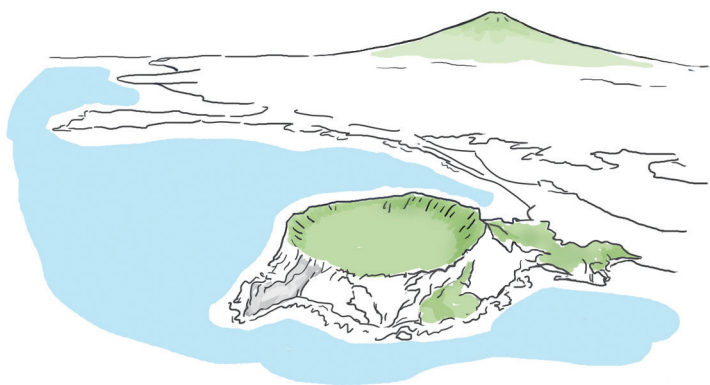


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# KNS 2016 Spring 춘계학술발표회

KOREAN NUCLEAR SOCIETY

2016.5.11(수)~13(금)  
제주 국제컨벤션센터



사단법인 한국원자력학회  
KOREAN NUCLEAR SOCIETY

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사단  
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[ 한국원자력학회 특별회원 및 국제학술회의 광고 ]



## 학회장 인사말



성풍현 학회장

안녕하십니까? 학회장 성풍현입니다.

이번 2016년도 춘계 학술발표회를 유채꽃이 만발하고 정겨운 올레길이 있는 제주에서 개최하게 된 것을 진심으로 기쁘게 생각합니다. 부디 제주 봄의 생명력을 만끽하시면서 새로운 힘을 충전 받는 좋은 시간이 되시길 기원합니다. 아울러 이번 학술발표회의 주제를 나름대로 “맑은 공기, 밝은 환경, 원자력 에너지”라고 정해 보았습니다.

여러분이 잘 아시다시피, 2015년 12월 12일에 프랑스 파리에서 COP21 이라는 유엔기후변화협약이 있었고 이 자리에서 지구의 온도 상승을 향후 2100년까지 섭씨 2도 이내로 지킨다는 선언을 하였습니다. 우리나라도 2030년까지 BAU(Business as Usual) 대비 37%의 이산화탄소를 줄이겠다고 약속하였으며 이 약속 이행은 원자력을 지속적으로 이용해야만 가능해질 수 있다는 것이 거의 모든 전문가의 공통된 의견입니다. 이 문제만 보더라도 원자력의 미래는 밝고 제2의 르네상스를 맞고 있다고 이야기하는 분들도 있습니다.

하지만 우리나라가 조속히 해결해야만 하는 문제도 있습니다. 그것은 사용후핵연료에 관한 문제입니다. 우리나라는 사용후핵연료를 발전소 내에 있는 저장조에 보관해 오고 있으나 서둘러 특별한 조치를 하지 않으면 안전하고 안정적으로 운영되고 있는 원자력발전소를 정지시켜야만 하는 상황도 벌어질 수 있습니다. 그래서 우리 학회는 한국방사성폐기물학회와 함께 전문가들의 의견 수렴과 검토를 거쳐 지난 4월 22일에 정부와 국회, 그리고 사업자의 즉각적인 행동을 촉구하는 내용의 성명서를 내게 되었습니다.

요약하면 신기후변화체제와 사용후핵연료관리 문제는 우리나라 원자력계가 당면하고 있는 기회와 위기라고 할 수 있습니다.

작년 가을 학회장 취임식에서 말씀드렸던 것처럼 우리 학회는 아래 3개의 캐치프레이즈 하에 8개의 사업목표를 가지고 일을 추진해 나가고 있습니다.

- 1) 국민의 사랑을 받는 원자력
- 2) 내실을 기하는 원자력학회
- 3) 금지를 갖는 원자력인

국민의 사랑을 받는 원자력이 되기 위해 우리 학회는 작년 11월부터 소통위원회와 대변인제도를 신설하여 운영하고 있습니다. 지난 기간 동안 소통위원회와 원자력이슈위원회의 활동이 매우 활발하게 진행되었다고 생각합니다. 이와 더불어 원전 지역의 지자체 방문을 통해 지역의 애로사항과 의견을 청취하는 작업도 꾸준히 진행하고 있습니다.

내실을 기하는 원자력학회가 되기 위해 많은 노력을 경주해왔고 많은 결실을 얻고 있다고 자부합니다. 그 동안 수작업에 의지했던 학술대회 논문 접수 및 심사를 전산화하였고 연구부회 별 초청논문발표를 제도화하였으며 학술발표 시간을 늘이는 등 연구부회 활동과 학술대회의 질을 높이는 데 주력하였습니다. 아울러 학회 편집위원들의 노고로 우리 학회의 자랑인 국제 학술지 NET가 연간 300 편 이상의 논문을 투고 받는 등 발전을 거듭하고 있습니다.

금지를 갖는 원자력인이 되기 위한 노력으로써 지난 3월에 제2기 원자력 엘리트스쿨을 시작하여서 원자력 원로이신 이창건 원장님과 노윤래 전 사장님을 3월과 4월 각각 모시고 우리나라 원자력 초창기의 선배들의 노력과 헌신과 청렴을 듣는 기회를 가졌었습니다.

우리 학회의 학회장 임기가 2년에서 1년으로 바뀐 것은 약 10년전 일입니다. 이 1년이라는 짧은 기간 동안 새로운 변화를 이끌어내고 제도나 문화를 정착시키기에는 많은 어려움이 뒤따릅니다. 그동안 나름대로 여러 변화를 시도했습니다. 제가 학회장으로서 바라는 바는 이러한 변화가 우리 학회의 중심가치로 자리 잡고 우리 학회가 이 중심가치 위에서 지속적으로 발전해나가는 것입니다

우리 학회의 춘계학술발표회는 원자력인의 봄축제입니다. 부디 며칠 안되는 학술발표회 기간 동안 유익하고 생산적이며 허심탄회한 학술교류의 장이 되시길 바라며 반가운 사람들과 재회도 하셔서 뜻 깊고 좋은 시간을 많이 가지시길 기원합니다.

감사합니다.

2016년 5월

성 풍 현 학회장

# 2016년 국제학술발표회 전체행사 일정표

5월 11일(수)			5월 12일(목)										5월 13일(금)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
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09:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00	24:00 - 25:00	25:00 - 26:00	26:00 - 27:00	27:00 - 28:00	28:00 - 29:00	29:00 - 30:00	30:00 - 31:00	31:00 - 32:00	32:00 - 33:00	33:00 - 34:00	34:00 - 35:00	35:00 - 36:00	36:00 - 37:00	37:00 - 38:00	38:00 - 39:00	39:00 - 40:00	40:00 - 41:00	41:00 - 42:00	42:00 - 43:00	43:00 - 44:00	44:00 - 45:00	45:00 - 46:00	46:00 - 47:00	47:00 - 48:00	48:00 - 49:00	49:00 - 50:00	50:00 - 51:00	51:00 - 52:00	52:00 - 53:00	53:00 - 54:00	54:00 - 55:00	55:00 - 56:00	56:00 - 57:00	57:00 - 58:00	58:00 - 59:00	59:00 - 60:00	60:00 - 61:00	61:00 - 62:00	62:00 - 63:00	63:00 - 64:00	64:00 - 65:00	65:00 - 66:00	66:00 - 67:00	67:00 - 68:00	68:00 - 69:00	69:00 - 70:00	70:00 - 71:00	71:00 - 72:00	72:00 - 73:00	73:00 - 74:00	74:00 - 75:00	75:00 - 76:00	76:00 - 77:00	77:00 - 78:00	78:00 - 79:00	79:00 - 80:00	80:00 - 81:00	81:00 - 82:00	82:00 - 83:00	83:00 - 84:00	84:00 - 85:00	85:00 - 86:00	86:00 - 87:00	87:00 - 88:00	88:00 - 89:00	89:00 - 90:00	90:00 - 91:00	91:00 - 92:00	92:00 - 93:00	93:00 - 94:00	94:00 - 95:00	95:00 - 96:00	96:00 - 97:00	97:00 - 98:00	98:00 - 99:00	99:00 - 100:00	100:00 - 101:00	101:00 - 102:00	102:00 - 103:00	103:00 - 104:00	104:00 - 105:00	105:00 - 106:00	106:00 - 107:00	107:00 - 108:00	108:00 - 109:00	109:00 - 110:00	110:00 - 111:00	111:00 - 112:00	112:00 - 113:00	113:00 - 114:00	114:00 - 115:00	115:00 - 116:00	116:00 - 117:00	117:00 - 118:00	118:00 - 119:00	119:00 - 120:00	120:00 - 121:00	121:00 - 122:00	122:00 - 123:00	123:00 - 124:00	124:00 - 125:00	125:00 - 126:00	126:00 - 127:00	127:00 - 128:00	128:00 - 129:00	129:00 - 130:00	130:00 - 131:00	131:00 - 132:00	132:00 - 133:00	133:00 - 134:00	134:00 - 135:00	135:00 - 136:00	136:00 - 137:00	137:00 - 138:00	138:00 - 139:00	139:00 - 140:00	140:00 - 141:00	141:00 - 142:00	142:00 - 143:00	143:00 - 144:00	144:00 - 145:00	145:00 - 146:00	146:00 - 147:00	147:00 - 148:00	148:00 - 149:00	149:00 - 150:00	150:00 - 151:00	151:00 - 152:00	152:00 - 153:00	153:00 - 154:00	154:00 - 155:00	155:00 - 156:00	156:00 - 157:00	157:00 - 158:00	158:00 - 159:00	159:00 - 160:00	160:00 - 161:00	161:00 - 162:00	162:00 - 163:00	163:00 - 164:00	164:00 - 165:00	165:00 - 166:00	166:00 - 167:00	167:00 - 168:00	168:00 - 169:00	169:00 - 170:00	170:00 - 171:00	171:00 - 172:00	172:00 - 173:00	173:00 - 174:00	174:00 - 175:00	175:00 - 176:00	176:00 - 177:00	177:00 - 178:00	178:00 - 179:00	179:00 - 180:00	180:00 - 181:00	181:00 - 182:00	182:00 - 183:00	183:00 - 184:00	184:00 - 185:00	185:00 - 186:00	186:00 - 187:00	187:00 - 188:00	188:00 - 189:00	189:00 - 190:00	190:00 - 191:00	191:00 - 192:00	192:00 - 193:00	193:00 - 194:00	194:00 - 195:00	195:00 - 196:00	196:00 - 197:00	197:00 - 198:00	198:00 - 199:00	199:00 - 200:00	200:00 - 201:00	201:00 - 202:00	202:00 - 203:00	203:00 - 204:00	204:00 - 205:00	205:00 - 206:00	206:00 - 207:00	207:00 - 208:00	208:00 - 209:00	209:00 - 210:00	210:00 - 211:00	211:00 - 212:00	212:00 - 213:00	213:00 - 214:00	214:00 - 215:00	215:00 - 216:00	216:00 - 217:00	217:00 - 218:00	218:00 - 219:00	219:00 - 220:00	220:00 - 221:00	221:00 - 222:00	222:00 - 223:00	223:00 - 224:00	224:00 - 225:00	225:00 - 226:00	226:00 - 227:00	227:00 - 228:00	228:00 - 229:00	229:00 - 230:00	230:00 - 231:00	231:00 - 232:00	232:00 - 233:00	233:00 - 234:00	234:00 - 235:00	235:00 - 236:00	236:00 - 237:00	237:00 - 238:00	238:00 - 239:00	239:00 - 240:00	240:00 - 241:00	241:00 - 242:00	242:00 - 243:00	243:00 - 244:00	244:00 - 245:00	245:00 - 246:00	246:00 - 247:00	247:00 - 248:00	248:00 - 249:00	249:00 - 250:00	250:00 - 251:00	251:00 - 252:00	252:00 - 253:00	253:00 - 254:00	254:00 - 255:00	255:00 - 256:00	256:00 - 257:00	257:00 - 258:00	258:00 - 259:00	259:00 - 260:00	260:00 - 261:00	261:00 - 262:00	262:00 - 263:00	263:00 - 264:00	264:00 - 265:00	265:00 - 266:00	266:00 - 267:00	267:00 - 268:00	268:00 - 269:00	269:00 - 270:00	270:00 - 271:00	271:00 - 272:00	272:00 - 273:00	273:00 - 274:00	274:00 - 275:00	275:00 - 276:00	276:00 - 277:00	277:00 - 278:00	278:00 - 279:00	279:00 - 280:00	280:00 - 281:00	281:00 - 282:00	282:00 - 283:00	283:00 - 284:00	284:00 - 285:00	285:00 - 286:00	286:00 - 287:00	287:00 - 288:00	288:00 - 289:00	289:00 - 290:00	290:00 - 291:00	291:00 - 292:00	292:00 - 293:00	293:00 - 294:00	294:00 - 295:00	295:00 - 296:00	296:00 - 297:00	297:00 - 298:00	298:00 - 299:00	299:00 - 300:00	300:00 - 301:00	301:00 - 302:00	302:00 - 303:00	303:00 - 304:00	304:00 - 305:00	305:00 - 306:00	306:00 - 307:00	307:00 - 308:00	308:00 - 309:00	309:00 - 310:00	310:00 - 311:00	311:00 - 312:00	312:00 - 313:00	313:00 - 314:00	314:00 - 315:00	315:00 - 316:00	316:00 - 317:00	317:00 - 318:00	318:00 - 319:00	319:00 - 320:00	320:00 - 321:00	321:00 - 322:00	322:00 - 323:00	323:00 - 324:00	324:00 - 325:00	325:00 - 326:00	326:00 - 327:00	327:00 - 328:00	328:00 - 329:00	329:00 - 330:00	330:00 - 331:00	331:00 - 332:00	332:00 - 333:00	333:00 - 334:00	334:00 - 335:00	335:00 - 336:00	336:00 - 337:00	337:00 - 338:00	338:00 - 339:00	339:00 - 340:00	340:00 - 341:00	341:00 - 342:00	342:00 - 343:00	343:00 - 344:00	344:00 - 345:00	345:00 - 346:00	346:00 - 347:00	347:00 - 348:00	348:00 - 349:00	349:00 - 350:00	350:00 - 351:00	351:00 - 352:00	352:00 - 353:00	353:00 - 354:00	354:00 - 355:00	355:00 - 356:00	356:00 - 357:00	357:00 - 358:00	358:00 - 359:00	359:00 - 360:00	360:00 - 361:00	361:00 - 362:00	362:00 - 363:00	363:00 - 364:00	364:00 - 365:00	365:00 - 366:00	366:00 - 367:00	367:00 - 368:00	368:00 - 369:00	369:00 - 370:00	370:00 - 371:00	371:00 - 372:00	372:00 - 373:00	373:00 - 374:00	374:00 - 375:00	375:00 - 376:00	376:00 - 377:00	377:00 - 378:00	378:00 - 379:00	379:00 - 380:00	380:00 - 381:00	381:00 - 382:00	382:00 - 383:00	383:00 - 384:00	384:00 - 385:00	385:00 - 386:00	386:00 - 387:00	387:00 - 388:00	388:00 - 389:00	389:00 - 390:00	390:00 - 391:00	391:00 - 392:00	392:00 - 393:00	393:00 - 394:00	394:00 - 395:00	395:00 - 396:00	396:00 - 397:00	397:00 - 398:00	398:00 - 399:00	399:00 - 400:00	400:00 - 401:00	401:00 - 402:00	402:00 - 403:00	403:00 - 404:00	404:00 - 405:00	405:00 - 406:00	406:00 - 407:00	407:00 - 408:00	408:00 - 409:00	409:00 - 410:00	410:00 - 411:00	411:00 - 412:00	412:00 - 413:00	413:00 - 414:00	414:00 - 415:00	415:00 - 416:00	416:00 - 417:00	417:00 - 418:00	418:00 - 419:00	419:00 - 420:00	420:00 - 421:00	421:00 - 422:00	422:00 - 423:00	423:00 - 424:00	424:00 - 425:00	425:00 - 426:00	426:00 - 427:00	427:00 - 428:00	428:00 - 429:00	429:00 - 430:00	430:00 - 431:00	431:00 - 432:00	432:00 - 433:00	433:00 - 434:00	434:00 - 435:00	435:00 - 436:00	436:00 - 437:00	437:00 - 438:00	438:00 - 439:00	439:00 - 440:00	440:00 - 441:00	441:00 - 442:00	442:00 - 443:00	443:00 - 444:00	444:00 - 445:00	445:00 - 446:00	446:00 - 447:00	447:00 - 448:00	448:00 - 449:00	449:00 - 450:00	450:00 - 451:00	451:00 - 452:00	452:00 - 453:00	453:00 - 454:00	454:00 - 455:00	455:00 - 456:00	456:00 - 457:00	457:00 - 458:00	458:00 - 459:00	459:00 - 460:00	460:00 - 461:00	461:00 - 462:00	462:00 - 463:00	463:00 - 464:00	464:00 - 465:00	465:00 - 466:00	466:00 - 467:00	467:00 - 468:00	468:00 - 469:00	469:00 - 470:00	470:00 - 471:00	471:00 - 472:00	472:00 - 473:00	473:00 - 474:00	474:00 - 475:00	475:00 - 476:00	476:00 - 477:00	477:00 - 478:00	478:00 - 479:00	479:00 - 480:00	480:00 - 481:00	481:00 - 482:00	482:00 - 483:00	483:00 - 484:00	484:00 - 485:00	485:00 - 486:00	486:00 - 487:00	487:00 - 488:00	488:00 - 489:00	489:00 - 490:00	490:00 - 491:00	491:00 - 492:00	492:00 - 493:00	493:00 - 494:00	494:00 - 495:00	495:00 - 496:00	496:00 - 497:00	497:00 - 498:00	498:00 - 499:00	499:00 - 500:00	500:00 - 501:00	501:00 - 502:00	502:00 - 503:00	503:00 - 504:00	504:00 - 505:00	505:00 - 506:00	506:00 - 507:00	507:00 - 508:00	508:00 - 509:00	509:00 - 510:00	510:00 - 511:00	511:00 - 512:00	512:00 - 513:00	513:00 - 514:00	514:00 - 515:00	515:00 - 516:00	516:00 - 517:00	517:00 - 518:00	518:00 - 519:00	519:00 - 520:00	520:00 - 521:00	521:00 - 522:00	522:00 - 523:00	523:00 - 524:00	524:00 - 525:00	525:00 - 526:00	526:00 - 527:00	527:00 - 528:00	528:00 - 529:00	529:00 - 530:00	530:00 - 531:00	531:00 - 532:00	532:00 - 533:00	533:00 - 534:00	534:00 - 535:00	535:00 - 536:00	536:00 - 537:00	537:00 - 538:00	538:00 - 539:00	539:00 - 540:00	540:00 - 541:00	541:00 - 542:00	542:00 - 543:00	543:00 - 544:00	544:00 - 545:00	545:00 - 546:00	546:00 - 547:00	547:00 - 548:00	548:00 - 549:00	549:00 - 550:00	550:00 - 551:00	551:00 - 552:00	552:00 - 553:00	553:00 - 554:00	554:00 - 555:00	555:00 - 556:00	556:00 - 557:00	557:00 - 558:00	558:00 - 559:00	559:00 - 560:00	560:00 - 561:00	561:00 - 562:00	562:00 - 563:00	563:00 - 564:00	564:00 - 565:00	565:00 - 566:00	566:00 - 567:00	567:00 - 568:00	568:00 - 569:00	569:00 - 570:00	570:00 - 571:00	571:00 - 572:00	572:00 - 573:00	573:00 - 574:00	574:00 - 575:00	575:00 - 576:00	576:00 - 577:00	577:00 - 578:00	578:00 - 579:00	579:00 - 580:00	580:00 - 581:00	581:00 - 582:00	582:00 - 583:00	583:00 - 584:00	584:00 - 585:00	585:00 - 586:00	586:00 - 587:00	587:00 - 588:00	588:00 - 589:00	589:00 - 590:00	590:00 - 591:00	591:00 - 592:00	592:00 - 593:00	593:00 - 594:00	594:00 - 595:00	595:00 - 596:00	596:00 - 597:00	597:00 - 598:00	598:00 - 599:00	599:00 - 600:00	600:00 - 601:00	601:00 - 602:00	602:00 - 603:00	603:00 - 604:00	604:00 - 605:00	605:00 - 606:00	606:00 - 607:00	607:00 - 608:00	608:00 - 609:00	609:00 - 610:00	610:00 - 611:00	611:00 - 612:00	612:00 - 613:00	613:00 - 614:00	614:00 - 615:00	615:00 - 616:00	616:00 - 617:00	617:00 - 618:00	618:00 - 619:00	619:00 - 620:00	620:00 - 621:00	621:00 - 622:00	622:00 - 623:00	623:00 - 624:00	624:00 - 625:00	625:00 - 626:00	626:00 - 627:00	627:00 - 628:00	628:00 - 629:00	629:00 - 630:00	630:00 - 631:00	631:00 - 632:00	632:00 - 633:00	633:00 - 634:00	634:00 - 635:00	635:00 - 636:00	636:00 - 637:00	637:00 - 638:00	638:00 - 639:00	639:00 - 640:00	640:00 - 641:00	641:00 - 642:00	642:00 - 643:00	643:00 - 644:00	644:00 - 645:00	645:00 - 646:00	646:00 - 647:00	647:00 - 648:00	648:00 - 649:00	649:00 - 650:00	650:00 - 651:00	651:00 - 652:00	652:00 - 653:00	653:00 - 654:00	654:00 - 655:00	655:00 - 656:00	656:00 - 657:00	657:00 - 658:00	658:00 - 659:00	659:00 - 660:00	660:00 - 661:00	661:00 - 662:00	662:00 - 663:00	663:00 -

