorithms in Nuclear Industry: A Cyber World Integrity Enhancement in COVID-19 Pandemic
Tae Ho Woo(CUK)

P011B14 Object-Based Land Cover Classification for Pyongsan Uranium Mine and Concentration Plant using Machine Learning Based Classifier
Nam Kyung Kim(KINAC)

P011B15 Radiation Medicine R&D Strategy in Accordance with New Southern Policy
Heejin Kim and Jung Young Kim(KIRAMS)

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

12A 12. 17 (목) 원자력계측제어, 인간공학 및 자동원격 1 (Nuclear I&C, Human Factors, and Automatic Remote Systems 1)

| 좌장 구서룡(Seo Ryong Koo), 이윤희 (Yoon Hee Lee) | 발표장소 온라인

09:00 Consideration on the Use of Explainable AI in Operator Support System
Yun Goo Kim and Dae Seung Park(KHNP)

09:20 Development of Fast Simulation Technique using Deep Autoregressive Model
Hyeonmin Kim, Seunghyoung Ryu, and Jinkyun Park(KAERI)

09:40 Re-Exploration of Pretrained Artificial Intelligence Model for a Nuclear Power Plant Autonomous Operation
Jae Min Kim, Hong Jun Yang, and Seung Jun Lee(UNIST)

10:00 Reliable Abnormality Diagnosis Model for Nuclear Power Plant Using Convolutional Neural Networks
Ji Hyeon Shin and Seung Jun Lee(UNIST)

10:20 Abnormal Diagnosis using eXplainable Artificial Intelligence in Nuclear Power Plants
Ji Hun Park, So Hun Yun, Ye Ji An, and Man Gyun Na(CSU)

10:40 Application of STPA to Risk Analysis of Digital I&C System
Sung-Min Shin, Sang Hun Lee, Seung Ki Shin, and Inseok Jang(KAERI)

11:00 Improvements of Core Protection System and Plant Availability
Thiago Nascimento and JaeCheon Jung(KINGS)

11:20 Prediction of NPP Containment States Using Deep Fuzzy Neural Networks during LOCAs
Hye Seon Jo, Young Do Koo, Kwae Hwan Yoo, and Man Gyun Na(CSU), Chang-Hwoi Kim(KAERI)

11:40 An Autonomous Pressure Controller based on Approximation of Action Value Function
Junyong Bae, Jae Min Kim, and Seung Jun Lee(UNIST)

12B 12. 17 (목) 원자력계측제어, 인간공학 및 자동원격 2 (Nuclear I&C, Human Factors, and Automatic Remote Systems 2)

| 좌장 김지태(Ji Tae Kim), 최종균(Jong Gyun Choi) | 발표장소 온라인

13:30 Identification of Contributing Factors to Organizational Resilience in the Emergency Response Organization: A Literature Review on the Applications to Other Fields
Tae Ki Bae(KHNP), Sungheon Lee, Jaehyun Kim, and Jonghyun Kim(CSU)

13:50 Task Analysis for Human Reliability Analysis about Use of Portable Equipment
Seongmin Lim, Gayoung Park and Jonghyun Kim(CSU)

14:10 Development of CEDM Digital Twin to Support Operator Actions
Mostafa Mohamad Mousa, Jae Cheon Jung, and Thiago Nascimento(KINGS)

14:30 A Method to Reduce Data Dimensions in Machine Learning Programming
Yong Suk Suh, Seung Ki Shin, Dane Baang, Sang Mun Seo, and Jong Bok Lee(KAERI)

14:50 A Preliminary Study on Interpretability of Machine Learning: Diagnosis of Internal Leakage in Feedwater Heaters
Kibeom Son, Gibeom Kim, and Gyunyoung Heo(KHU)

15:10 Algorithm for the Detection of Signal Failure in the Emergency Situation Using VAE-LSTM
Younhee Choi, Gyeongmin Yoon, Subong Lee, and Jonghyun Kim(CSU)