## 학술발표회 회의장 배치도

### 2F

- ① 201 A, B
- ② 202 A, B
- ③ 203



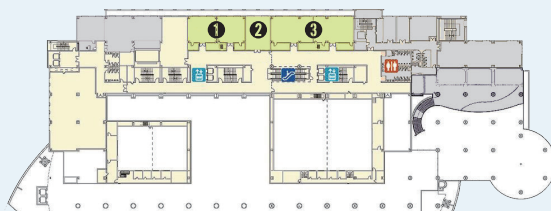
### 3F

- ① 301 A, B      ② 302      ③ 300
- ④ 303 A, B      ⑤ 304      ⑥ 삼다홀 A, B
- ⑦ 한라홀 A, B      ⑧ 델리지아 레스토랑
- ⑨ 델리뷰 (델리지아 레스토랑 2층)



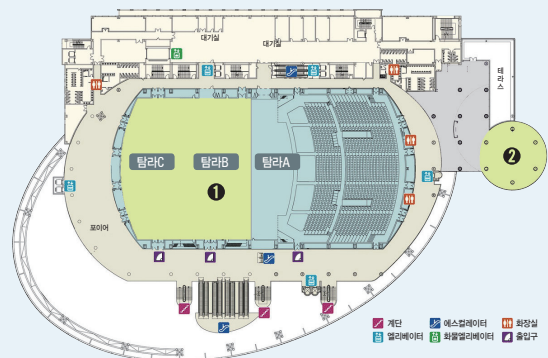
### 4F

- ① 401 A, B
- ② 400
- ③ 402 A, B



### 5F

- ① 탐라홀 A, B, C
- ② 오션뷰



## 한국원자력학회 소통위원회 위원 · 차기 연구부회장

### [소통위원회]

위원장 겸 대변인



제무성

부위원장 겸 대변인



이승숙

### 위원



김진원



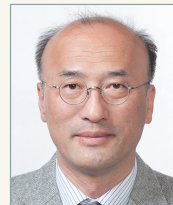
백 훈



윤병조



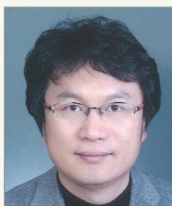
이나영



이재영



임채영



장현섭



전은주



조건우



주한규

### [차기 연구부회장]



주형국  
원자시스템기술



주한규  
원자로물리 및 계산과학



연제원  
방사성폐기물관리



김홍표  
핵연료 및 원자력재료



제무성  
원자력열수력 및 안전



김봉환  
방사선이용 및 방호



오병훈  
양자공학 및 핵융합기술



박영섭  
원전건설 및 운영기술



김현준  
원자력정책, 인력 및 협력



나만균  
원자력계측제어,  
인간공학 및 자동원격



## 한국원자력학회 원자력이슈위원회 위원

위원장



박원재

부위원장



양재영

임명직 위원



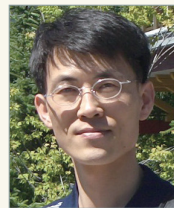
강현국



김광표



김신환



김진원



김한곤



김현준



박주완



박현선



박홍준



서남덕



서종태



이상종



임만성



황용수

당연직 위원



김교윤



김군태



김승평



나만균



오영국



이두정



이찬복



정대율



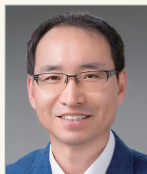
정법동



주한규

## 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



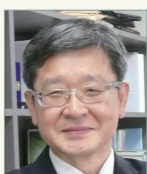
김창락



선광민



양준연



정동욱



정명조



정범진



최선주



최성민



황용수

### 국외 위원



Joonhong Ahn



Akio Gofuku



Didier Jacquemain



John C. Jin



Jean Noirod



Horst-Michael Prasser



Shripad Revankar



Guanghui Su



Belle R. Upadhyaya

## 한국원자력학회 포상 및 장학위원회 위원

### 위원장



황주호

### 위원



김성중



문주현



박종물



배성만



송종순



송진호



이병철



이창노



정동욱



정재학



조건우



조규성



진태은



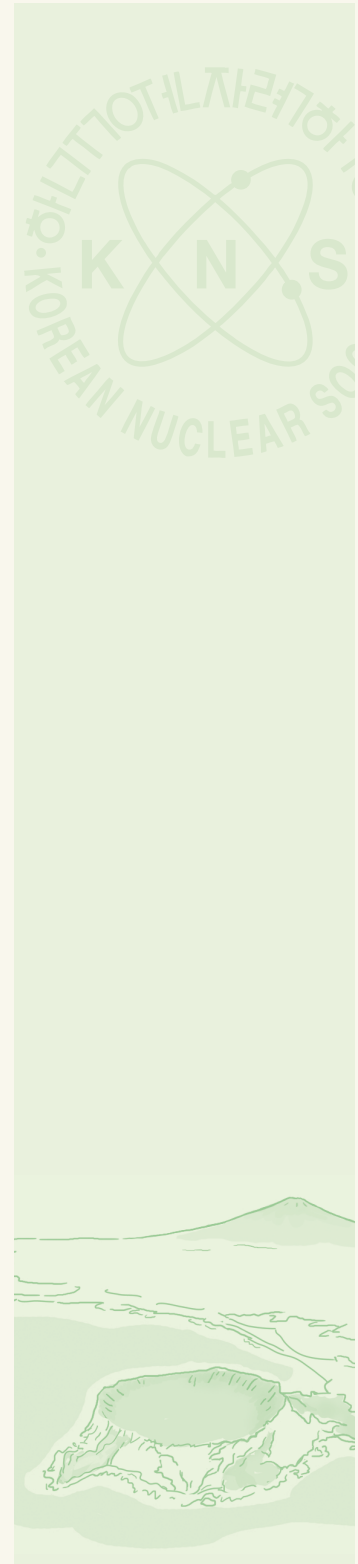
최종원



황용석



황용수





## 개회식 및 특별강연 일정

**| 일시** 2016년 5월 12일(목) 15:00 ~ 17:50

**| 장소** 한라홀 (3F)

일 정	프로그램
15:00 ~ 16:00	[ 사회 : 윤종일 총무이사 ]
	국민의례
	개회사 : 성풍현 학회장
	축사 : 현을생 서귀포시 시장
	2015 춘계학술발표회 우수논문상 시상 2015 춘계학술발표회 학생/청년 Competition Session 시상
	2016 한국원자력학회 장학증서 수여 PHYSOR 장학증서 수여
16:00 ~ 16:55	<b>특별강연 I</b> 정동희 (산업통상자원부 원전산업정책관) <b>원자력의 미래</b> — 국가와 국민, 국제사회에 지속적으로 공헌하기 위한 과제
16:55 ~ 17:50	<b>특별강연 II</b> 강명도 (동포사랑전국연합회 대표) <b>북한의 원자력개발의 실상</b>

## 축사

| 일시 | 2016년 5월 12일(목) 15:00 | 장소 | 한라홀 (3F)



현을생

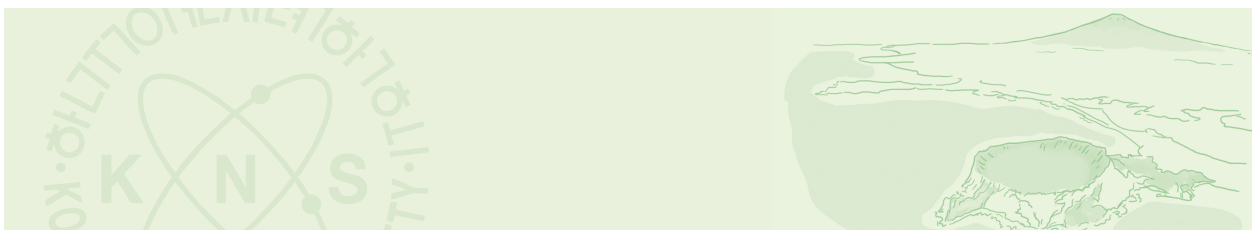
서귀포시장

### | 주요 학력 |

- 제주대학교 행정학과 수료(박사과정)

### | 주요 경력 |

- 서귀포시장 (2014. 7. 8 ~ 현재)
- 제주특별자치도 세계환경수도추진본부장
- 제주특별자치도 전국체전기획단장
- 제주특별자치도 정책기획관
- 제주시 자치행정국장
- 제주시 문화산업국장



## 특별강연

| 일시 2016년 5월 12일(목) 16:00 ~ 17:50 | 장소 한라홀 (3F)



### 정 동 희

산업통상자원부  
원전산업정책관



### 강 명 도

동포사랑전국연합회  
대표

경기대학교 북한학과  
교수

장로회 신학대학교  
신학대학원3년 전도사

KBS 통일정책 자문위원

## 원자력의 미래

- 국가와 국민, 국제사회에 지속적으로 공헌하기 위한 과제

석유위기 등의 파고를 넘으면서 원자력은 전력을 안정적으로 공급하는 핵심 에너지원으로서 역할을 수행하여 왔다. 우리나라에 원자력이 도입된 지 50년 만에 UAE에 우리나라 고유 노형인 APR1400을 수출하는 등 세계 6위의 원자력 강국으로 도약했다. 우리나라의 에너지 여건을 고려하면 중장기적으로 원전의 적정 역할은 불가피하다.

그러나 원자력 산업의 지속가능성은 결정하는 경제성과 안전성, 수용성 등을 둘러싼 현실은 그리 만만치 않다. 일부 국민들은 원자력 안전 우려 등으로 전기요금을 인상하더라도 원자력 발전소를 축소할 의사가 있다고 한다. 전력수요 증가율과 경제성장률의 디커플링으로 경제성장을 뒷받침하기 위한 전원으로서 원자력 발전소의 기능은 다소 약화될 수도 있다. 다만 최근 테슬라의 모델3 예약 열풍 등 전기자동차 공급 증가 및 고속전철 보급 확대 등에 따른 잠재적 전력수요 증가로 인해 원자력 발전의 위상은 유지될 것이다. 특히, 전 세계적인 기후변화 대응을 위해서라도 온실가스를 거의 배출하지 않는 원자력은 중요 에너지원이다. 이처럼 에너지 안보, 기후변화 대응 등의 측면에서 원자력에 대한 수요는 지속될 것이다.

그리고 태양광 등 신재생에너지 발전 비용이 가파르게 감소하고 있으며, 세월 혁명 등으로 에너지원간 경쟁이 심화되고 있다. 일부 국가에서는 석탄 화력 발전을 퇴출되고 있으며 원자력 발전을 축소 또는 폐지하려는 국가도 있다. 특히, 후쿠시마 사고 이후 안전·품질 규제 강화 등으로 건설기간이 늘어나고 관련 비용이 증가하면서 원자력 발전의 경제성이 악화되고 있다. 이런 와중에 글로벌 시장에서는 러시아, 중국 등이 국가 차원에서 발 빠르게 움직이고, 이에 맞서 미국, 일본 등은 전략적 제후 등으로 대응하고 있다. 그러나 우리나라는 아직 원자력에 대한 혁신 기술이 미흡하고 다양한 시장의 니즈에도 적기에 대응하지 못하고 있는 형국이다.

앞으로 원자력이 국가와 국민, 국제사회에 지속적으로 공헌하기 위해서는 새로운 원자력 패러다임을 만들고 실천해야 할 것이다. 글로벌 시장을 선도하는 기술혁신을 이루는 한편, 무한책임감을 갖고 기술적 안전성을 넘어 국민의 신뢰받는 원자력이 될 수 있도록 국민 눈높이에서 적극적으로 소통해야 할 것이다.

## 북한의 원자력개발의 실상

북한은 1960년대부터 소련과의 협정을 통하여 원자력 기술연구를 해 왔으며, 1987년부터 연변 핵발전소를 가동하는등 원자력건설과 농축우라늄 개발을 본격해 왔다.

- 1992년 국제원자력기구(IAEA)의 핵사찰이후 북한에 대한 핵의혹 제거와 북한의 반바로 NPT탈퇴등으로 북한의 핵문제가 대두되었다.

결국 1994년 북미간 제네바협정에 의해 북한의 핵개발을 포기하였고 대신 미국은 북한의 경수로 2기를 건설해 주기로 합의하였다.

그러나 경수로 건설이 당초약속보다 지연되고 2001년 미국의 부시행정부 등장이후 북미간갈등이 고조되자 북한은 미국의 일방적 협정위반을 주장하며 핵시설 가동재개를 시사하였고 북미간 핵문제가 다시 대두되었다.

### 1. 김일성 시절 원자력 건설

전 세계적으로 원자력 발전등 원자력 기술개발이 시작된것은 1953년 미국 아이젠하워어 대통령이 유엔(UN) 총회에서 “원자력의 평화적 이용”을 제창한 이후부터이다. 이는 2차대전후 소련과 영국에서도 원폭시험에 성공하는등 미국의 핵무기 독점체제가 깨졌기 때문에 미국은 원자력의 평화적이용을 담당하는 국제기구를 설립하여 핵무기 개발을 억제하려는 의도였다.

### 2. 김정일 시대의 원자력건설과 핵개발일지

1994년 북미 제네바회담이후 미국과 한국, 일본은 2003년까지 북한의 경수로 2기를 건설해주기로 하였고 북한은 원자로 핵심부품이 인도되기전에 북한이 IAEA(국제원자력기구)의 특별사찰을 받도록 명기하였다. 그 후 경수로건설이 지연되자 북한은 강력히 반발하였고 연변핵사찰을 거부하였다.

## 2016년 춘계학술발표회 수상자 명단

| 시상식 2016년 5월 12일(목) 15:00

| 장 소 한라홀 (3F)

### 학술발표회 우수논문상 (2015 추계학술발표회 발표논문)

성 명	소 속
김도현	한양대학교
김수재	포항공과대학교 / 한국원자력연구원
김준형	한국원자력연구원
백주현	조선대학교
서 한	울산과학기술원
윤덕주	한수원 중앙연구원
이근우	한국전력기술
이제희	서울대학교
정셋별	경희대학교
한기윤	한국원자력안전기술원
홍석민	한국원자력연구원
Haseeb ur Rehman	한국과학기술원
Kiyofumi Moriyama	포항공과대학교
Raed MAJALI	한국과학기술원
Zaphania O. Mukaka	한국과학기술원

### 학생 / 청년 Competition Session (2015 추계학술발표회 발표논문)

성 명	소 속	구 분
박지혜	경희대학교	최우수상
이문언	포항공과대학교	
박준석	경희대학교	우수상
이철민	울산과학기술원	

## 장학생 명단

| 수여식 2016년 5월 12일(목) 15:00

| 장 소 한라홀 (3F)

### 2016년도 한국원자력학회 장학생 (두산중공업(주) 후원 장학생 포함)

학 교 명	성 명
경북대학교	맹성진 이해영
경희대학교	이수정 장성동 정채원
동국대학교	김성준 송동호 윤서현 이 혁 이태욱 정수연
부산대학교	김정인 박찬영 이성재
서울대학교	김진현 류진호
세종대학교	김재량 김정연 이건모
영남대학교	권기훈 권세현 노경채 오이삭
울산과학기술원	박종우 배준우 이명규 이육제 이찬기 이충위

학 교 명	성 명
제주대학교	문지은 심다민 지형남 현수연
조선대학교	송하진 장 한
중앙대학교	이은혜 임지훈 황지환
포항공과대학교	Mumtaz Khan 계용욱
한국과학기술원	Paolo Venneri 강성우 오봉성 이상훈
한양대학교	구영모 김효주 이재원 정연수 한혜진 황호진
한전 국제원자력대학원 대학교	Ahmad Salah Mahmoud Muhammed Ibrahim Mutegei Peter Mutembei Wierzchowski Michal

### PHYSOR 장학생

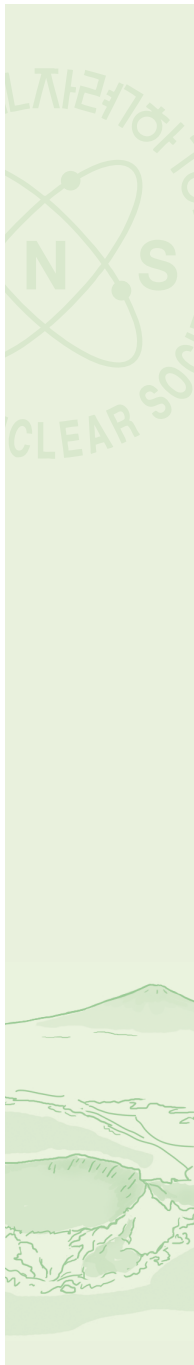
성 명	소 속
황대희	경희대학교

## 만찬 행사 일정

| 일시 2016년 5월 12일(목) 18:00 ~ 19:40

| 장소 탐라홀 B, C (5F)

일 정	프로그램
18:00 ~ 18:40	[ 사회 : 정동욱 학술이사 ] 장내 안내말씀
	인사말 : 성풍현 학회장
	만찬
18:40 ~ 19:10	[ 사회 : 최선주 편집이사 ] [원자력재주꾼 공연] 대금 : 김창규 (한국원자력연구원) 클래식 기타 : 조영갑 (한국원자력연구원)
19:10 ~ 19:40	[ 사회 : 최성민 편집이사 ] 경품 추첨행사 [경품 협찬 특별회원] 두산중공업(주), 선광티앤에스 한국수력원자력(주), 한국원자력안전기술원 한국원자력연구원, 한국원자력의학원 한국전력기술(주), 한전원자력연료(주)

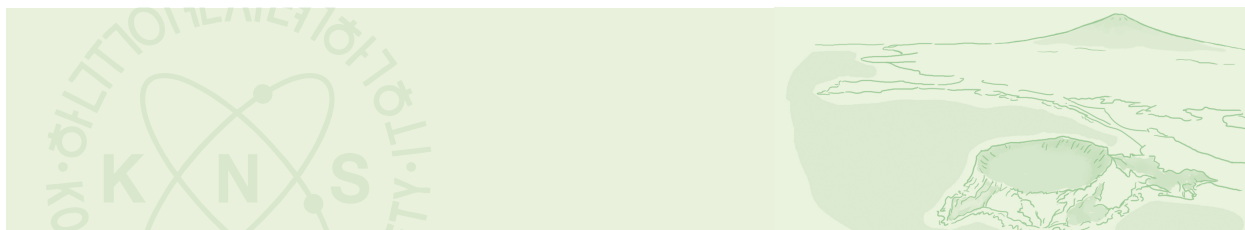


## 폐회 행사 일정

I 일시 2016년 5월 13일(금) 17:00 ~ 17:30

I 장소 한라홀A (3F)

일 정	프로그램
17:00 ~ 17:15	<p>[ 사회 : 황용석 학술이사 ]</p> <p>인사말 : 성풍현 학회장                      분과별 우수포스터 시상 (시상 : 각 연구부회장)</p>
17:15 ~ 17:30	<p>경품 추첨 행사 및 폐회</p> <p>[경품 협찬 특별회원]</p> <p>두산중공업(주), 선광티앤에스                      한국수력원자력(주), 한국원자력안전기술원                      한국원자력연구원, 한국원자력의학원                      한국전력기술(주), 한전원자력연료(주)</p>



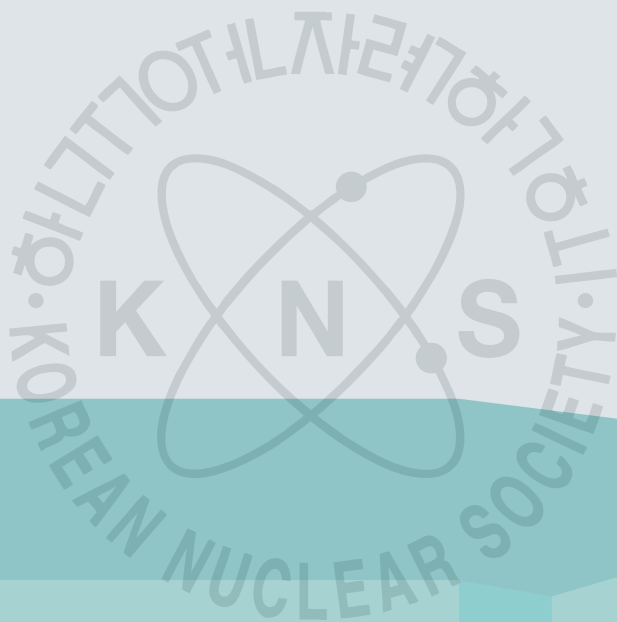
KOREAN NUCLEAR SOCIETY

KNS 2016 Spring

2016 춘계학술발표회

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# Workshop 및 공청회





## A

## 원전 사고관리계획서 개발 워크숍

| 일시·장소 2016년 5월 11일(수) 13:00~18:00 · 제주 국제컨벤션센터, 2층 203

| 주최 한국원자력학회 원자력열수력 및 안전 연구부회

일 정	내 용
13:00 ~ 13:10	개회사 및 축사 (원안위, 품질안전본부장, 안전처장)
[세션 1] 사고관리계획서 동향	
13:10 ~ 13:30	후쿠시마 사고 시사점 및 사고관리 방향 박윤원 박사 (ACT)
13:30 ~ 14:00	원전 사고사례 분석과 대응전략 개선 방향 정동욱 교수 (중앙대)
14:00 ~ 14:20	국내 사고관리 규제 동향 정구영 박사 (KINS)
14:20 ~ 14:40	사업자 사고관리계획서 개발 방향 변종섭 부장 (KHNP)
14:40 ~ 15:00	Coffee Break
[세션2] 분야별 개발 방향	
15:00 ~ 15:20	EOG 개발 현황 김성면 부장 (KHNP)
15:20 ~ 15:40	국내원전 EOP-SAMG 연계 지침 이병철 박사 (FNC)
15:40 ~ 16:00	설계기준 초과 극한 재해 대응 지침 박성규 부장 (ACT)
16:00 ~ 16:20	중대사고 관리 유효성 평가 서미로 부장 (KHNP)
16:20 ~ 16:40	사고관리 능력평가(결정론적) 송덕빈 부장 (KEPCO E&C)
16:40 ~ 17:00	사고관리 능력평가(PSA) 나장환 그룹장 (KHNP)
17:00 ~ 17:20	사고관리 조직 인력 이현우 차장 (KHNP)
17:20 ~ 18:00	패널 토의 및 폐회 (원안위, 사회 (박윤원), 양준언, 정구영, 정동욱, 이병철, 안전처장)

| 기타사항 - 등록비: 무료 (저녁식사 제공)

- 문의처: 장영진 / 한수원 / 010-8718-6470 / yj.chang@khnp.co.kr

## B

## 사용후핵연료 관리 현황

| 일시·장소 2016년 5월 11일(수) 13:00~18:00 · 제주 국제컨벤션센터, 3층 303

| 주최 한국원자력학회 핵연료 및 원자력재료 연구부회

일 정	내 용
13:00 ~ 13:30	등 록
13:30 ~ 13:40	인사말: 이찬복 (한국원자력학회 핵연료 및 원자력재료 연구부회장)
	제 1 부 좌장: 김용수 (한양대)
13:40 ~ 14:05	국내 원전의 사용후핵연료 관리: 김정목 (KHNP)
14:05 ~ 14:30	사용후핵연료 관련 인허가 기준 현황: 육대식 (KINS)
14:30 ~ 14:55	사용후핵연료 정책 현황: 이철구 (KORAD)
14:55 ~ 15:20	사용후핵연료 처분 연구 현황: 김경수 (KAERI)
15:20 ~ 15:40	휴 식
	제 2 부 좌장: 손동성 (UNIST)
15:40 ~ 16:05	사용후핵연료 중간저장 기술 현안: 김용수 (한양대)
16:05 ~ 16:30	사용후핵연료 건식저장 연구 현황: 양재호 (KAERI)
16:30 ~ 16:55	사용후핵연료 재활용 연구 현황: 이찬복 (KAERI)
16:55 ~ 17:20	사용후핵연료 검사 및 건전성 평가: 이성기 (KEPCO-NF)
17:20 ~ 18:00	패널 토의 (국내 사용후핵연료 관련 현안 및 고려 사항) 발제: 김승평 (조선대), 박광현 (경희대)
18:00 ~	폐 회

| 기타사항 - 등록비: 5만원 (석식 제공)

- 문의처: 김준환 / KAERI / 010-4079-7819 / junhkim@kaeri.re.kr

## C

## 중이온가속기 개발현황 및 기술교류 워크숍

| 일시 · 장소 2016년 5월 11일(수) 13:00~18:00 · 제주 국제컨벤션센터, 4층 402A

| 주최 한국원자력학회 양자공학 및 핵융합기술 연구부회

일 정	내 용
13:00 ~ 13:30	등 록
13:30 ~ 13:40	인사말, 연구부회장
13:40 ~ 14:10	초전도가속장치 개발현황, 김형진 (IBS)
14:10 ~ 14:40	KSTAR 초전도 장치운영 현황, 추용 (NFRI)
14:40 ~ 15:00	PLS 초전도 RF 캐비티 운영 현황, 손영욱 (PAL)
15:00 ~ 15:20	R&D and Service Plan of KBSI Accelerator, 이병섭 (KBSI)
15:20 ~ 15:40	중이온 인젝터 개발현황, 홍인식 (IBS)
15:50 ~ 16:20	중이온가속기 실험장치 개발현황, 권영관 (IBS)
16:20 ~ 16:40	Nuclear physics using RI beams, 문창범 (호서대학)
16:40 ~ 17:00	중이온가속기 활용 중성자과학, 이영욱 (KAERI)
17:00 ~ 17:20	Nuclear astrophysics at RAON, 한인식 (이화여대)
17:20 ~ 17:40	파쇄핵 분리장치 및 스펙트로미터, 추경호 (IBS)
17:40 ~ 18:00	맺음말, 연구부회장
18:30 ~	만 찬

| 기타사항 - 등록비 : 3만원 (저녁식사 제공)

- 문의처 : 김종원 / 기초과학연구원 / 032-878-8737 / jwkim@ibs.re.kr

## D

## APR1400원전 RCP 국산화 및 성능시험 기술개발 현황

| 일시 · 장소 2016년 5월 11일(수) 13:00~17:30 · 제주 국제컨벤션센터, 2층 202

| 주최 한국원자력학회 원전건설 및 운영기술 연구부회

일 정	내 용
13:00 ~ 13:10	개회사, 한국원자력연구원 (송철화 본부장)
13:10 ~ 13:20	환영사, 원자력학회 연구부회장 (정대율)
13:20 ~ 13:25	격려사, 한국수력원자력 (김윤희 처장)
13:25 ~ 13:30	축사, 두산중공업 (박석빈 상무)
13:30 ~ 14:00	RCP 설계/제작 기술 국산화, 방상윤 (두산중공업)
14:00 ~ 14:30	성능시험 및 평가기술 개발, 조석 (한국원자력연구원)
14:30 ~ 15:00	신한울 1,2호기 RCP 국산화 추진배경 및 기대효과, 신기종 (한국수력원자력)
15:00 ~ 15:30	RCP 성능시험 요건, 김민석 (KEPCO-E&C)
15:30 ~ 15:50	Break Time
15:50 ~ 16:10	국산화 RCP 특징, 추성민 (두산중공업)
16:10 ~ 16:30	성능시험설비 구축 및 시운전, 배병언 (한국원자력연구원)
16:30 ~ 16:50	국산 RCP의 Type 및 Production 시험, 김석 (한국원자력연구원)
16:50 ~ 17:10	국산화 RCP 운전 Logic 및 경보 특성, 추연식 (두산중공업)
17:10 ~ 17:30	Seal LOCA 시험 해외 사례, 김병제 (KEPCO-E&C)

| 기타사항 - 등록비 : 무료 (저녁식사 제공)

- 문의처 : 추연식 / 두산중공업 / 055-278-5774 / yunsik.choo@doosan.com

김 석 / 한국원자력연구원 / 042-868-4657 / seokim@kaeri.re.kr

## E

## 원자력 사이버 보안 기술 개발 및 적용 현황

| 일시 · 장소 2016년 5월 11일(수) 13:00~18:00 · 제주 국제컨벤션센터, 4층 402B

| 주최 한국원자력학회 원자력계측제어 및 자동원격 연구부회

일 정	내 용
13:10 ~ 13:30	WS 소개, 이철권 (KAERI) 환영사, 나만균 연구부회장
13:30 ~ 15:30	“IAEA 및 유럽국가의 원자력 사이버보안 기술개발 및 적용 현황”, Mr. Donald Dudenhofer (IAEA) “미국의 원자력 사이버보안 기술개발 및 적용 현황”, Mr. Bill Gross, (미국 NEI) “캐나다의 원자력 사이버보안 기술개발 및 적용 현황”, Dr. 정철환 (캐나다 CNSC) “국내 원자력 사이버보안 기술개발 및 적용 현황”, 송재구 (KAERI)
15:30 ~ 15:40	1st 세션 질의응답
15:40 ~ 16:00	휴식
16:00 ~ 17:40	“국가 원자력시설 사이버보안 규제 현황”, 신익현 실장 (KINAC) “건설원전 사이버보안 기술적용 현황”, 이진웅 팀장 (KEPCO E&C) “국가 국가기관시설 사이버보안 기술 현황”, 민병길 실장 (국가보안기술연구소) “일반 산업제어시설 사이버보안 기술적용 현황”, 나중찬 실장 (ETRI)
17:40 ~ 17:50	2nd 세션 질의응답
17:50	폐회 및 공지사항
18:30 ~ 20:30	만찬 (장소는 추후공지)

| 기타사항 - 등록비 : 5만원 (석식 제공)

- 문의처 : 이철권 / KAERI / 042-868-8657 (010-4004-5738) / cklee1@kaeri.re.kr

송재구 / KAERI / 042-868-8738 (010-8410-7374) / jgsong@kaeri.re.kr

## F

## 평가 핵자료 처리 및 이용 현황

| 일시 · 장소 2016년 5월 11일(수) 13:00~17:30 · 제주 국제컨벤션센터, 2층 201A

| 주최 한국원자력학회 원자로물리 및 계산과학 연구부회

일 정	내 용
13:00 ~ 13:25	Registration
13:25 ~ 13:30	Opening, Joo Han-gyu (SNU)
13:30 ~ 14:15	Neutron Resonance and U-238 Evaluation, Kim Hyeong-il (KAERI)
14:15 ~ 15:00	Generation of Multi-group Cross Sections for Fast Reactors, Kim Jong-woon (KAERI)
15:00 ~ 15:15	Coffee break
15:15 ~ 16:00	Generation and Application of ENDF-VII Based KARMA Library, Lee Hae-chan (KEPCO-NF)
16:00 ~ 16:45	Processing and Utilization of Covariance Data, Shim Hyung-jin (SNU)
16:45 ~ 17:30	On-the-fly Doppler Broadening in Monte Carlo Code MCS, Zeng Youqi (UNIST)

| 기타사항 - 등록비 : 3만원 (석식 포함)

- 문의처 : 주한규 / 서울대학교 / 010-5108-9241 / joohan@snu.ac.kr

## G

## 원자력 소통의 진정성과 신뢰성 향상 방안

| 일시·장소 2016년 5월 11일(수) 13:00~17:30 · 제주 국제컨벤션센터, 2층 201B

| 주최 한국원자력학회 원자력정책, 인력 및 협력 연구부회 / (사)한국여성원자력전문인협회

일 정	내 용
13:00 ~ 13:30	등록 사회 : 이영일 (한국원자력안전기술원)
13:30 ~ 13:35	개회사 이레나 ((사)한국여성원자력전문인협회 회장)
13:35 ~ 14:00	정책연구부회 활동 현황 김균태 (정책인력협력 연구부회 회장)
14:00 ~ 14:30	에너지 미래의 시나리오 플래닝을 통해 원자력 갈등해소와 소통을 위한 새로운 모색 정혜진 (서울대학교 아시아에너지환경지속가능발전연구소 연구교수)
14:30 ~ 15:00	원자력현안 풀어보기 김현준 (한국원자력연구원 본부장)
15:00 ~ 15:20	휴 식
15:20 ~ 15:50	대국민 소통의 실제 - 무엇을 소통할 것인가? 정범진 (경희대학교 원자력공학과 교수)
15:50 ~ 16:20	빅데이터 기반 원전갈등 선제대응과 국민수용성 증진방안 심상협 (前 한국원자력문화재단 전무)
16:20 ~ 16:50	원자력 신뢰회복을 위한 소통의 중요성과 대응 방안 이승숙 (KNS 소통위원회 대변인)
16:50 ~ 17:30	자유토론

| 기타사항 - 등록비 : 무료 (식사 제공 없음)

- 문의처 : 김중선 / (사)한국여성원자력전문인협회 / 042-866-4202 / wink@winkorea.or.kr

## H

## 중대사고 현상규명 및 대처체계 구축 로드맵 특별위원회 보고회

| 일시·장소 2016년 5월 11일(수) 13:00~18:00 · 제주 국제컨벤션센터, 4층 401

| 주최 한국원자력학회 중대사고 현상규명 및 대처체계 구축 로드맵 작성 특별위원회

일 정	내 용
13:00 ~ 13:30	등록
13:30 ~ 13:40	환영사, 류용호 (한국원자력안전기술원, 특별위원회 위원장)
13:40 ~ 14:00	중대사고 로드맵 개발 현황 및 전망, 송진호 (한국원자력연구원)
14:00 ~ 14:30	원자로 방호 분과 로드맵 개발, 김동하 (한국원자력연구원)
14:30 ~ 15:00	격납건물 방호 분과 로드맵 개발, 박현선 (포항공과대학교)
15:00 ~ 15:20	휴 식
15:20 ~ 15:50	핵분열생성물 거동 분과 로드맵 개발, 김한철 (한국원자력안전기술원)
15:50 ~ 16:20	중대사고 법제화 현황 및 전망, 김균태 (한국원자력안전기술원)
16:20 ~ 16:30	휴 식
16:30 ~ 18:00	패널 토론 • 주제 : 정부 주도 과제 중대사고 연구 방향 • 패널토론자 : 발표자, 엄학기 PD (한국에너지기술평가원), 박홍준 PM (한국연구재단), 류영우 부장 (한국원자력안전재단)

| 기타사항 - 등록비 : 3만원 (저녁식사 제공)

- 문의처 : 김성일 / 한국원자력연구원 / 010-9072-7796 / sikim@kaeri.re.kr

## I 사후 방사선량평가(Retrospective Dosimetry) 기술 현황 및 활용

| 일시 · 장소 2016년 5월 11일(수) 13:00~17:30 · 제주 국제컨벤션센터, 3층 301

| 주최 한국원자력학회 방사선이용 및 방호 연구부회

일 정	내 용
13:00 ~ 14:00	워크숍 등록
14:00 ~ 14:10	워크숍 인사말, 김장렬 (한국원자력연구원)
	주제발표 좌장 : 김홍석 (한국원자력안전기술원), 강창모 (한국원자력의학원)
14:10 ~ 14:40	방사선사건 사후선량평가기술 적용 및 전망, 권정완 (한국원자력안전기술원)
14:40 ~ 15:10	광자극발광/열발광(OSL/TL)을 이용한 사후방사선량평가, 이정일 (한국원자력연구원)
15:10 ~ 15:40	건축물 구성재료를 이용한 사고시 선량복원, 김명진 (네오시스코리아)
15:40 ~ 16:00	중간 휴식
16:00 ~ 16:30	방사선작업종사자 건강관리를 위한 생물학적 사후선량평가, 이진경 (한국원자력의학원)
16:30 ~ 17:00	치아를 활용한 전자상자성공명(EPR) 선량평가, 최훈 (방사선보건원 / 한수원)
17:00 ~ 17:30	방사선비상시 내부피폭선량평가, 하위호 (한국원자력의학원)
17:30	워크숍 종료, 김장렬 (한국원자력연구원)

| 기타사항 - 등록비 : 무료 (식사 제공 없음)

- 문의처 : 이정일 / 한국원자력연구원 / 042-868-2315 / jilee@kaeri.re.kr

## J 수소경제/원자력수소 현황 및 전망

| 일시 · 장소 2016년 5월 11일(수) 13:30~18:00 · 제주 국제컨벤션센터, 3층 삼다홀 A

| 주최 한국원자력학회 원자로시스템기술 연구부회

일 정	내 용
13:30 ~ 14:00	등록
14:00 ~ 14:10	인사말
14:10 ~ 14:40	수소생산 및 저장기술의 동향, 김종원 (한국에너지기술연구원)
14:40 ~ 15:10	수소 활용의 실증화 현황 및 전망, 우항수 (울산테크노파크)
15:10 ~ 15:40	원자력수소 기술개발 및 예타사업 현황, 김민환 (한국원자력연구원)
15:40 ~ 16:00	Coffee Break
16:00 ~ 16:30	수소연료전지자동차 개발, 보급현황 및 전망, 김세훈 (현대자동차)
16:30 ~ 17:00	발전용 연료전지 기술 현황 및 전망, 전중환 (POSCO 에너지)
17:00 ~ 17:30	원자력수소 경제성 및 미래 신산업 전망, 구재석 (KONES)
18:00 ~ 20:00	저녁식사

| 기타사항 - 등록비 : 5만원 (저녁식사 제공)

- 문의처 : 이성남 / 한국원자력연구원 / 042-868-2738 / snlee@kaeri.re.kr

## Workshop

# K

## PCSG(Printed Circuit Steam Generator)의 SFR 적용 연구

| 일시 · 장소 2016년 5월 11일(수) 13:30~18:00 · 제주 국제컨벤션센터, 3층 삼다홀B

| 주최 한국원자력학회 원자로시스템기술 연구부회

일 정	내 용
13:30 ~ 13:35	인사말 (연구부회장)
13:35 ~ 14:00	PCSG 연구 배경 및 고려 사항, 김상지 (SFRA)
14:00 ~ 14:40	PCSG의 PGSFR 적용 시 예비 용량평가(I), J. Sienicki (ANL)
14:40 ~ 15:10	PCSG의 PGSFR 적용 시 예비 용량평가(II), 김영인 (KAERI)
15:10 ~ 15:30	Flow Instability Experiment in PCSG, 한훈식 (KAERI)
15:30 ~ 15:40	Coffee Break
15:40 ~ 16:10	PCSG 모듈 구성 및 압력경계 파손 특성, 어재혁 (KAERI)
16:10 ~ 16:30	Characterization for Diffusion Bonded Material, 장창희 (KAIST)
16:30 ~ 17:00	PCSG 제작기술 현황 및 전망, 최영중 (Alfa Laval CorHex)
17:00 ~ 17:30	Project Planning, 김상지 (SFRA)
17:30 ~ 18:00	종합 토의

| 기타사항 - 등록비 : 무료 (식사 제공 없음)

- 문의처 : 김태완 / 소듐냉각고속로개발사업단 / 042-868-8791 / twkim3@kaeri.re.kr  
안규석 / 소듐냉각고속로개발사업단 / 042-868-8979 / ksahn@kaeri.re.kr

# L

## 방사화학의 오늘과 내일

| 일시 · 장소 2016년 5월 11일(수) 13:30~18:00 · 제주 국제컨벤션센터, 3층 302

| 주최 한국원자력학회 방사성폐기물관리 연구부회

일 정	내 용
13:00 ~ 13:30	등 록
13:30 ~ 13:35	개회사, 김승평 (방사성폐기물관리연구부회장)
13:35 ~ 13:40	환영사, 송기찬 (한국원자력연구원)
13:40 ~ 14:10	Key Topics of Radiogeochemistry in Deep Geological Disposal, 윤종일 (한국과학기술원)
14:10 ~ 14:40	Rare Isotope 생성/분석 연구 동향 및 전망, 김용균 (한양대학교)
14:40 ~ 15:10	원전운영 방사화학 현황, 박승철 (한국수력원자력)
15:10 ~ 15:40	Actinide Chemistry in KAERI: Current Status and Future Directions, 차완식 (한국원자력연구원)
15:40 ~ 16:00	휴 식
16:00 ~ 16:30	중저준위 방폐물 관리현황, 최광섭 (한국원자력환경공단)
16:30 ~ 17:00	Analyses and Applications of Environmental Radioactivity, 김규범 (서울대학교)
17:00 ~ 17:30	RI의 의학적 활용, 유국현 (동국대, KDePRI)
17:30 ~ 18:00	환경시료 중 초우라늄 분석현황 및 발전방향, 김철수 (한국원자력안전기술원)
18:00 ~	폐회 및 저녁만찬, 연제원 (한국원자력연구원)

| 기타사항 - 등록비 : 5만원 (저녁식사 제공)