15:30 A Study of a Guide Development for Regulatory Acceptance Criteria of Technical Security Controls
Jae-Gu Song, Jung-Woon Lee, Jinsoo Shin, and Cheol-Kwon Lee(KAERI)

15:50 Application of a Model-Driven Security State Estimation Method for Cybersecurity Incident Detection and Response in NPPs
Chanyoung Lee and Poong Hyun Seong(KAIST)

16:10 Application of Cyber Threats to PSA based on External PSA Concept
SANG MIN HAN and POONG HYUN SEONG(KAIST)

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

| **좌장** 이현철 (Hyun-Chul Lee), 신승기 (Seung Ki Shin) | **발표장소** 온라인

PO12C01 Development of the Gross Containment Leakage Monitoring System Test Facilities for Wolsung Unit 2, 3 and 4
Seung Ok Yang(KHNP)

PO12C02 Allowable Value Calculation Methodology Comparision Between ISA RP67.04 and Advnaced Power Reactor 1400 Nuclear Power Plant
Chang Jae Lee, Woo Goon Kim, and Ki Hoon Jung(KEPCO E&C)

PO12C03 A Preliminary Study on the Culpability of Violation Errors in Nuclear Events and Their Investigations
Yong-Hee Lee(KAERI)

PO12C04 Operator Workload Evaluation of Reactor Start-Up Operation in the Nuclear Power Plant
Hyun-Chul Lee(KAERI)

PO12C05 Evaluation Procedures of Measures to Eliminate Further Consideration of Digital CCFs of NPP
Youngmi Kim and Songbaek Park(KINS)

PO12C06 A Study on the Applicability of STPA Method to Digital I&C Design Assessment with Regard to Safety Requirements
Seung Ki Shin, Sung-Min Shin, Sang Hun Lee, and Inseok Jang(KAERI)

PO12C07 Animation of Laser Scanning Process for Deep Learning-based Reactor Parts Classification
Hyeji Na, Sungmoon Joo, and Jonghwan Lee(KAERI)

PO12C08 Evaluation of Proper Hyperparameters in Machine Learning Algorithms for Fuel Cycle Related Documents Classification
Byoungchan Han, Byeonghyeok Ha, and Tongkyu Park(FNC Tech.)

PO12C09 Application of V-model on Safety and Security for Developing Digital I&C
Jiye Jeong and Gyunyoung Heo(KHU)

PO12C10 Cyber Security Regulation in Nuclear Power Plants through Vital Digital Assets
Seungmin Kim and Kookheui Kwon(KINAC)

PO12C11 Improvement of Transient Analysis of S-CO2 Cooled Micro Modular Reactor using DNN based Turbomachinery Off-Design Model
Seongmin Son and Jeong Ik Lee(KAIST)

PO12C12 Human System Interface Test for Elastic Tile Alarm Display of SMART Alarm and Indication System
Inseok Jang(KAERI)

국민이 안심하는 연구

국민이 신뢰하는 기술

한국원자력연구원은 안전을 연구합니다

KAERI 한국원자력연구원
Korea Atomic Energy Research Institute

www.kns.org

KNS 2020 Autumn
추계학술발표회

| 발행인 | 하재주
| 발행처 | 한국원자력학회
| 주 소 | 대전광역시 유성구 유성대로 794, 4층 (장대동, 뉴토피아빌딩)
| 연락처 | Tel:(042)826-2613~5/2677 Fax:(042)826-2617
E-mail:kns@kns.org
| 인쇄처 | 신진기획인쇄사 Tel:(042)638-7887

http://2020Autumnmeeting.kns.org

사단법인 한국원자력학회
KOREAN NUCLEAR SOCIETY
대전광역시 유성구 유성대로 794, 4층 (장대동, 뉴토피아빌딩)
Tel 042-826-2613, 2614, 2615, 2677 Fax 042-826-2617 E-mail kns@kns.org