- 문의처 : 염정민 / 조선대학교 / 062-230-7160 / jmyeom@chosun.kr



## 원자력과 에너지 정책 그리고 여성

| 일시 · 장소 2016년 5월 11일(수) 14:00~18:00 · 제주 국제컨벤션센터, 4층 400

| 주최 한국원자력학회 여성회원 활성화 특별위원회

일 정	내 용
14:00 ~ 14:05	개회사 김은희 (여성특별위원장)
14:05 ~ 14:10	환영사 성풍현 (원자력학회장)
	세션 I (토론회) 원자력분야 여성활동 활성화 진행 : 강문자 (KAERI)
14:10 ~ 14:50	과학기술계 여성활동과 lessons learned 박세문 (한국여성과학 회장)
14:50 ~ 15:50	참가자 토의 : 원자력분야 여성회원 등
15:50 ~ 16:00	휴 식
	세션 II (특별 강연) 원자력과 에너지 정책 진행 : 김은희 (서울대)
16:00 ~ 17:00	저유가-저탄소 시대의 적정 에너지믹스 신정식 (現 아주대 겸임교수, 前 에너지경제연구원 원장)
17:00 ~ 18:00	신기후체제와 에너지정책 오형나 (경희대 교수)
18:00	폐 회

| 기타사항 - 등록비 : 무료 (저녁식사 제공)

- 문의처 : 서은진 / 한국원자력안전기술원 / 042-868-0794 / ejseo@kins.re.kr

## 토론회 및 공청회

### 제5차 원자력진흥종합계획(안)에 대한 토론회 및 공청회

| 일시 · 장소 2016년 5월 11일(수) 15:00~18:00 · 제주 국제컨벤션센터, 3층 한라홀 A

| 주관 한국원자력학회

| 주최 한국연구재단, 한국에너지기술평가원

| 후원 미래창조과학부, 산업통상자원부, 외교부

| 목적 2017년부터 2021년도 까지 적용될 제5차 원자력진흥종합계획(안)에 대하여 산업계, 학계, 연구계의 원자력 전문가 및 사회단체와 국민의 다양한 의견을 수렴하여 내실 있는 진흥종합계획 수립에 기여함

일 정	내 용
15:00 ~ 15:05	개회 및 안내 사회자 : 정 익 (KAERI 정책연구부 실장)
15:05 ~ 15:10	개회사 이근재 (총괄조정 위원회 위원장)
15:10 ~ 15:20	인사말씀 신재식 (미래부 원자력진흥정책과장), 박재영 (산업부 원전산업정책과장)
15:20 ~ 16:20	원자력진흥종합계획(안) 설명 - 추진경과 발표 : 박홍준 (한국연구재단 원자력단장) - 세부내용 발표 : 임채영 (총괄조정 간사)
16:20 ~ 16:40	휴 식
16:40 ~ 17:50	• 패널 토론회 좌장 : 서종태 (한국원자력학회 고급정책연구소장) - 총괄조정 간사 (임채영) - 미래전략 분과장 (정범진) - 원자력안전 분과장 대리 (양준언) - 방폐물안전 분과장 (김경수) - 방사선이용 분과장 (김용균) - 국제협력 분과장 (이광석) • 자유 토론회
17:50 ~ 18:00	마무리 및 폐회 서종태 (한국원자력학회 고급정책연구소장)

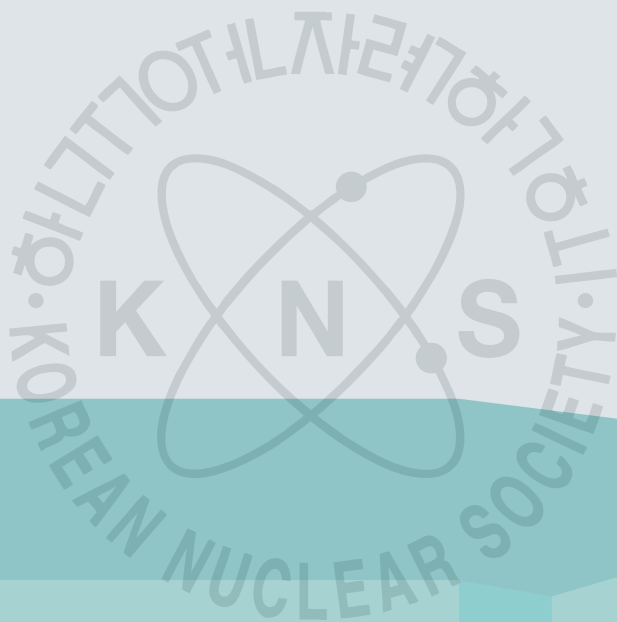
KOREAN NUCLEAR SOCIETY

KNS 2016 Spring

2016 춘계학술발표회

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# 분과별 주제 및 발표자





## 제1분과

## 원자로시스템기술 (Reactor System Technology)

### 1A

5. 12(목)

#### 경수로/중수로/연구로 (Light Water Reactor/Heavy Water Reactor/Research Reactor)

| 좌장 이재용(Jae Yong Lee), 박국남(Kook Nam Park)

| 발표장소 203

##### 초청발표

- 09:00 **Current Status of the APR1400 Design Certification**  
Jae-yong Lee, Jeong-kwan Suh, and Hye-kyung Kim(KHNP CRI)
- 09:30 **Overview of Fluid System Design for the KJRR**  
Seong Hoon Kim, Cheol Park, and Young-Ki Kim(KAERI)
- 10:00 **Examination of the Properties of a Spent Fuel Based Electricity Generation System-Scintillator Performance Analysis**  
Haneol Lee and Man-Sung Yim(KAIST)
- 10:20 **Pressurized Hybrid Heat Pipe for Passive IN-Core Cooling System (PINC)s in Advanced Nuclear Power Plants**  
Kyung Mo Kim and In Cheol Bang(UNIST)
- 10:40 **Coffee Break**
- 11:00 **A New In-core Production Method of Co-60 in CANDU Reactors**  
Jinqi Lyu, Woosong Kim, and Yonghee Kim(KAIST), Younwon Park(BEES, Inc)
- 11:20 **Review of Time Management for the Research Reactor Project**  
Kook-Nam Park, Su-Jin Park, Min-Ho Choi, Hyung-Mo Yoon, and Hyeonil Kim(KAERI), Eung-Jae Lee(DAEWOO)
- 11:40 **Proposal of an ISO Standard: Classification of Transients and Accidents for Pressurized Water Reactors**  
Jong Chull Jo(KINS), Bub Dong Chung, Doo-Jeong Lee, Jong In Kim, and Ju Hyun Yoon(KAERI),  
Jae Jun Jeong(PNU), An Sup Kim and Sang Yoon Lee(KEA)

### 1B

5. 12(목)

#### 중소형로 (Small-Medium Size Reactor)

| 좌장 강한옥(Han-Ok Kang), 김종욱(Jong Wook Kim)

| 발표장소 401B

##### 초청발표

- 09:30 **Korea-Saudi SMART Partnership and Climate Change Mitigation**  
Han Ok Kang(KAERI)
- 10:00 **Development of Electromagnetic Analysis Model for IV-CEAPI**  
Jinseok Park, Yongtae Jang, Myounggoo Lee, Yeonho Cho, and Hyunmin Kim(KEPCO E&C)  
Hoonbin Hong and Minho Baek(Woojin Inc.)
- 10:20 **Technical Survey and Feasibility Review for Development of IV-CEAPI**  
Yongtae Jang, Jinseok Park, Myounggoo Lee, Yeonho Cho, and Hunmin Kim(KEPCO E&C)
- 10:40 **Coffee Break**
- 11:00 **Preliminary Study of Solar Chimney Assisted Cooling System for SMART**  
Byung Il Lee, Seong Jun Park, Young Hyeon Lee, Hyo Chan Park, and Youn Won Park(BEES, Inc)
- 11:20 **Feasibility Analysis of the Primary Loop of Pool-Type Natural Circulating Nuclear Reactor Dedicated to Seawater Desalination**  
Woonho Jeong and Yong Hoon Jeong(KAIST)
- 11:40 **PX-Siphon Tube for an Unmanned Reactor Cooling**  
Sung Jae Yi, Hyun-Sik Park, and Ki-Yong Choi(KAERI), Sung Uk Ryu(KAIST)

## 1C 5. 13 (금)

### 소듐냉각고속로 (Sodium Cooled Fast Reactor)

| 좌장 한지웅(JiWoong Han), 김대희(Dehee Kim)

| 발표장소 203

#### 초청발표

- 09:00 **Design Evaluation of Thermal-hydraulic Test Facility for a Finned-tube Sodium-to-Air Heat Exchanger**  
Hyungmo Kim, Byeong-Yeon Kim, Yung Joo Ko, Youngil Cho, Jong-Man Kim, Seok-Kwon Son, Youngchul Jo, Byeong Su Kang, Minhwan Jung, Jaehyuk Eoh, Hyeong-Yeon Lee, and Ji-Young Jeong(KAERI)
- 09:30 **Overview of NSSS Fluid System Design of PGSFR**  
Ji-Woong Han, Seok-Ki Choi, Seong-O Kim, Eui-Kwang Kim, Dehee Kim, Jonggan Hong, Huee-Youl Ye, Sujin Yeom, Seungho Ryu, Joonki Kim, Jin-Seok Park, Jung Yoon, Sun Rock Choi, Jewhan Lee, and Tae-Ho Lee(KAERI)
- 10:00 **Experimental Study on CO<sub>2</sub> Critical Flow Comparison with MARS**  
Jin Su Kwon, Bong Seong Oh, Min Seok Kim, Min Gil Kim, Jae Wan Cho, and Jeong Ik Lee(KAIST)
- 10:20 **The Suppression Effect of Ti Nanoparticle Concentration on Sodium-Water Reaction**  
Gunyeop Park, Hyun Soo Kim, Sun Ryung Oh, and Hyun Sun Park(POSTECH), Soo Jae Kim(KAERI), Moo Hwan Kim(KINS)
- 10:40 **Coffee Break**
- 11:00 **Experimental and Numerical Analysis of S-CO<sub>2</sub> Critical Flow for SFR Recovery System Design**  
Min Seok Kim, Hwa-Young Jung, Yoonhan Ahn, Jekyoung Lee, and Jeong Ik Lee(KAIST)
- 11:20 **A 2.5 MWT Passive Decay Heat Removal System Design for PGSFR**  
Dehee Kim, Jaehyuk Eoh, and Tae-Ho Lee(KAERI)
- 11:40 **2-D FEM Simulation of Propagation and Radiation of Leaky Lamb Wave In a Plate-type Ultrasonic Waveguide Sensor**  
Sang-Jin Park, Hoe-Woong Kim, Young-Sang Joo, Sung-Kyun Kim, and Jong-Bum Kim(KAERI)
- 12:00 **FEA Stress Analysis Considering Cavity Formation of Metallic Fuel Pin under Transient State**  
Hyun-Woo Jung, Young-Ryun Oh, and Yun-Jae Kim(KU)

## 1D 5. 13 (금)

### 고온가스로 (High Temperature Gas Cooled Reactor)

| 좌장 김응선(Eung Seon Kim), 탁남일(Nam-il Tak)

| 발표장소 401B

#### 초청발표

- 09:00 **Anisotropic Material Behavior of Uni-axially Compacted Graphite Matrix for HTGR Fuel Compact Fabrication**  
Young-Woo Lee, Seunghwan Yeo, Ji-Hae Yoon, and Moon Sung Cho(KAERI)
- 09:30 **VHTR-based Nuclear Hydrogen Plant Analysis for Hydrogen Production with SI, HyS, and HTSE Facilities**  
Youngjoon Shin, Taehoon Lee, Kiyoung Lee, and Minhwan Kim(KAERI)
- 10:00 **A Research Status on High-Temperature Creep of Alloy 617 for Use in VHTR System**  
Woo-Gon Kim, Jae-Young Park, Eung-Seon Kim, Yong-Wan Kim, and Min-Hwan Kim(KAERI), Seon-Jin Kim(PKNU)
- 10:20 **A Conceptual Study of Using an Isothermal Compressor on an S-CO<sub>2</sub> Cooled KAIST Micro Modular Reactor (KAIST-MMR)**  
Jin Young Heo, Yoonhan Ahn, and Jeong Ik Lee(KAIST)
- 10:40 **Coffee Break**
- 11:00 **Characterization of Corrosion Behaviors of Candidate Materials in Sulfuric Acid Environment**  
Injin Sah, Jae-Won Park, Eung-Seon Kim, and Min-Hwan Kim(KAERI)
- 11:20 **Cyclic Deformation and Fatigue Behaviors of Alloy 617 Base Metal and Weldments at 900°C for VHTR Applications**  
Seon-Jin Kim, Rando T. Dewa, Jeong Jun Hwang, Tan Su Kim, and Byung Tak Kim(PKNU)  
Woo-Gon Kim and Eung Seon Kim(KAERI)

- 11:40 **Effect of Permanent Side Reflector on the Temperature Variation in the VHTR Core**  
Sung Nam Lee, Nam-il Tak, and Min-Hwan Kim(KAERI)
- 12:00 **Application of Looped Network Analysis Method to Core of Prismatic VHTR**  
Jeong-Hun Lee, Hyoung-Kyu Cho, and Goon-Cherl Park(SNU)
- 12:20 **Calculation of Thermal-Fluid Parameters for the Pre-designed VHTR Core Based on CORONA**  
Jun Kyu Song, Bong Hyun Cho, Nam-il Tak, and Chang Keun Jo(KAERI)

## 1E 소듐냉각고속로 (Sodium Cooled Fast Reactor)

5. 13(금)

| 좌장 최치웅(Chiwoong Choi), 정재호(Jae-Ho Jeong)

| 발표장소 203

### 초청발표

- 14:00 **Mechanical Design Features of PGSFR NSSS**  
Chang-Gyu PARK, Gyeong-Hoi KOO, Jae-Hun CHO, and Sung-Kyun KIM(KAERI)
- 14:30 **Creep-Fatigue Damage Evaluation of a Model Reactor Vessel and Reactor Internals of Sodium Test Facility According to ASME-NH and RCC-MRx Codes**  
Dong-Won Lim, Hyeong-Yeon Lee, Jae-Hyuk Eoh, Seok-Kwon Son, Jong-Bum Kim, and Ji-Young Jeong(KAERI)
- 14:50 **Safety Analysis for Loss of Flow Related to Loss of Off-site Power in PGSFR**  
Jae-Ho Jeong, Kwi-Lim Lee, Chi-Woong Choi, Tae-Kyung Jeong, and Kwi-Seok Ha(KAERI)
- 15:10 **Coffee Break**
- 15:30 **Performance Evaluation of Sodium-to-Sodium Heat Exchangers in STELLA-2**  
Youngchul Jo(KAERI), Seok-kwon Son(KAERI), Jung Yoon(KAERI), and Jiyoung Jeong(KAERI)
- 15:50 **Combined Safety Analysis on Gallium-based Passive Decay Heat Removal System of Ultra-long Cycle Fast Reactor**  
Seok Bin Seo, In Guk Kim, and In Cheol Bang(UNIST)
- 16:10 **Reactor Vault Cooling System (RVCS) Effect on ULOHS Event for the Prototype Gen-IV SFR**  
Chiwoong Choi, Kwiseok Ha, Taekyeong Jeong, Jaeho Jeong, Kwilim Lee, Seungwon Lee, and Sangjun An(KAERI)
- 16:30 **Melt Fragmentation Characteristics of Metal Fuel with Melt Injection Mass during Initiating Phase of SFR Severe Accidents**  
Hyo Heo, Min Ho Lee, and In Cheol Bang(UNIST), Dong Wook Jerng(CAU)
- 16:50 **Variations in CO Concentration Based on the Control Parameters during Na-CO<sub>2</sub> Reaction**  
Hyun Su Kim, Gunyeop Park, and Hyun Sun Park(POSTECH), Moo Hwan Kim(KINS)

## 1F 중소형로/연구로 (Small-Medium Size Reactor/Research Reactor) – POSTER

5. 12(목)  
-13(금)

| 좌장 서경우(Kyoungwoo Seo), 이병희(Byeong Hee Lee)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P01F01 **Development of PC-based Simulator PCTTRAN for SMART**  
Juyoul Kim(FNC Tech.), Li-chi Cliff Po(MST)
- P01F02 **Preliminary Study on the Effect of Pressure Drop due to Spacer Grid in SMRs**  
Hwa-Young Jung, Min-Gil Kim, and Jeong Ik Lee(KAIST)
- P01F03 **Thermal Behavior of the Coolant in the Emergency Cooldown Tank for an Integral Reactor**  
Joo Hyung Moon, Seok Kim, Woo Shik Kim, Seo Yoon Jung, and Young In Kim(KAERI)

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P01F04	<b>Estimation of POL-iteration Method in Fast Running DNBR Code</b> Hyuk Kwon, Seoung Jin Kim, Kyong Won Seo, and Dae Hyun Hwang(KAERI)
P01F05	<b>The Evaluation of the ROP Trip Set Point for the Different CANDU-6 Fuel Type</b> Young Ae Kim(KHNP CRI)
P01F06	<b>A Study on the Determination of Power Supply Class for HVAC System in KJRR</b> Hagtae Kim, Minjin Kim, Yong-Suk Suh, Jun-Yeon Kim, and Hee-Taek Chae(KAERI)
P01F07	<b>Analysis of Swelling Effect of Beryllium Reflectors in JRTR</b> Jong Ha Chung, Young Garp Cho, and Dong Ok Kim(KAERI)
P01F08	<b>Drop Test Results of CRDM under Seismic Loads</b> Myoung-Hwan Choi, Yeong-Garp Cho, Gyeong-Ho Kim, Jong-Oh Sun, and Hyung Huh(KAERI)
P01F09	<b>Design and Construction of Pool Door for Research Reactor</b> Kwangsub Jung, Sangjin Lee, Jinbok Choi, Jinho Oh, and Jongmin Lee(KAERI)
P01F10	<b>Heat Transfer Analysis in the Hydraulic Transfer System</b> Joonho Jeong, Sangjin Lee, Jinsung Kwak, Jinho Oh, and Jongmin Lee(KAERI)
P01F11	<b>Conceptual Assessment of a Fresh Fuel Transport Package for KJRR</b> Ju-Chan Lee, W.S. Choi, K.S. Bang, S.H. Yu, J.S. Park, and Y.Y. Yang(KAERI)
P01F12	<b>Manufacturing and Construction of Fresh Fuel Storage Rack for a Research Reactor</b> Jinho Oh, Sangjin Lee, Jongmin Lee, and Jeong-Soo Ryu(KAERI)
P01F13	<b>Manufacturing and Construction of Spent Fuel Storage Rack for Research Reactor</b> Sangjin Lee, Kwangsub Jung, Jinho Oh, and Jongmin Lee(KAERI)
P01F14	<b>Design and Manufacturing of Fuel Basket for Research Reactor</b> Sangjin Lee, Kwangsub Jung, Jinho Oh, and Jongmin Lee(KAERI)
P01F15	<b>Study on Pressure drop for Ion Exchanger in Jordan Research and Training Reactor</b> Ki-Jung Park, Jungwoon Choi, Seong-Hoon Kim, Dae-Young Chi, and Cheol Park(KAERI)
P01F16	<b>Methodology for Check Valve Selection to Maintain the Integrity of Pipeline Against the Check Valve Slam for the KIJANG Research Reactor</b> Dayong Kim, Hyungi Yoon, kyoungwoo Seo, and Seong Hoon Kim(KAERI)
P01F17	<b>Abnormal Behavior of Motor Surface Temperature of Canned Pump Along Increasing Fluid Temperature</b> Jungwoon Choi, Hyungi Yoon, Hyunwoo Lee, Dae Young Chi, and Cheol Park(KAERI)
P01F18	<b>Flow Residence Time Analysis for Decay Tank by the Design Parameters</b> Minkyu Jung, Kyoungwoo Seo, and Seonghoon Kim(KAERI)
P01F19	<b>Performance and NPSH<sub>r</sub> Test of the JRTR Primary Cooling System Pump</b> Hyun Gi Yoon, Kyoung-Woo Seo, and Dae-Young Chi(KAERI)
P01F20	<b>Initial Formation of Hot Water Layer in Open-pool Type Research Reactor</b> Yong-Seok Choi, Hyun-Gi Yoon, Dae-Young Chi, Seung-Hoon Kim, and Cheol Park(KAERI)
P01F21	<b>A Stencil to Develop an EOG for a Research Reactor</b> Hyeonil Kim, Soo-been Yum, Youn-Gyu Jung, Byeonghee Lee, In Sub Jun, and Su-Ki Park(KAERI)
P01F22	<b>Development of Procedure for Stage C Commissioning: Reactor Performance Test (LOEP) for a Research Reactor</b> Hyeonil Kim, Youn-Gyu Jung, In Sub Jun, and Su-Ki Park(KAERI)
P01F23	<b>Design Guideline for Primary Heat Exchanger in a Research Reactor</b> Sunil Lee, Kyoung-Woo Seo, Seong-Hoon Kim, Dae-Young Chi, and Cheol Park(KAERI)
P01F24	<b>Design, Fabrication, and Characteristics Experiment of a Large LVDT Sensor for of Bottom Mounted CRDM</b> Hyung Huh, Jin-Haeng Lee, Yeong-Garp Cho, and Yeon-Sik Yoo(KAERI)

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# 1G

5. 12 (목)  
- 13 (금)

## 소듐냉각고속로 (Sodium Cooled Fast Reactor) – POSTER

| 좌장 조충호(Chungho Cho), 김낙현(Nak Hyun Kim)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P01G01 Structural Integrity Evaluation of the UIS for Transients**  
S. H. Kim, S. G. Kim, and G. H. Koo(KAERI)
- P01G02 Safety Analysis for PHTS Integrity by the failure of the IHTS function in PGSFR**  
Sang-Jun Ahn, Won-Pyo Chang, Kwi-Seok Ha, Seok Hun Kang, Chi-Woong Choi, Kwi Lim Lee, Seung Won Lee, Jae-Ho Jeong, Jin Su Kim, and Taekyeong Jeong(KAERI)
- P01G03 Preliminary study of S-CO<sub>2</sub> cycle control logic for part load operation**  
Yoonhan Ahn and Jeong Ik Lee(KAIST)
- P01G04 Evaluation on In-vessel Source Term in PGSFR (2015 Results)**  
Seung Won Lee, Won-Pyo Chang, Kwi-Seok Ha, Sang June Ahn, Seok Hun Kang, Chi-Woong Choi, Kwi Lim Lee, Jae-Ho Jeong, Jin Su Kim, and Taekyeong Jeong(KAERI)
- P01G05 Scoping Analysis on Core Disruptive Accident in PGSFR (2015 Results)**  
Seung Won Lee, Won-Pyo Chang, Kwi-Seok Ha, Sang June Ahn, Seok Hun Kang, Chi-Woong Choi, Kwi Lim Lee, Jae-Ho Jeong, Jin Su Kim, and Taekyeong Jeong(KAERI)
- P01G06 Performance Tests on the Electromagnet of Secondary CRA Gripper System of the PGSFR**  
Jae-Han Lee and Sung-Kyun Kim(KAERI)
- P01G07 Development and Performance Test of the Combined Inspection System for In-Service Inspection of PGSFR Steam Generator Tubes**  
Hoe-Woong Kim, Sang-Jin Park, Young-Kyu Lee, Young-Sang Joo, and Sung-Kyun Kim(KAERI)
- P01G08 Structural Evaluation of FHX for PGSFR at Steady State Condition**  
Nak-Hyun Kim, Sa-Young Lee, and Sung-Kyun Kim(KAERI)
- P01G09 Preliminary Analysis of PGSFR ADHRS Heat Exchanger Using STELLA-2 Facility**  
Doohyuk Kang, Jaeho Bae, and Jaeseung Suh(SenTech), Taekyeong Jeong and Jewhan Lee(KAERI)
- P01G10 Preliminary Analysis of Heat Exchanger in STELLA-2 PDHRS Using MARS-LMR Code**  
Jaeho Bae, Doohyuk Kang, and Jaeseung Suh(SenTech), Taekyeong Jeong and Jewhan Lee(KAERI)
- P01G11 Structural Integrity Evaluation of Containment Vessel under Severe Accident for PGSFR**  
Lee Seong-Hyeon, Koo Gyeong-Hoi, and Kim Sung-Kyun(KAERI)
- P01G12 Evaluation of High-temperature Piping System in a Sodium Test Facility of the SELFA**  
Seok-Kwon Son, Hyeong-Yeon Lee, Hyungmo Kim, Dong-Won Lim, and Ji-Young Jeong(KAERI)
- P01G13 2.5 MWT Heat Exchanger Designs for Passive DHRS in PGSFR**  
Dehee Kim, Jaehyuk Eoh, and Tae-Ho Lee(KAERI)
- P01G14 Supercritical CO<sub>2</sub> Compressor with Active Magnetic Bearing**  
Jae Eun Cha(KAERI), Seong Kuk Cho, JeKyoung Lee, and Jeong IK Lee(KAIST)
- P01G15 Development of a Program for Predicting Flow Instability in a Once-through Sodium-Heated Steam Generator(II)**  
Eui Kwang Kim, Jung Yoon, Jong Bum Kim, and Jiyoung Jeong(KAERI)
- P01G16 Performance Tests of a Mechanical Pump in Sodium Environment**  
Chungho CHO, Jong-Man KIM, Yung Joo KO, Byeongyeon KIM, Youngil CHO, Min-Hwan JUNG, Da-Young GAM, Yong Bum LEE, Ji-Young JEONG, and Jong-Bum KIM(KAERI)
- P01G17 Preliminary Test of Friction Disk Type Turbine for S-CO<sub>2</sub> Cycle Application**  
Seungjoon Baik, Hyeon Tae Kim, and Jeong Ik Lee(KAIST)
- P01G18 Development of Mathematical Model and Analysis Code for Estimating Drop Behavior of the Control Rod Assembly in the Sodium Cooled Fast Reactor**  
Se-Hong Oh, SeungHoon Kang, and Choengryul Choi(ELSOLTEC), Kyung-Ho Yoon and Jin-Sik Cheon(KAERI)

# 1H

5. 12 (목)  
- 13 (금)

## 고온가스로 (High Temperature Gas Cooled Reactor) – POSTER

| 좌장 김종환(Jong-Hwan Kim), 전지수(Ji Su Jun)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P01H01**    **LOCA Analysis of KAIST-Micro Modular Reactor with Modified GAMMA+ Code**  
Bong Seong Oh, Yoon Han Ahn, Seong Gu Kim, Seong Jun Bae, and Jeong Ik Lee(KAIST)
- P01H02**    **Preliminary S-CO<sub>2</sub> Compressor Design for Micro Modular Reactor**  
Jekyoung Lee, Seong Kuk Cho, Seong Gu Kim, and Jeong Ik Lee(KAIST)
- P01H03**    **Development of a Methodology for VHTR Accident Consequence Assessment**  
Joeun Lee, Jintae Kim, and Moosung Jae(HYU)
- P01H04**    **A Quantitative Accident Sequence Analysis for VHTR**  
Jintae Kim, Joeun Lee, and Moosung Jae(HYU)
- P01H05**    **Numerical Analysis of S-CO<sub>2</sub> Test Loop Transient Conditions near the Critical Point of CO<sub>2</sub>**  
Seong Jun Bae, Bongseong Oh, Yoonhan Ahn, Seongjoon Baik, Jekyoung Lee, and Jeong Ik Lee(KAIST)
- P01H06**    **The Results of the Third NACEF Test for the RCCS Verification**  
Jong-Hwan Kim, Yoon-Yeong Bae, Chan-Soo Kim, Seong-Deok Hong, and Eung-Seon Kim(KAERI)
- P01H07**    **Simulation of Fission Product Lutoff Behavior During Depressurization Transients**  
Nam-Il Tak, Churl Yoon, and Sung Nam Lee(KAERI)
- P01H08**    **Impact of the Cooled-Vessel Design on RPV Peak Temperature according to VHTR Inlet Temperature Conditions**  
Ji Su Jun and Chang Keun Jo(KAERI)
- P01H09**    **Preliminary Ripple Effect Anaysis for HTR 350MWt 4Modules Construction**  
Taehoon Lee, Kiyong Lee, and Youngjoon Shin(KAERI)
- P01H10**    **Localization of the Hot Spots in a Pebble Bed Reactor**  
Leisheng Chen, Wooram Lee, and Jaeyoung Lee(HGU)
- P01H11**    **PCU Arrangement of a Supercritical CO<sub>2</sub> Cooled Micro Modular Reactor**  
Seong Gu Kim, Seungjoon Baik, Seong Kuk Cho, Bong Seong Oh, and Jeong Ik Lee(KAIST)
- P01H12**    **Preliminary Design of Supercritical CO<sub>2</sub> Radial Turbine for Micro Modular Reactor**  
Seong Kuk Cho, Jekyoung Lee, Seong Gu Kim, and Jeong Ik Lee(KAIST), Jae Eun Cha(KAERI)
- P01H13**    **Preliminary Analysis on the Mixed Convection Phenomena in the Scaled-down VHTR RCCS Riser Experiment**  
Dong-Ho Shin, Sin-Yeob Kim, Hyoung Kyu Cho, and Goon-Cherl Park(SNU), Chan-Soo Kim(KAERI)
- P01H14**    **Very High Temperature Test of Alloy617 Compact Heat Exchanger in Helium Experimental Loop**  
Chan Soo Kim, Byung Ha Park, and Eung Seon Kim(KAERI)
- P01H15**    **Steady-state and Transient Analysis of a Printed Circuit Heat Exchanger**  
Byung Ha Park, Chan Soo Kim, and Eung-Seon Kim(KAERI)
- P01H16**    **A Benchmark Study of a Seismic Analysis Program for a Single Column of a HTGR Core**  
Ji-Ho Kang(KAERI)

## 2A

5. 12 (목)

## 원자로 물리 해석 및 검증 (Reactor Physics Analyses and Validation)

I 좌장 심형진(Hyung Jin Shim), 이해찬(Hae Chan Lee)

I 발표장소 삼다홀 B

## 초청발표

- 09:00 **Status of Research Reactor Projects**  
Byungchul Lee, Cheol Park, Young-Ki Kim, and Jeong-Soo Ryu(KAERI)
- 09:30 **An Approximate Correction of U-238 Up-scattering In 3-D Reactor Simulator ASTRA**  
Chan Oh Park(KEPCO NF)
- 10:00 **Homogeneity and Isotropy Restoration Theory for Derivation of Multigroup Transport Equations**  
YuGwon Jo and Nam Zin Cho(KAIST)
- 10:20 **Clad Treatment in KARMA Code and Library**  
Jeong-yeup Lee, Hae-chan Lee, and Hae-seuk Woo(KEPCO NF)
- 10:40 **Coffee Break**
- 11:00 **Alpha Eigenvalue Estimation from Dynamic Monte Carlo Calculation for Subcritical Systems**  
Nadeem Shaukat, Hyung Jin Shim, and Sang Hoon Jang(SNU)
- 11:20 **Position-dependency of Fuel Pin Homogenization in a Pressurized Water Reactor**  
Woong Heo and Yonghee Kim(KAIST)
- 11:40 **Validation of the MC<sup>2</sup>-3/DIF3D Code System for Control Rod Worth via the BFS-75-1 Reactor Physics Experiment**  
Sunghwan Yun and Sang Ji Kim(KAERI)
- 12:00 **Low Power Physics Test Experience at SKN3 as Lead Unit**  
Yu Sun Choi, Sun Kwan Hong, and Ho Cheol Shin(KHNP CRI)

## 2B

5. 13 (금)

## 원자로 해석 방법론 1 (Reactor Analysis Methods 1)

I 좌장 이현철(Hyun Chul Lee), 김종운(Jong Woon Kim)

I 발표장소 삼다홀 B

## 초청발표

- 09:00 **The One-node CMFD Computational Framework for Highly Parallel Reactor Analysis**  
Yonghee Kim(KAIST)
- 09:30 **Generating Importance Map for Geometry Splitting using Discrete Ordinates Code in Deep Shielding Problem**  
Jong Woon KIM and Young-Ouk LEE(KAERI)
- 10:00 **Application of Coarse Mesh Finite Difference Acceleration to Linear Discontinuous Transport Equation using Discrete Ordinate Method in Slab Geometry**  
Muhammad Habib and Ser Gi Hong(KHU)
- 10:20 **Enhanced Resonance Self-shielding Method in Lattice Physics Code STREAM**  
Sooyoung Choi and Deokjung Lee(UNIST), Changho Lee(ANL)
- 10:40 **Coffee Break**
- 11:00 **A Calculation of Nuclear Heating by Activation Product of Structure Materials for the In-core Irradiation Hole in the HANARO**  
Tae-Yang Noh, Byung Gun Park, and Myong-Seop Kim(KAERI)



- 11:20 Performance Analysis of Fission and Surface Source Iteration Method for Domain Decomposed Monte Carlo Whole-Core Calculation  
YuGwon Jo and Nam Zin Cho(KAIST)
- 11:40 Sensitivity and Uncertainty Analysis of IAEA CRP HTGR Benchmark Using McCARD  
Sang Hoon Jang and Hyung Jin Shim(SNU)
- 12:00 Pin-wise Reactor Analysis Based on the Generalized Equivalence Theory  
Hwanyeal Yu, Woong Heo, and Yonghee Kim(KAIST)

## 2C

5. 13 (금)

### 신형원자로 핵설계 (Innovative Reactor Nuclear Design)

| 좌장 조창근(Chang Kun Jo), 홍서기(Ser Gi Hong)

| 발표장소 삼다홀 A

#### 초청발표

- 09:00 An Option Study of Sodium-Cooled Burner Cores having Uranium-Free Metallic Fuels  
Ser Gi Hong and WuSeung You(KHU)
- 09:30 Design Considerations for Pressurized Water Cooled Small Modular Reactor  
Jae Seung Song and Keung Koo Kim(KAERI)
- 10:00 SULEU NTP Core with Passive Reactivity Control and Enhanced Submersion Safety  
Paolo Venneri and Yonghee Kim(KAIST), Michael Eades(OSU)
- 10:20 Inventory Assessment of Pin-wise Isotopic Composition in the Spent Fuel  
Iqbal Zafar Zafar and Myung Hyun Kim(KHU)
- 10:40 Coffee Break
- 11:00 A Comparative Depletion Analysis using MCNP6 and REBUS-3 for Advanced SFR Burner Core  
WuSeung You and Ser Gi Hong(KHU)
- 11:20 Comparison of Core Performance with Various Oxide Fuels on Sodium Cooled Fast Reactor  
Jin Ha Choi and Myung Hyun Kim(KHU)
- 11:40 A Comparative Physics Study of Commercial PWR Cores using Metallic Micro-cell UO<sub>2</sub>-Cr (or Mo) Pellets with Cr-based Cladding Coating  
Dae Hee Hwang and Ser Gi Hong(KHU), Wang Kee In(KAERI)
- 12:00 Spent Nuclear Fuel Option Study on Hybrid Reactor for Waste Transmutation  
SeongHee HONG and MyungHyun KIM(KHU)

## 2D

5. 13 (금)

### 원자로 해석 방법론 2 (Reactor Analysis Methods 2)

| 좌장 윤성환(Sunghwan Yun), 박호진(Ho Jin Park)

| 발표장소 삼다홀 B

#### 초청발표

- 13:30 Multi-group Library Generation with Explicit Resonance Interference using Continuous Energy Monte Carlo Calculation  
Ho Jin Park and Jin Young Cho(KAERI), Kang Seog Kim(ORNL), Ser Gi Hong(KHU)
- 14:00 Application of the Modified Power Method to 2D Core Simulation  
Peng Zhang, Hyunsuk Lee, and Deokjung Lee(UNIST)
- 14:30 Parameter and Constraint Optimization of McFLOP for APR1400 Type Plant  
Youn Duk Nam, Hae Chan Lee, and Chae Ho Im(KEPCO NF)
- 14:50 An Evaluation of Eigenvalue Uncertainty Caused by Monte Carlo Uncertainties of Multi-group Cross Section  
Jaeyong LEE, Song Hyun KIM, Do Hyun KIM, and Chang Ho SHIN(HYU), Hyun Chul LEE(KAERI), Shin Woo NAM(IFS)
- 15:10 Coffee Break



- 15:30 **Code Development for Cumulative Yield and Decay Heat Using Geant4**  
Jounghwa Lee, Do Heon Kim, Choong-Sup Gil, Young-Ouk Lee(KAERI), Seung-Woo Hong(SKKU)
- 15:50 **Calculation of the Power Peaking Factor Using CFNN and Its Uncertainty Analysis**  
Ju Hyun Back, Dong Yeong Kim, Kwae Hwan Yoo, Geon Pil Choi, and Man Gyun Na(CSU)
- 16:10 **Development Status of Monte Carlo Code at UNIST**  
Hyunsuk Lee, Wonkyeong Kim, Peng Zhang, Azamat Khassenov, Yunki Jo, and Deokjung Lee(UNIST)
- 16:30 **Extension of STREAM Double Heterogeneity Method to Coated TRISO Particles**  
Hanjoo Kim, Sooyoung Choi, and Deokjung Lee(UNIST), Hyun Chul Lee(KAERI)

## 2E

5. 12(목)  
- 13(금)

## 원자로 물리 및 계산과학 (Reactor Physics and Computational Science) – POSTER

| 좌장 하창주(Chang Joo Hah), 조진영(Jin Young Cho)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P02E01 **Nuclear Statistics of Dysprosium Resonance Parameters in the Energy Range 10 - 1000 eV**  
Sung Gyun Shin, Yong Uk Kye, Won Namkung, and Moo Hyun Cho(POSTECH), Guinyun Kim(KNU),  
Man Woo Lee and Yeong-Rok Kang(DIRAMS), Tae Ik Ro(Dong-A Univ.)
- P02E02 **MHTGR-350MW Cross-section Uncertainty Analysis for Exercise I on UAM Benchmark**  
Wonkyeong Kim and Deokjung Lee(UNIST), Frederik Reitsma(IAEA)
- P02E03 **Study for Reactor Monitoring Using Anti-neutrino Detection in the NEOS Experiment**  
Bo-Young Han and Gwang-Min Sun(KAERI), Eunju Jeon, Moo Hyun Lee, Hyangkyu Park, Yoomin Oh, Jaison Lee,  
and Kang Soon Park(IFS), Kyungkwang Joo and Ba Ro Kim(CNU), Jooyoung Lee and Hongju Kim(KNU),  
Hyunsoo Kim, Jinyu Kim, Yeongduk Kim, and Kyungju Ma(SJU), Siyeon Kim and Youngju Ko(CAU), Kyungmin Seo(CBU)
- P02E04 **Feasibility Study of Silver as Emitter of In-core Neutron Detector**  
Chidong Kong, Hyunsuk Lee, and Deokjung Lee(UNIST), Ho Cheol Shin and Kyoong-Ho Cha(KHNP CRI)
- P02E05 **Validation of Clad Collapse Analysis Code - CFLAT**  
Jeong-Hyeon Kim, Jae Myung Choi, and Jong Sung Yoo(KEPCO NF)
- P02E06 **Development of Reactivity Calculation Code for HANARO**  
B.G. Park and M.S. Kim(KAERI)
- P02E07 **Coolant Void Reactivity Analysis of CANDU Lattice**  
Jinsu Park, Hyunsuk Lee, Taewoo Tak, and Deokjung Lee(UNIST)
- P02E08 **Application of the SP3 TPEN Method for Hexagonal Core Transient Analysis**  
Cheon Bo Shim and Jin Young Cho(KAERI), Han Gyu Joo(SNU)
- P02E09 **Drop Impact Analysis of Control Rod Assembly for Sodium-Cooled Fast Reactor**  
Hyun-Seung Lee, Kyung-Ho Yoon, Hyung-Kyu Kim, Jin-Sik Cheon, and Chan-Bock Lee(KAERI)
- P02E10 **Comparison of Two-Block Decomposition Method and Chebyshev Rational Approximation Method for Depletion Calculation**  
Yoonhee Lee and Nam Zin Cho(KAIST)
- P02E11 **Measurement of Isomeric Yield Ratio for the  $^{nat}\text{Lu}(\gamma, xn)^{174m,g}\text{Lu}$  Reaction Measured at 55-, 60-, and 65-MeV Bremsstrahlung Energies**  
H. J Kim and T. I Ro(DAU), H Kim, S. J Noh, M. W Lee, D. H Jeong, K. M Yang, and Y. R Kang(DIRAMS),  
S. G Shin and Y. U Kye(POSTECH), G. N Kim(KNU)
- P02E12 **Axial Region Optimization for Cycle Length Extension of Small Modular PWR**  
Jiwon Choe, Youqi Zheng, Taewoo Tak, and Deokjung Lee(UNIST), Ho Cheol Shin and Ji-Eun Jung(KHNP CRI)
- P02E13 **Preliminary Core Design Analysis of a Dedicated Burner Loading Thorium-based Oxide Fuel**  
Jueun Lee, Yong-Hoon Shin, and Il Soon Hwang(SNU)

**3A**

5. 12 (목)

**방사성폐기물관리 (Radioactive Waste Management)**

I 좌장 임만성(Man-Sung Yim), 정관성(Kwan Seong Jeong)

I 발표장소 300

- 09:00 Decontamination Factor Improvement and Waste Reduction of Full-scaled Evaporation System for Liquid Radioactive Waste Treatment  
Ki-tae Kim, Young-jong Ju, Jeung-Gun Seol, and Nam-chan Cho(KEPCO NF), Dong-hwan Ha and Yun-kwan Kim (Jeontech Co., Ltd)
- 09:20 Including Below Detection Limit Samples in Decommissioning Soil Sample Analyses  
Jung Hwan Kim and Man-Sung Yim(KAIST)
- 09:40 Measurement of  $\gamma$ -Ray Attenuation Coefficient for Concrete with Different Aggregates  
Jeong-hwan Oh and Sooseok Choi(JNU), Jea-hyung Lee, Young-bum Mun, and Hyun-kook Choi(SSCEM)
- 10:00 The Assessment System based on Virtual Decommissioning Environments to Reduce Abnormal Hazards from Human Errors for Decommissioning of Nuclear Facilities  
KwanSeong Jeong, JeiKwon Moon, ByungSeon Choi, Dongjun Hyun, IKJune Kim, and ShinYoung Kang(KAERI)
- 10:20 Formation of U(IV) Nanoparticles and Their Growth Mechanism in Mildly Acidic Aqueous Phases  
Wansik Cha, Sun-Tae Kim, Hye-Ryun Cho, and Euo Chang Jung(KAERI)
- 10:40 Coffee Break
- 11:00 Mobile Iodine Retention in the Compacted Bentonite for a Long-Term Period  
Seung Yeop Lee, Jae Kwang Lee, Jin Ha Hwang, and Min Hoon Baik(KAERI)
- 11:20 Temperature-dependent Chemical Changes of Metallic Fuel  
Young-Sang Youn, Jeongmook Lee, Jong Hwan Kim, Hoon Song, and Jong-Yun Kim(KAERI)
- 11:40 Study on Surface Structure of  $U_{1-y}Gd_yO_{2-x}$  Using Raman Spectroscopy  
Jeongmook Lee, Jandee Kim, Young-Sang Youn, Jong-Goo Kim, Yeong-Keong Ha, and Jong-Yun Kim(KAERI)
- 12:00 A Study on Electrochemical Reduction of Rare Earth Oxides in Molten  $LiCl-Li_2O$  Salt  
Min Woo Lee and Sang Mun Jeong(CBNU), Jung Min Sohn and See Hoon Lee(JBNU)

**3B**

5. 13 (금)

**방사성폐기물관리 (Radioactive Waste Management)**

I 좌장 김창락(Chang-Lak Kim), 하영경(Yeong-Keong Ha)

I 발표장소 300

## 초청발표

- 09:00 Blending of Low-Level Radioactive Waste for NPP Decommissioning  
David Kessel and Chang-Lak Kim(KINGS)
- 09:30 How to Solve the 30-Year-Old, the Longest Outstanding National Project?  
Lee Sang Gi(Gyeong-Ju Citizens' Coalition for Economic Justice)
- 10:00 Probabilistic Risk Assessment on Maritime Spent Nuclear Fuel Transportation  
Robby Christian and Hyun Gook Kang(KAIST)
- 10:20 Long-Term Retardation of Uranium in the KURT Environment  
Min-Hoon Baik and Tae-Jin Park(KAERI), Joo-Do Shin(KARA)
- 10:40 Coffee Break

- 11:00 Use of High-temperature Oxide Melt Solution Calorimetry in Understanding Long-term Behaviors of Ceramic Waste Forms  
Tae-Jin Park(KAERI)
- 11:20 Kori-1 Reactor Pressure Vessel Cutting and Storage Method  
ShinYoung Kang, Dongjun Hyun, Jonghwan Lee, Ikjune Kim, Jeikwon Moon, and Byungseon Choi(KAERI)
- 11:40 Experience in Manufacturing a Disposal Canister  
Heui-Joo Choi and Minsoo Lee(KAERI)
- 12:00 The Impact of Severe Nuclear Accidents on National Decision for Nuclear Decommissioning  
Young A SUH, Carol Hornibrook, and Man Sung Yim(KAIST)

### 3C

5. 12(목)  
- 13(금)

### 방사성폐기물관리 (Radioactive Waste Management) – POSTER

I 좌장 차완식(Wansik Cha), 강현국(Hyun Gook Kang)

I 발표장소 3층 로비

I 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

I 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P03C01 Modification of Silica Nanoparticles by Dichlorodimethylsilane for Foam Stability and Decontamination Efficiency  
In-Ho Yoon, Chorong Kim, Chong-Hun Jung, Mansoo Choi, Jei-Kwon Moon, and Wang-Kyu Choi(KAERI)
- P03C02 Probabilistic Safety Assessment of Waste from PyroGreen Processes  
Heejae Ju, Inhye Ham, and Il Soon Hwang(SNU)
- P03C03 Development of High-Level Safety Requirements for a Pyroprocessing Facility  
Seok-Jun Seo, Woo Jin Jo, Gil-Sung You, Won-Myung Choung, Ho-Hee Lee, Hyun-Min Kim, Hongrae Jeon, Jeong-Hoe Ku, and Hyo-Jik Lee(KAERI)
- P03C04 Modelling of Fiber-Optic Radiation Sensor based on the Cerenkov Principle Using Monte Carlo Simulation  
Hwa Jeong Han, Beom Kyu Kim, and Byung Gi Park(SCHU)
- P03C05 Preparation of the Simulated  $\text{NiFe}_2\text{O}_4$  Corrosion Oxide by Electrodeposition  
Jeong-Soon Park, Mansoo Choi, Seon-Byeong Kim, Hui-Jun Won, and Wang-Kyu Choi(KAERI)
- P03C06 Electrochemical Behavior of La on Liquid Bi Electrode in LiCl-KCl Molten Salt  
Beom Kyu Kim, Hwa Jeong Han, and Byung Gi Park(SCHU)
- P03C07 A Simulation Study on the Radiation dose Distribution in the Hot Cell Environment in Pyroprocessing  
Chankyu Kim, Sangheon Lee, Jinhwan Kim, Yewon Kim, and Gyuseong Cho(KAIST),  
Seong-Kyu Ahn and Se-Hwan Park(KAERI), Se Byeong Lee(NCC)
- P03C08 Prediction of Decommissioning Cost for Kijang Research Reactor Using Thermal Power Data of DACCORD  
Yun-Jeong Hong, Hyung-Gon Jin, Hee-Seong Park, and Seung-Kook Park(KAERI)
- P03C09 The Electrochemical Investigation of Dissolution of Nickel Ferrite in Aqueous Solutions  
Jun-Young Jung, Sang-Yoon Park, Mansoo Choi, Hui-Jun Won, Wang-Kyu Choi, and Jei-Kwon Moon(KAERI)
- P03C10 Design of a Decommissioning Procedure Requirement Management of a Nuclear Facility based on Requirement Engineering  
Hee Seong Park, Seung Kook Park, Hyung Gon Gin, Yun Jeong Hong, and Jong Won Choi(KAERI)
- P03C11 Contingency Cost Estimation for Research Reactor Decommissioning  
Hyung Gon Jin and Yunjeong Hong(KAERI)
- P03C12 Analyses of the Deep Borehole Drilling Status for a Deep Borehole Disposal System  
Jongyoul LEE, Heuijoo CHOI, Minsoo LEE, Geonyoung KIM, and Kyungsu KIM(KAERI)
- P03C13 Characteristics Analysis of Salt Vacuum Distillation Equipment  
Hun Suk Im, Seung Chul Oh, Sun-Seok Hong, Jin-Mok Hur, and Hyo Jik Lee(KAERI)

- 
- P03C14 Development of Subsurface Characterization Method for Decommissioning Site Remediation**  
Sang Bum Hong, Jong Soo Nam, Yong Suk Choi, Bum Kyung Seo, Jei Kwon Moon, and Jong Won Choi(KAERI)
- P03C15 Volume Reduction of Decommissioning Burnable Waste with Oxygen Enrich Incinerator**  
Byung Youn Min, Da Som Yang, Ki Won Lee, and Jong Won Choi(KAERI)
- P03C16 Approach for Assessing Human Intrusion into a Radwaste Repository**  
Dong-Keun CHO, Jung-Woo KIM, Jongtae Jeong, and Min-Hoon Baik(KAERI)
- P03C17 Drop Analysis for Structural Integrity Evaluation of KJRR Fuel Transport Container**  
Yun Young Yang, Jongmin Lim, Woo-Seok Choi, and Ju-Chan Lee(KAERI)
- P03C18 A Method for Detecting Crack Wave Arrival Time and Crack Localization in a Tunnel by using Moving Window Technique**  
Young-chul Choi and Tae-Jin Park(KAERI)
- P03C19 The Calculation of Self-Disposal Date by Analyzing the Radioactive Contamination of Air Filters Disused in Radioisotope Production Facility**  
Sung Ho Kim, Bu Hyung Lee, Soo Il Kwon, and Jae Seok Kim(KGU), Gi-Sub Kim, Jun-seong Jeong, Young Hoon Ji, Mun-Sik Choi, and Haijo Jung(KIRAMS), Chang Beom Kim(KU), Geun Suk Choi(KEA)
- P03C20 Study on Basic Characteristics for the Development of Radiation Shielding High-Weight Concrete**  
Young-Bum Mun, Jea-Hyung Lee, and Hyun-kook Choi(Sungshincement Co., Ltd.), Jeong-Hwan Oh and Soo-Seok Choi(JNU)
- P03C21 Development of DGR System Concept for Radioactive Waste from Pyro-processing of CANDU SNFs**  
In-Young Kim, Heui-Joo Choi, Jongyoul Lee, Minsoo Lee, and Hyeona Kim(KAERI)
- P03C22 Development of Sampling Techniques for ITER Type B Radwaste**  
Kwonpyo Hong, Sungeun Kim, Sanghee Jung, Wan-Ho Oh, Myungchul Park, Heemoon Kim, and Sang-Bok Ahn(KAERI)
- P03C23 The Separation of Silica Nanoparticle by Cetyltrimethylammonium Bromide from Decontamination Foam Waste**  
Mansoo Choi, In-Ho Yoon, Chong-Hun Jung, Jei-Kwon Moon, and Wang-Kyu Choi(KAERI)
- P03C24 The Assessment of Opening the Site with RESRAD CODE After Decommissioning of Kori Nuclear Power Plant Unit 1 Site**  
Sun Young Lee, Chang Gyu Kang, Jeong Ho Kim, Seok Young Ahn, and Seung Wook Lee(PNU)
- P03C25 Minimization of Secondary Waste in Chemical Decontamination**  
S.Y. Park, J.S. Park, H.J. Won, S.B. Kim, W.K. Choi, and J.K. Moon(KAERI)
- P03C26 Structures of Hypo-, Hyper-stoichiometric  $\text{UO}_{2\pm x}$  Doped with Trivalent Rare Earth**  
Jandee Kim, Jeongmook Lee, Young-Sang Youn, Jong-Goo Kim, Yeong-Keong Ha, Sang-Eun Bae, and Jong-Yun Kim(KAERI), Nazhen Liu and David W. Shoesmith(UWO)
- P03C27 The Study on Domestic and Foreign Cases for Decommissioning of DPRK Nuclear Facilities**  
Ye Ji Baek, Jung Hyun Lee, Joo Youn Hhu, and Yong Soo Hwang(KINAC)
- P03C28 Assessment of Process Monitoring Techniques for Pyroprocessing Safeguards**  
Young Eun Jung, Chul Min Kim, and Man Sung Yim(KAIST)
- P03C29 Destruction of Hydrazine and Corrosion Monitoring**  
Hui-jun Won, Sang-yoon Park, Seon-byoung Kim, Joon-young Jung, Wang-kyu Choi, and Jei-kwon Moon(KAERI)
- P03C30 Computational Simulation on Electrowinning for Used LiCl-KCl Salts**  
Sungjune Sohn, Pyeong-Hwa Kim, and Il Soon Hwang(SNU), Jaeyeong Park(KINS)
- P03C31 Uranium Concentration of Contaminated Zone Due to the Cover Depth for Self-Disposal**  
Daeseo Koo, Hyun-Hee Sung, Gye-Nam Kim, Seung-Soo Kim, Ilgook Kim, Gyu Seong Han, and Jong-Won Choi(KAERI)
- P03C32 Decontamination of Uranium-Contaminated Soil in Various Particle Sizes**  
Seung Soo KIM, Gyu Seong Han, Gye Nam Kim, Dae Seo Koo, Il Gook Kim, Jung Whan Jeong, and Jong Won Choi(KAERI)
- P03C33 Estimation of Exposure Doses for Several Scenarios of the Landfill Disposal of NORM Wastes**  
Jongtae Jeong, Nak Yul Ko, and Min Hoon Baik(KAERI), Ki-Hoon Yoon(KINS)
- P03C34 Fissile Content Assay of Spent Fuel Using LSDS System**  
Ju Young Jeon and YongDeok Lee(KAERI), Chang-Je Park(Sejong Univ.)
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- P03C35**     **Optimal Performance Simulation of a Metal Fiber Filter for Capturing Radioactive Aerosols**  
Seungkuk Lee, Chanhyun Lee, Minchan Park, and Jaekeun Lee (EERI)
- P03C36**     **Analysis of  $^{14}\text{CO}_2$  Trapped  $^{14}\text{C}$  Sorbent, and  $^{14}\text{C}$  and  $^3\text{H}$  Radioactivity Determination in Resins and Oils from Nuclear Power Plants Using a Combustion Method**  
Young Gun Ko, Chang-Jong Kim, Geun-Sik Choi, Kun Ho Chung, and Mun Ja Kang(KAERI)
- P03C37**     **Removal of Uranium in Soil Using Large-scale Electrokinetic Decontamination Equipment**  
Gye-Nam Kim, Ilgook Kim, Jung-Whan Jeong, Seung-Soo Kim, and Jong-Won Choi(KAERI)
- P03C38**     **Thermal Test in Accordance with Mesh Size at Opening of the Inlets and Outlets of Concrete Storage Cask**  
K. S. Bang, S. H. Yu, J. C. Lee, and W. S. Choi(KAERI)
- P03C39**     **Measurement of Ce(IV) Concentration in Foam Decontaminant Containing Fluorosurfactant**  
Chong-Hun Jung, Han-Beom Yang, In-Ho Yoon, Wank-Kyu Choi, and Jei-Kwon Moon(KAERI),  
Jae-Sang Lee(Gachon Univ.)
- P03C40**     **A Depletion Evaluation of PLUS7 16X16 Nuclear Fuel Assembly using TRITON**  
Hyungju Yun, Kwangheon Park, and Ser Gi Hong(KHU)
- P03C41**     **Effects of T-type Channel on Natural Convection Flows in Airflow-Path of Concrete Storage Cask**  
Gyeong-uk Kang, Hyoung-jin Kim, and Chun-hyung Cho(KORAD)
- P03C42**     **Use of Gap-fills in the Buffer and Backfill of an HLW Repository**  
Jae Owan Lee, Minsoo Lee, and Heui-Joo Choi(KAERI)
- P03C43**     **Calculation of Permeability Inside the Basket Including One Fuel Assembly**  
Seung-Hwan Yu, Kyung-Sik Bang, Ju-Chan Lee, and Woo-Seok Choi(KAERI)
- P03C44**     **A Generic Water Balance Model for a Trench Repository**  
Youn-Myoung Lee and Heui-Joo Choi(KAERI)

## 제4분과

## 핵연료 및 원자력재료 (Nuclear Fuel and Materials)

### 4A

5. 12 (목)

### 핵연료 (Nuclear Fuels)

| 좌장 유종성(Jong Sung Yoo), 천진식(Jin Sik Cheon)

| 발표장소 301

#### 초청발표

- 09:00 Fuel Performance Modeling of U-Mo Dispersion Fuel: The Thermal Conductivity of the Interaction Layers of the Irradiated U-Mo Dispersion Fuel  
Qusai Mistarihi and Ho Jin Ryu(KAIST)
- 09:30 Development Status of Accident Tolerant Fuels for Light Water Reactors in Korea  
Jae Ho Yang, Hyun-Gil Kim, Wang-Kee In, Weon-Ju Kim, and Yang-Hyum Koo(KAERI), Seung Jae Lee(KEPCO NF)
- 10:00 Simulation of IFA650.9 Database Using FRAPCON/FRAPTRAN for FUMAC Program  
Hyochan Kim, Yongsik Yang, Changhwan Shin, and Jongdae Hong(KAERI)
- 10:20 Crud and Oxide Layer Modeling for Safety Analysis of a PWR  
Joosuk Lee and Gwanyoung Kim(KINS)
- 10:40 Coffee Break
- 11:00 Numerical Investigation of Thermal Stress in  $\text{UO}_2$ -Mo Micro-Cell Fuel Pellets  
Heung Soo Lee and Dong Rip Kim(HYU), Dong-Joo Kim, Jae Ho Yang, and Yang-Hyun Koo(KAERI)
- 11:20 Effect of Sintering Condition on the Grain Growth of  $\text{Cr}_2\text{O}_3$  Doped  $\text{UO}_2$  Pellets  
Jang Soo Oh, Keon Sik Kim, Dong-Joo Kim, Jong Hun Kim, and Jae Ho Yang(KAERI)
- 11:40 Comprehensive of EPMA Area Mapping Analysis  
Yang-Hong Jung, Bang-Ok Yoo, Hee-Moon Kim, and Sang-Bok Ahn(KAERI)
- 12:00 Strengthening of Zircaloy-4 with Oxide Particles by Surface Treatment Using Laser Beam  
Yang-Il Jung, Jung-Hwan Park, Dong-Jun Park, Hyun-Gil Kim, Jae-Ho Yang, and Yang-Hyun Koo(KAERI)
- 12:20 Fretting Wear Behavior of ATF Cladding Against Surface-Treated Spacer Grids  
Young-Ho Lee, Il-Hyun Kim, Jung-Hwan Park, Hyun-Gil Kim, and Hyung-Kyu Kim(KAERI)

### 4B

5. 12 (목)

### 재료열화 (Nuclear Materials and Degradation)

| 좌장 이봉상(Bong Sang Lee), 반치범(Chi Bum Bahn)

| 발표장소 302

#### 초청발표

- 09:00 Research on Materials Degradation in Reactor Internals of PWRs  
Seong Sik Hwang, Yun Soo Lim, Dong Jin Kim, Sung Woo Kim, Min Jae Choi, Hyung Ha Jin, and Hong Pyo Kim(KAERI)
- 09:30 Research on SCC Initiation of Welds: Experiments and Modeling  
Jae Phil Park, Won Dong Park, and Chi Bum Bahn(PNU)
- 10:00 Surface and Grain Boundary Oxidation of Ni-Based Alloys in Hydrogenated Water  
Yun Soo Lim, Seong Sik Hwang, and Sung Woo Kim(KAERI)
- 10:20 Investigation on the Fracture behavior of Piping Materials under Seismic Loading Condition  
Myung Rak Cho and Jin Weon Kim(CSU), Yun Jae Kim(KU)
- 10:40 Coffee Break
- 11:00 Phase-field Modeling of Mn-Ni-Si Precipitate behavior on the Bcc-Fe Matrix  
Kunok Chang and Junhyun Kwon(KAERI)

- 11:20 Thermal Aging Effects on Heat Affected Zone of Alloy 600 in Dissimilar Metal Weld  
Junhyuk Ham, Kyoung Joon Choi, Seung Chang Yoo, and Ji Hyun Kim(UNIST)
- 11:40 Development of Deterministic and Probabilistic Fracture Mechanics Analysis Code PROFAS-RV for Reactor Pressure Vessel – Progress of the Work  
Jong-Min Kim and Bong-Sang Lee(KAERI)
- 12:00 Hydrothermal Corrosion and Degradation of Mechanical Properties of Silicon Carbide and Its Composites  
Daejong Kim, Hyeon-Geun Lee, Ji Yeon Park, and Weon-Ju Kim(KAERI)

## 4C

5. 13(금)

### 피복관 및 집합체 (Fuel Cladding and Assembly)

| 좌장 양재호(Jae Ho Yang), 장영기(Young Ki Jang)

| 발표장소 301

#### 초청발표

- 09:00 Development and Implementation HANA Cladding for PWR  
Jong Sung Yoo, Yoon Ho Kim, Yong Kyo Mok, and Jae Ik Kim(KEPCO NF)
- 09:30 Licensing and R&D Issues on Spent Nuclear Fuel under Interim Dry Storage and Transportation  
Kyu-Tae Kim(DU)
- 10:00 Rethinking the Zircaloy Embrittlement Criteria and Its Impact on the Safety Margin  
Youho Lee, Bokyoung Kim, and Hee Cheon No(KAIST)
- 10:20 Status of LOCA Performance Tests of HANA-6 Cladding  
Hun Jang, Sung Yong Lee, Dae Gyun Ko, Min Young Choi, Yoon Ho Kim, and Yong Kyo Mok(KEPCO NF)
- 10:40 Coffee Break
- 11:00 Interaction Behavior between Binary Lanthanide Alloy and HT9  
Jun Hwan Kim, Jin Sik Cheon, Byoung Oon Lee, and June Hyung Kim(KAERI)
- 11:20 Simulated Transient Behavior of Fuel Cladding of SFR  
Sang Hun Shin, Jun Hwan Kim, June-Hyung Kim, Woo Seog Ryu, Sang Gyu Park, and Sung Ho Kim(KAERI)
- 11:40 Development of Process Management on End Plug Resistance Weldment of Nuclear Fuel Rod  
Tae-Hyung Na, KyungHwan Yang, and InKyu Kim(KEPCO NF)
- 12:00 Upgraded Features of Newly Constructed Fuel Assembly Mechanical Characterization Test Facility in KAERI  
Kang-Hee LEE, Heung-Seok Kang, Kyung-Ho Yoon, Hyung-Kyu Kim, Young-Ho Lee, Soo-Ho Kim, and Jae-Ho Yang(KAERI)
- 12:20 Is Fuel Assembly Fine atbdba Seismic Load?  
Heung Seok kang, Kang Hee Lee, and Kyung Ho Yoon(KAERI)

## 4D

5. 13(금)

### 소재개발 (Nuclear Materials Development)

| 좌장 김태규(Tae Kyu Kim), 김진원(Jin Weon Kim)

| 발표장소 302

#### 초청발표

- 09:00 Research and Development Status on Nuclear Materials  
Chang Kyu Rhee(KAERI)
- 09:30 A Perspective on Radiation Resistant Materials for Advanced Reactor Internals  
Jinsung Jang(KAERI)
- 10:00 Structural Component Fabrication and Characterization of Advanced Radiation Resistant ODS Steel for Next Generation Nuclear Systems  
Sanghoon Noh, Young Chun Kim, Hyun Ju Jin, Byoung Kwon Choi, Suk Hoon Kang, and Tae Kyu Kim(KAERI)



- 10:20 **Effect of Additive Composition on High Temperature Oxidation Resistance of Pressureless Sintered Silicon Carbide Ceramics for Particle-Based Accident Tolerance Fuel**  
Kwang-Young Lim, Yeon-Soo Na, Min-Young Choi, and Seng-Jae Lee(KEPCO NF), Young-Wook Kim(UOS)
- 10:40 **Coffee Break**
- 11:00 **Proposition of Improved Methodology in Creep Life Extrapolation**  
Woo-Gon Kim, Jae-Young Park, and Jinsung Jang(KAERI)
- 11:20 **Spray of Mechanically Alloyed F/M-ODS Steel Powder**  
Suk Hoon Kang, Byoung-Kwon Choi, Sanghoon Noh, and Tae Kyu Kim(KAERI), Dong-Yong Park(COSMOS Metallizing Co)
- 11:40 **A Study on Crack Initiation Test Condition by Uncertainty Evaluation of Weibull Estimation Methods**  
Jae Phil Park and Chi Bum Bahn(PNU)
- 12:00 **Diagnosis of PWSCC-induced Burst and Leak Processes in U-bend Regions of Steam Generator Tubes Using Acoustic Emission Method**  
Kaige Wu, Myung Sik Choi, and Deok Hyun Lee(KAERI)
- 12:20 **Oxidation Behavior of Surface-modified Stainless Steel 316LN in Supercritical-CO<sub>2</sub> Environment**  
Sung Hwan Kim, Jin Woo Heo, Hyunmyung Kim, and Changheui Jang(KAIST)

## 4E

5. 12(목)  
-13(금)

### 핵연료 성능 (Fuel Performance) – POSTER

| 좌장 김효찬(Hyo Chan Kim), 박정용(Jeong-Yong Park)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04E01 **UO<sub>2</sub> Bicrystal Phonon Grain-Boundary Resistance by Molecular Dynamics and Predictive Models**  
Woong-Kee Kim, Ji Hoon Shim, and Massoud Kaviani(POSTECH)
- P04E02 **Volume Fraction Dependent Thermal Performance of UAlx-Al Dispersion Target**  
Eui-Hyun Kong, Young-Wook Tahk, Hyun-Jung Kim, Jae-Yong Oh, and Jeong-Sik Yim(KAERI)
- P04E03 **A Study on Silicide Coatings as Diffusion Barrier for U-7Mo Dispersion Fuel**  
Ju Jin Won, Sunghwan Kim, Kyu Hong Lee, Yong Jin Jeong, Ki Nam Kim, Jong Man Park, and Chong-Tak Lee(KAERI)
- P04E04 **UO<sub>2</sub> Kernel Preparation by M-EG Process and Its Irradiation Test**  
K.C. Jeong, S.H. Eom, Y.K. Kim, S.W. Yeo, Y.M. Kim, B.G. Kim, and M.S. Cho(KAERI)
- P04E05 **A Study of Cesium Impregnation behavior in IG-110 Graphite Matrix by Using Laser Ablation ICP-MS (LA-ICP-MS)**  
Je-Kyun Baek and Ho Jin Ryu(KAIST), Sunghwan Yeo, Young Woo Lee, and Sun-Ho Han(KAERI)
- P04E06 **Preparation of Diffusion Couples (I) to Study Ag/Pd Migration in SiC**  
B.G. Kim, S.H. Yeo, Y.K. Kim, Y.J. Kim, H.M. Kim, and M.S. Cho(KAERI)
- P04E07 **Preparation of Diffusion Couples (II) to investigate Ag/Pd Migration in ZrC/SiC**  
B.G. Kim, S.H. Yeo, Y.K. Kim, W.J. Kim, Y.J. Kim, H.M. Kim, and M.S. Cho(KAERI)
- P04E08 **Fission Product Releases from a Core into a Coolant of a Prismatic 350-MW<sub>th</sub> HTR**  
Young Min Kim and C. K. Jo(KAERI)
- P04E09 **Fuel Performance Analysis for HAMP-1 Mini Plate Test**  
Byoung Jin Cho, Young Wook Tahk, Jeong Sik Yim, and Byung Ho Lee(KAERI)
- P04E10 **Effect of Microstructure on the UO<sub>2</sub> Powder Type and Mixing Method for Mn-Al Doped Pellet**  
Yeon-Soo Na, Kwang-Young Lim, Min-Young Choi, Tae-Sik Jung, Seung-Jae Lee, and Jong-Sung Yoo(KEPCO NF)
- P04E11 **The Effect of Uncertainties on the Operating Temperature of U-Mo/Al Dispersion Fuel**  
Faris Sweidan, Qusai Mistarihi, and Ho Jin Ryu(KAIST), Jeong-Sik Yim(KAERI)
- P04E12 **Rupture of Al Matrix in U-Mo/Al Dispersion fuel by Fission Induced Creep**  
Gwan Yoon Jeong and Dong-Seong Sohn(UNIST), Yeon Soo Kim(ANL), Kyu Hong Lee(KAERI)



## 4F

5. 12 (목)  
- 13 (금)

### 핵연료 제조 및 검사 (Fuel Manufacture/Inspection) – POSTER

| 좌장 김동주(Dong Joo Kim), 박동준(Dong Jun Park)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04F01 **End Plug Welding of SFR Fuel Rodlet for Irradiation Test in HANARO**  
Jung Won Lee, Yoon Myeng Woo, Bong Goo Kim, Jeong Yong Park, and Sung Ho Kim(KAERI)
- P04F02 **Fabrication and Quality Inspection of U-10wt.%Zr Fuel Rod for Irradiation Test**  
Ki-Hwan Kim, Hoon Song, Seok-Jin Oh, Jung-Won Lee, Jeong-Yong Park, and Chan-Bock Lee(KAERI)
- P04F03 **Non-destructive Test for VHTR Fuel Using 160kV X-ray System in Hotcell**  
Young-jun Kim, Boun-gok Yoo, Yong-sun Choo, Sang-Youl Baik, Hee-moon Kim, and Sang-bok Ahn(KAERI)
- P04F04 **LVDT Development for High Temperature Irradiation Test and Application**  
Chul-Yong Lee, Chae-Min Ban, Kee-Nam Choo, and Byung-Hyuk Jun(KAERI)
- P04F05 **Evaluation on the measurements of Grids for PWR's Spent Fuel in IMEF**  
Yong-Sun CHOO, Gil-Soo KIM, Young-Joon KIM, Do-Sik KIM, Seung-Je BAIK, Byung-Ok YOO, Ki-Ha KIM, Sang-Youl BAEK, Hee-Moon KIM, and Sang-Bok AHN(KAERI)
- P04F06 **Development of LVDT Core for Measuring Displacement at Nuclear Fuel Test**  
Sung-Ho Heo, Tae-Ho Yang, Jintae Hong, Chang-Young Joung, Sung-Ho Ahn, and Seoyun Jang(KAERI),  
Jae Hoon Kim(CNU)
- P04F07 **Thermal Design for 2nd Irradiation Test of SFR Nuclear Fuel**  
Sung Ryul Kim, Seong Woo Yang, Seung Jae Park, and Kee Nam Choo(KAERI)
- P04F08 **Calibration Technique of the Irradiated Thermocouple using Artificial Neural Network**  
Jintae Hong, Chang-Young Joung, Sung-Ho Ahn, Tae-Ho Yang, Sung-Ho Heo, and Seo-Yoon Jang(KAERI)
- P04F09 **Contamination Effects at the Edge of Fuel Slugs Depends on the Various RE Elements**  
Seoung Woo Kuk, Hoon Song, Jong Hwan Kim, Seok Jin Oh, Ki Hwan Kim, Jeong-Yong Park, I Seul Ryu,  
Young-Sang Youn, and Jong-Yun Kim(KAERI)
- P04F10 **U-Zr-RE Fuel Alloy with Minor Actinides**  
Hoon Song, Jong-Hwan Kim, Young-Mo Ko, Ki-Hwan Kim, Jeong-Yong Park, and Chan-Bock Lee(KAERI)
- P04F11 **In Situ Raman Spectroscopy of Oxide Films on Zirconium Alloy in Simulated PWR Primary Water Condition**  
Taeho Kim, Kyoung Joon Choi, Seung Chang Yoo, and Ji Hyun Kim(UNIST)

## 4G

5. 12 (목)  
- 13 (금)

### 핵연료 피복관 (Fuel Cladding) – POSTER

| 좌장 김형래(Hyung Lae Kim), 이주석(JooSuk Lee)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04G01 **An Analytical Method for Calculating Stresses and Strains of ATF Cladding based on Thick-walled Theory**  
Dong Hyun Kim and Hak Sung Kim(HYU), Hyo Chan Kim, Yong Sik Yang, and Wang Kee In(KAERI)
- P04G02 **A Study of Transient Cooling Heat Transfer for CrAl-coated Accident Tolerant Fuel Claddings**  
Chan Lee, Kwan Geun Lee, Tae Hyun Chun, and Wang Kee In(KAERI), Chi Young Lee(PKNU)
- P04G03 **Ballooning behavior of an Improved Zr Fuel Cladding with Oxidation Resistant Coating under High Temperature Steam Environment**  
Dong Jun Park, Yang Il Jung, Jung Hwan Park, Hyun Gil Kim, Jae Ho Yang, and Yang Hyun Koo(KAERI)

- P04G04 **Crack behavior of Oxidation Resistant Coating Layer on Zircaloy-4 for Accident Tolerant Fuel Claddings**  
Jung-Hwan Park, Eui-Jung Kim, Yang-Il Jung, Dong-Jun Park, Hyun-Gil Kim, Jeong-Yong Park, and Jae-Ho Yang(KAERI)
- P04G05 **Effect of Thickness on Oxidation Behavior of Cr-coated Zircaloy-4 using Arc Ion Plating**  
Eui-Jung Kim, Jung-Hwan Park, Hyun-Gil Kim, Yang-Il Jung, Dong-Jun Park, and Sun-Jin Kim(KAERI)
- P04G06 **Fatigue Characteristics of ODS Surface Treated Zircaloy-4**  
Sun-Han Kim, Yang-Il Jung, Dong-Jun Park, Jung-Hwan Park, Hyun-Gil Kim, Jae-Ho Yang, and Yang-Hyun Koo(KAERI)
- P04G07 **High Temperature Oxidation Behavior of Zirconium Alloy with Nanostructured Oxide Layer in Air Environment**  
Yang Jeong Park, Jung Woo Kim, Ji Won Park, and Sung Oh Cho(KAIST)
- P04G08 **Sensitivity Analysis of the Oxidation Rate of Cladding for the BDBA Condition using SCDAP/RELAP5**  
Changhwan Shin, Tae-Hyun Chun, Wang-Kee In, and Yang-Hyun Koo(KAERI)
- P04G09 **Evaluation of Advanced Zirconium Alloy Developed by KEPCO NF**  
Chung-yong Lee, Sung-yong Lee, Jea-young Lim, Dae-gyun Ko, Yoon-ho Kim, and Yong-kyoon Mok(KEPCO NF)
- P04G10 **Corrosion and Oxide Properties of HANA-6 Alloy in Simulated PWR Primary Water**  
Hun Jang, Jea Young Lim, Chung Yong Lee, Sung Yong Lee, and Yong Kyoon Mok(KEPCO NF)
- P04G11 **Qualitative Analysis on Hydrogen Release in Oxidation Tests of Zry-4 in Steam/N<sub>2</sub> Mixture at 850°C and 1100°C**  
Joonyoung Sung and Jaeyoung Lee(HGU), Sanggil Park(ACT Co., Ltd.)
- P04G12 **High-temperature Steam-oxidation behavior of Zr-1Nb-1Sn-0.1Fe Cladding Tube at Temperatures of 800-1000°C**  
Cheol Min Lee, Tae Won Cheo, Gwan Yoon Jeong, Mi Jin Kim, Ji-Hyeon Kim, Hee-Jae Lee, and Dong-Seong Sohn(UNIST), Yong-Kyoon Mok(KEPCO NF)

## 4H

5. 12(목)  
- 13(금)

### 핵연료 및 피복관 성능 (Fuel/Cladding Performance) – POSTER

| 좌장 김기환(Ki Hwan Kim), 정양일(Yang Il Jung)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04H01 **The Effect of Peak Temperatures and Hoop Stresses on Hydride Reorientations of Zirconium Alloy Cladding Tubes under Interim Dry Storage Condition**  
Hyun-Jin Cha, Ki-Nam Jang, and Kyu-Tae Kim(DU)
- P04H02 **Spent Fuel Behaviors under Loss of Cooling/Coolant Accident in A Spent Fuel Pool**  
Sun-Ki Kim, Je-Geon Bang, Tae-Hyun Chun, Dae-Ho Kim, and Ik-Sung Lim(KAERI)
- P04H03 **Effects of Hydride Rim on Ductility of Zircaloy-4**  
So-Young Kang, Ho-A Kim, and Yong-Soo Kim(HYU), Ju-Seong Kim(KAERI)
- P04H04 **Development of Fuel Assembly Finite Element Model for Spent Fuel Drop Analysis**  
Youngik Yoo, Namgyu Park, Seongki Lee, Kyongbo Eom, and Jongsung Yoo(KEPCO NF)
- P04H05 **Development of Silicide Coating on Molybdenum Alloy Cladding**  
Woojin Lim and Hojin Ryu(KAIST), Hyun-Gil Kim and Jeong-Yong Park(KAERI)
- P04H06 **Post-irradiation Microstructure and Dimensional Change of A3-3 Graphite Matrix Compacts for HTGR Fuel**  
Sunghwan Yeo, Moon Sung Cho, and Young-Woo Lee(KAERI)
- P04H07 **A Study on the 1-Way Fluid-Structure Coupled Analysis of the IPS mockup**  
Tae-Ho Yang, Jintae Hong, Sung-Ho Ahn, Chang-Young Joung, Sung-Ho Heo, and Seo-Yun Jang(KAERI), Kon-Whi Yeon(CNU)
- P04H08 **Development of Gas Filling Technology for Nuclear Fuel Test Rod**  
Chang-Young Joung, Jin Tae Hong, Sung Ho Ahn, Sung Ho Huh, Seo Youn Jang, and Tae Ho Yang(KAERI)
- P04H09 **Effects of Corrosion and Precipitates on Mechanical Properties in the Ferritic/Martensitic Steel Cladding under Ultra-long Cycle Fast Reactor Environment at 650°C**  
Tae Yong Kim, Jeonghyeon Lee, and Ji Hyun Kim(UNIST), Sang Hun Shin(KAERI)

- P04H10 **Construction of In-situ Creep Strain Test Facility for the SFR Fuel Cladding**  
Sang Gyu Park, Hyeong Min Heo, Jun Hwan Kim, and Sung Ho Kim(KAERI)
- P04H11 **Thermal hydraulic-Mechanic Integrated Simulation for Advanced Cladding Thermal Shock Fracture Analysis during Reflood Phase in LBLOCA**  
Seongmin Son, Youho Lee, Jaewan Cho, and Jeong Ik Lee(KAIST)

## 4

### 재료열화 (Nuclear Materials Degradation) – POSTER

5. 12(목)  
- 13(금)

| 좌장 황성식(SeongSik Hwang), 장진성(Jinsung Jang)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04I01 **Analysis of Low Dose Irradiation Damages in Structural Ferritic/Martensitic Steels by Proton Irradiation and Nanoindentation**  
Owais Waseem, Byong-Guk Park, and Ho Jin Ryu(KAIST), Cheol-Soo Maeng and Myoung-Goo Lee(KEPCO E&C) Jong Ryul Jeong(CNU)
- P04I02 **Implementation of a Multi-channel Ultrasonic Thickness Monitoring Technique for a High Temperature Pipe Thinning**  
Yong-Moo Cheong, Kyung-Mo Kim, and Dong-Jin Kim(KAERI), Se-Beom Oh(Dankook Univ.)
- P04I03 **Demonstration of Laser Cutting System for Tube Specimen**  
Y. G. Jin, G. S. Kim, G. S. Heo, S. J. Baik, H. M. Kim, and S. B. Ahn(KAERI)
- P04I04 **Integrity Assessment of HANARO Irradiation Capsule for Long-Term Irradiation Testing**  
Kee-Nam Choo, Man-Soon Cho, Sung-Woo Yang, Yoon-Taek Shin, Seng-Jae Park, Tae-Ho Yang, Byung-Hyuk Jun, and Myong-Seop Kim(KAERI), Sang-Hyun Hong(CNU)
- P04I05 **Characterization of Radiation-Induced Clustering using Atom Probe Tomography in Nuclear Structural Materials**  
Gyeong-Geun Lee, Sang-Yeob Lim, Kunok Chang, Hyung-Ha Jin, and Junhyun Kwon(KAERI)
- P04I06 **A Study on Microstructural Changes of Reactor Pressure Vessel Steel after Proton Irradiation**  
Hyung-Ha Jin, Eunsol Ko, Sangyeob Lim, Min-Chul Kim, and Junhyun Kwon(KAERI)
- P04I07 **Ordering Reaction and Its Effect on Microstructure Variation in 316L Stainless Steel**  
SungSoo KIM and Young Suk KIM(KAERI)
- P04I08 **Effects of Thermal Aging on Type 316H Stainless Steel for Reactor Vessel**  
Ji-Hyun Yoon, Seokmin Hong, Bong-Sang Lee, and Gyeong-Hoi Koo(KAERI)
- P04I09 **Numerical Study on Flow Accelerated Corrosion in Different Pipe Components**  
Dae Kyung Choi, Se-Hong Oh, Choengryul Choi, and Sung-Man Son(ELSOLTEC), Kyeong Mo Hwang and Hun Yun(KEPCO E&C)
- P04I10 **3D Atom Probe Tomography Analysis of Neutron-irradiated SA508 Gr.4N**  
Sangyeob Lim, Junhyun Kwon, Gyeong-Geun Lee, Hyung-Ha Jin, and Kunok Chang(KAERI), Chansun Shin(MJU)
- P04I11 **A Parametric Study on Welding Process Simulation for Multi-pass Welds in a Plate**  
Won Dong Park, Chi Bum Bahn, and Ji Hun Kim(PNU)

## 4J

5. 12 (목)  
- 13 (금)

### 소재개발 (Nuclear Materials Development) – POSTER

| 좌장 김원주(Weon Ju Kim), 권준현(Junhyun Kwon)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P04J01 **Development of High-temperature Irradiation Capsule (15M-03K) for Test of VHTR Core Structural Materials**  
Man Soon Cho, Seong Ryul Kim, Seong Woo Yang, Kee Nam Choo, and Byung Hyuk Chun(KAERI)
- P04J02 **Influence of the Fabrication Process Parameters on Microstructures and Mechanical Properties of 10Cr-1Mo ODS Steel**  
Hyun Ju Jin, Ki Baik Kim, Byoung Kwon Choi, Suk Hoon Kang, Sang Hoon Noh, Ga Eon Kim, and Tae Kyu Kim(KAERI)
- P04J03 **Comparative Study of Thermal Shock behavior with Fabrication Method of SiCf/SiC Composite**  
Donghee Lee and Kwangheon Park(KHU), Weonju Kim, Jiyeon Park, Daejong Kim, and Hyeon-geun Lee(KAERI)
- P04J04 **Microhardness and Microstructure of Ferritic-Martensitic ODS Steel Tube Fabricated by a Pilger Process**  
Young Chun Kim, Hyun Ju Jin, Sang Hoon Noh, Suk Hoon Kang, Byoung Kwon Choi, Ki Baik Kim, Ga Eon Kim, and Tae Kyu Kim(KAERI)
- P04J05 **Stress Analysis of an Alumina Structure for the Sintering of Composite Materials**  
Jong Han Park, Kwang Jae Son, and Jin Tae Hong(KAERI)
- P04J06 **Helium Gas Permeability Evaluation of Triplex Nuclear Fuel Cladding**  
Hyeon-Geun Lee, Daejong Kim, Ji Yeon Park, and Weon-Ju Kim(KAERI)
- P04J07 **The Synthesis and Characterization of W- 1wt. % TiC Alloy Using a Chemical Method**  
Taehee Kim and Ho Jin Ryu(KAIST)
- P04J08 **Magnetic Properties Studies on Thermal Aged Fe-Cu Alloys for The Simulation of Radiation Damage**  
Cheol Kyu Lee, Kishore M.B, and Dukgeun Park(KAERI), Derac Son(HNU)
- P04J09 **Effects of Proton Irradiation on Compressive Strength of Single-crystalline 6H Silicon Carbide at Room Temperature**  
Gihyun Kwon and Chansun Shin(MJU), Gwang-Min Sun(KAERI)
- P04J10 **Effect of Matrix Grain Size on the Oxidation and Carburization Resistance of Alloy 800HT in High Temperature CO<sub>2</sub> Environment**  
Gokul Obulan Subramanian, Ho Jung Lee, Ji Ho Shin, and Changheui Jang(KAIST)

## 5A

5. 12(목)

## 열수력실험 I (Experimental Thermal-Hydraulics I, Integral Tests)

I 좌장 방인철(In Cheol Bang), 박현식(Hyun Sik Park)

I 발표장소 201A

## 초청발표

09:30

## 2-Train Passive Safety System Tests for the SMART Design with the SMART-ITL Facility

Hyun Sik Park, Hwang Bae, Sung-Uk Ryu, Byong-Guk Jeon, Hyobong Ryu, Sun-Joon Byun, Nam-Hyun Choi, Yun-Gon Bang, Yong-Cheol Shin, Kyoung-Ho Min, and Sung-Jae Yi(KAERI)

10:00

## Improvement of MARS-MultiD on Analysis of ECC Bypass with Newly-developed Friction Models

Jin-Hwa Yang and Dong-Jin Euh(KAERI), Chi-Jin Choi, Hyoung-Kyu Cho, and Goon-Cherl Park(SNU)

10:20

## Similarity Assessment of Engineering Designed Small Scaled Sodium Integral Test Facility

Soon-Joon Hong and Yong-Hwy Kim(FNC Tech.), Jewhan Lee and Jae-Hyuk Eoh(KAERI)

10:40

## Coffee Break

11:00

## Single-phase Natural Circulation of High-Pr Heat Transfer Simulant oil

Yukyung Shin, Seok Bin Seo, In Guk Kim, and In Cheol Bang(UNIST)

11:20

## Experimental Study of Hydraulic Control Rod Drive Mechanism for Passive IN-core Cooling System of Nuclear Power Plant

In Guk Kim, Kyung Mo Kim, Yeong Shin Jeong, and In Cheol Bang(UNIST)

11:40

## Experimental Investigation on Thermal-Hydraulic Interaction between CMT and SIT of a Two-Train Passive Safety System during an SBLOCA Test

Hwang Bae, Sung Uk Ryu, Byong-Guk Jeon, Sun-Jun Byun, Hyo Bong Ryu, Yong-Cheol Shin, Kyoung-Ho Min, Jong-Kuk Park, Nam-Hyun Choi, Yun-Gon Bang, Sung-Jae Yi, and Hyun-Sik Park(KAERI)

12:00

## Loss of Coolant Accident Simulation for the Top-Slot break at Cold Leg Focusing on the Loop Seal Reformation under Long Term Cooling with the ATLAS

Jongrok Kim, Yusun Park, Byoung-Uhn Bae, Nam-Hyun Choi, Kyoung-Ho Kang, and Ki-Yong Choi(KAERI)

## 5B

5. 12(목)

## 열수력해석 I (TH Analysis I, Multi-dimensional Thermal Hydraulic Analysis)

I 좌장 정재준(Jae Jun Jeong), 양채용(Chae-Yong Yang)

I 발표장소 201B

## 초청발표

09:30

## A Discussion of Common-Cause Failure in Digital I&amp;C Systems from the Point of View of Safety Analysis

Gyu Cheon Lee(KEPCO E&amp;C)

10:00

## Effects of the Pressurized Water Reactor Main Steam Line Break Location on the Blowdown Loading

Jong Chull Jo, Soon Ho Kang, and Won Joon Chang(KINS)

10:20

## Simulation of DEBORA Experiment using CUPID Code

Yun-Je Cho and Han-Young Yoon(KAERI)

10:40

## Coffee Break

11:00

## Single-Phase Bundle Flows Including Macroscopic Turbulence Model

Seung-Jun Lee and Han Young Yoon(KAERI), Seok Jong Yoon and Hyoung Kyu Cho(SNU)

11:20

## Multi-Scale Simulation of ATLAS-MSLB Test Using CUPID/MARS Code

Ik Kyu Park, J. R. Lee, and H. Y. Yoon(KAERI), D. H. Kang(SEN Tech.)

- 11:40 **Development of Geometry Optimization Methodology with In-house CFD Code, and Challenge in Applying to Fuel Assembly**  
Jae-Ho Jeong and Kwi-Lim Lee(KAERI)
- 12:00 **CFD Analysis of the Safety Injection Tank and Fluidic Device**  
Jai Oan Cho, Yohanes Setiawan Nietiadi, and Jeong Ik Lee(KAIST), Yacine Addad(KUSTAR)
- 12:20 **On the Development of Multi-Dimensional RELAP5 with Conservative Convective Terms**  
Hyung Wook Jang and Sang Yong Lee(KINGS)

## 5C 5. 12 (목)

### 중대사고 I (Severe Accident I, Fission Product)

I 좌장 하광순(Kwang Soon Ha), 김성중(Sung Joong Kim)

I 발표장소 202A

#### 초청발표

- 09:00 **Roadmap for Resolving Technical Issues Concerning Fission Product Behavior during Severe Accidents**  
Han Chul Kim and Jongseong Lee (KINS), Kwang Soon Ha, Yong-Mann Song, Hee-Jung Im, Jei-Won Yeon, Sung-Il Kim, and Song-Won Cho(KAERI), Sung Joong Kim(HYU), Miro Seo(KHNP), Doo-Yong Lee(FNC Tech.), Sang-Ho Kang(KEPCO-E&C), Chang-Sok Cho(KEPCO NF)
- 09:30 **Development of Aerosol Scrubbing Test Loop for Containment Filtered Venting System**  
Doo Yong Lee, Woo Young Jung, Hyun Chul Lee, Jong Chan Lee, and Gyu Tae Kim(FNC Tech.)
- 10:00 **Evaluation of CFVS Performance with SPARC Model and Application**  
Sung Il Kim, Young Su Na, Kwang Soon Ha, and Song-Won Cho(KAERI)
- 10:20 **Evaluation of Decontamination Factor of Aerosol According to Bubble Shape and Size**  
Hyunjoong Jo and Kwangsoon Ha(KAERI), Dongsoon Jang(CNU)
- 10:40 **Coffee Break**
- 11:00 **Code Development on Fission Product Behavior under Severe Accident - Validation of Aerosol Sedimentation**  
Kwang Soon Ha, Sung Il Kim, Jin-Sung Jang, and Dong Ha Kim(KAERI)
- 11:20 **Defining Design Limits of a Portable Radiation Dispersion Prevention System**  
Seong-Woo Kang and Man-Sung Yim(KAIST)
- 11:40 **Aerial Spraying to Capture Released Radioactivity from NPP in a Severe Accident**  
Irfan Younus and Man Sung Yim(KAIST), Thiphaine Medard(EMSE)
- 12:00 **Vortex-Concept for Radioactivity Release Prevention at NPP: Development of Computational Model of Lab-Scale Experimental Setup**  
Sana Ullah and Man Sung Yim(KAIST)

## 5D 5. 12 (목)

### 확률론적안전성평가 I (PSA I, Risk Assessment & Management)

I 좌장 황태석(Taesuk Hwang), 허균영(Gyunyoung Heo)

I 발표장소 202B

#### 초청발표

- 09:00 **Quantitative Risk Assessment of Digitalized Safety Systems**  
Sung Min Shin, Sang Hun Lee, and Hyun Gook Kang(KAIST), Seung Jun Lee(UNIST)
- 09:30 **Method to Find Recovery Event Combinations in Probabilistic Safety Assessment**  
Woo Sik Jung(Sejong Univ.), Jeff Riley(EPRI)
- 10:00 **Study on LOOP and SBO Frequency for Multi-Unit PSA**  
Kyungho Jin and Gyunyoung Heo(KHU)
- 10:20 **Multi-Unit Initiating Event Analysis for a Single-Unit Internal Events Level 1 PSA**  
Dong-San Kim, Jin Hee Park, and Ho-Gon Lim(KAERI)

- 10:40 Coffee Break
- 11:00 Construction of Site Risk Model using Individual Unit Risk Model in a NPP Site  
Ho Gon Lim and Sang-Hoon Han(KAERI)
- 11:20 Variable Importance Evaluation of Level 2 PSA based on Quantification of Containment Failure Probability  
Jaehyun CHO, Young Ho JIN, Ho-Gon LIM, and Jin Hee PARK(KAERI)
- 11:40 A Preliminary PSA for Spent Fuel Pool of Hanul Unit 3  
Kilyoo Kim and Kwangil Ahn(KAERI)
- 12:00 Development of Korean Off-site Consequence Analysis Code Package, KOSCA-MACCS2  
Seung-Cheol Jang, Sung-Yeop Kim, and Ho-Gon Lim(KAERI), Woo-June Yi(KORTS)

## 5E

5. 12(목)

### 안전현안 및 화재방호 (Safety Issues and Fire Protection)

| 좌장 강대일(Dae Il Kang), 이상규(SangKyu Lee)

| 발표장소 401A

#### 초청발표

- 09:30 Research on Site Level Accident Management: Status and Issues  
Kwang Il Ahn(KAERI)
- 10:00 Regulatory Considerations of Multi-Unit Site Risk  
Inn Seock Kim, Seoung Rae Kim, and Misuk Jang(NESS)
- 10:20 Analytic Expressions for the Construction of a Fire Event PSA Model  
Dae Il Kang, Kilyoo Kim, Dong-San Kim, Mee Jeong Hwang, and Joon-Eon Yang(KAERI)
- 10:40 Coffee Break
- 11:00 Enhanced Understanding of High Energy Arcing Fault in NPPs  
JongSeuk PARK, MeKyoung KIM, and SangKyu LEE(KINS)
- 11:20 3-D Rod Ejection Analysis using a Conservative Methodology  
Min-Ho Park, Jin-Woo Park, Guen-Tae Park, Kil-Sup Um, Seok-Hee Ryu, Jae-Il Lee, and Tong-Soo Choi(KEPCO NF)
- 11:40 Numerical Study of Thermal Hydraulic behavior of Pressurizer for PLCS Scenario by CUPID Code  
Jae Ryong Lee and Han Young Yoon(KAERI), Bo Kam Yoon, Jeong Ju Kim, Jongcheol Park, and Gyu Cheon Lee(KEPCO E&C)
- 12:00 Development of Extended Station Blackout Recovery Guideline for OPR1000 and APR1400  
Chang Gyun Lee, Dong Hyun Cho, Ki Moon Park, Jae Young Huh, and Gyu Cheon Lee(KEPCO E&C)
- 12:20 Development of Draft Regulatory Guide on Accident Analysis for Nuclear Power Plants with New Safety Design Features  
Young Seok Bang, Sweng-Woong Woo, and Tae-Suk Hwang(KINS), Suk K. Sim and Min Jeong Hwang(En2T)

## 5F

5. 13(금)

### 열수력 실험 II (Experimental Thermal-Hydraulics II, Severe Accident Heat Transfer)

| 좌장 정범진(Bum-Jin Chung), 홍순준(Soon-Joon Hong)

| 발표장소 201A

#### 초청발표

- 09:30 Investigation on Condensation Phenomena in the Steam-air Mixture Environment  
Dong Wook Jerng(CAU)
- 10:00 Air-water Flow Measurement for ERVC Conditions by LIF/PIV  
Jongwoong Yoon and Yong Hoon Jeong(KAIST)
- 10:20 Redefinition of  $Ra'$  for the 2D Experimental Facility Simulating IVR-ERVC  
Su-Hyeon Kim, Hae-Kyun Park, and Bum-Jin Chung(KHU)



- 10:40 Coffee Break
- 11:00 Development of Aerosol Measurement, Sampling and Generation Experimental Facilities under High Temperature and High Pressure  
Jongchan Lee, Wooyoung Jung, Hyunchul Lee, and Dooyong Lee(FNC Tech.)
- 11:20 Effect of the Aligned Flow Obstacles on Downward-Facing CHF in an Inclined Rectangular Channel  
Uiju Jeong, Hong Hyun Son, Gwang Hyeok Seo, Gyoodong Jeun, and Sung Joong Kim(HYU)
- 11:40 CHF for Downward-facing Flat Plates Considering Pressure Up to 2 Bar Condition, Width and Material Effects  
Dong Hoon Kam, Young Jae Choi, and Yong Hoon Jeong(KAIST)
- 12:00 Heat Transfer Coefficient Measurement for Downward Facing Flow Boiling Heat Transfer to Simulate IVR-ERVC Condition of LLOCA Case  
Jun Yeong Jung and Yong Hoon Jeong(KAIST)
- 12:20 Experimental Study of the Effect of the Reduced Graphene Oxide Films on Nucleate Boiling Performances of Inclined Surfaces  
Jihoon Kim, Jimin Kim, Byeongtak Kong, Hoseon Ahn, Changhun Lee, Seokwon Han, Gyuhyeon Shim, Gilwon Lee, Koungmoon Kim, and Minsu Lee(INU), Sucheon Park(POSTECH)

## 5G 5. 13(금)

### 열수력 실험 IV (Experimental Thermal-Hydraulics IV, Measurement Technology)

| 좌장 조형규(Hyoung Kyu Cho), 이연건(Yeon-Gun Lee)

| 발표장소 401A

#### 초청발표

- 09:30 Introduction to Advanced Optical Measurement Techniques for High-resolution Analysis of Wall Boiling Heat Transfer  
Hyungdae Kim(KHU)
- 10:00 Visualization of Natural Convection Heat Transfer on a Single sphere using the Electroplating System  
Dong-Young Lee and Bum-jin Chung(KHU)
- 10:20 Visualization Experiment for Sliding Bubble Behaviors on a Horizontal Tube Heater  
Yu-Na Kim, Jae-Soon Kim, Goon-Cherl Park, and Hyoung Kyu Cho(SNU)
- 10:40 Coffee Break
- 11:00 Filter-based Aerosol Measurement Experiments using Spherical Aerosol Particles under High Temperature and High Pressure  
Jongchan Lee, Wooyoung Jung, Hyunchul Lee, and Dooyong Lee(FNC Tech.)
- 11:20 An Improved Electrical Sensor for Simultaneous Measurement of the Void Fraction and Two-phase Flow Velocity in the Inclined Pipe  
Woo Youn Won, Bo An Lee, and Yeon-Gun Lee(JNU), Min Seok Ko and Sin Kim(CAU)
- 11:40 Measurement and Evaluation of Effective Thermal Conductivity for Sodium based Nanofluid using 3-Omega Method  
Sun-Ryung Oh and Hyun Sun Park(POSTECH), Moo Hwan Kim(KINS)
- 12:00 Development of Methodology for Measuring Liquid Film Thickness Based on Three-ring Conductance Method  
Kyu-Byung Lee(KINS), Chi-Jin Choi, Goon-Cherl Park, and Hyoung Kyu Cho(SNU)  
Jong-Rok Kim and Dong-Jin Euh(KAERI)
- 12:20 Dynamic Compensation of Thermo-couple Responses for Core Temperature Measurement of Fast Reactors  
Moon-Ghu Park, Jae-Ryang Kim, and Hae-Yong Jeong(Sejong Univ.)



## 5H 5. 13 (금)

### 열수력해석 II (TH Analysis II, System Thermal Hydraulic Analysis)

| 좌장 이규천(Gyu Cheon Lee), 최재돈(Jaedon Choi)

| 발표장소 201B

#### 초청발표

- 09:30 **Status of Review on Recent Safety Analyses and Regulatory Auditing Calculations and Future Direction**  
Young-Seok Bang(KINS)
- 10:00 **Pressure Response of Finned Containment Building as a Heat Sink on LBLOCA**  
Sung-won Bae(KAERI), Hee-chan Kang(KSNU), Ju hyun Park(POSTECH)
- 10:20 **The Numerical Sensitivity Study of Cold Leg Top Slot Break for ATLAS**  
Haejung Sung, Sang Ik Lee, Ju-hyun Park, and Tong-Soo Choi(KEPCO NF)
- 10:40 **Coffee Break**
- 11:00 **A Study on Effects of Initial Conditions to the Fuel Integrity Analysis of Steam Generator Tube Rupture Accident**  
Min Seok Lee, Ung Soo Kim, Min Soo Park, Jae Young Huh, and Gyu Cheon Lee(KEPCO E&C)
- 11:20 **Time Based Workload Analysis Method for Safety-Related Operator Actions in Safety Analysis**  
Yun Goo Kim and Eungse Oh(KHNP CRI)
- 11:40 **Performance Analysis on Passive Emergency Core Cooling System in the Low Power and Shutdown Operation**  
Soonil Chung and Soon Joon Hong(FNC Tech.), Sang Hee Kang and Han Gon Kim(KHNP)
- 12:00 **Sensitivity Analysis of RCW Temperature on the Moderator Subcooling Margin for the LBLOCA of Wolsong NPP Unit 1**  
Si-Won Seo, Jong-Hyun Kim, and Sung-Soo Choi(ACT Co., Ltd.), Sung-Min Kim(KHNP CRI)

## 5I 5. 13 (금)

### 중대사고 II (Severe Accident II, Ex-Vessel)

| 좌장 박현선(Hyun Sun Park), 강형석(Hyung-Seok Kang)

| 발표장소 202A

#### 초청발표

- 09:00 **VESTA Test Facility for Ex-Vessel Corium Reserches at KAERI**  
Hwan Yeol Kim(KAERI)
- 09:30 **The Significance of Corium Coolability in Ex-Vessel Severe Accident Progression and Management**  
Hyun Sun Park(POSTECH)
- 10:00 **Influence of Spherical Particle Size Distribution on Pressure Gradients in Mixed Bed**  
Jin Ho Park, Mooneon Lee, Eunho Kim, and Hyun Sun Park(POSTECH)
- 10:20 **Comparison of Two Phase Pressure Drop Models in 1-D Top Flooded Debris Bed**  
Mooneon Lee, Jin Ho Park, Eunho Kim, and Hyun Sun Park(POSTECH)
- 10:40 **Coffee Break**
- 11:00 **H<sub>2</sub> Combustion Analysis in the Containment of APR1400 for SBO Accident using a Multi-dimensional H<sub>2</sub> Analysis System**  
Hyung Seok Kang, Jongtae Kim, Sang-Baik Kim, and Seong-Wan Hong(KAERI)
- 11:20 **Investigation of Local Hydrogen Risk in the RDT Compartment of OPR1000 under SBO Scenario**  
Nam Kyung Kim, Joongoo Jeon, Wonjun Choi, Kyusang Song, Gyoodong Jeun, and Sung Joong Kim(HYU)
- 11:40 **Computational Modelling of Spray System Deployment to a NPP Scale-Down Model for Severe Accident Mitigation**  
JongWook Go, Irfan Younus, and ManSung Yim(KAIST)
- 12:00 **Simulation of Transient behavior of Corium Pool in the Lower Plenum of RPV using COMPASS**  
Donggun Son, Jun-Ho Bae, Rae-Jun Park, Dong-Ha Kim, and Hwan Yeol Kim(KAERI)

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**5J****5. 13 (금)****확률론적안전성평가 II (PSA II, PSA Application & Insights)****| 좌장** 김길유(Kilyoo Kim), 김만철(Man Cheol Kim)**| 발표장소** 202B**초청발표**

- 09:00 **Research on Human Reliability Analysis: Status and Issues**  
Wondea Jung(KAERI)
- 09:30 **Insights on PRA Review Practices: Necessity for Model Shaking**  
Inn Seock Kim, Misuk Jang, and Seoung Rae Kim(NESS)
- 10:00 **Development of Long-term Cooling Operation Strategy with H-SIT**  
In Seop Jeon and Hyun Gook Kang(KAIST)
- 10:20 **Frequency Estimate of Accident Scenario to Support Selection of Design Extension Condition Scenario for OPR1000**  
Sang Hoon HAN(KAERI)
- 10:40 **Coffee Break**
- 11:00 **EOP Improvement Proposal for SGTR based on The OPR PSA Update**  
Jin Hee Park, Jae Hyun Cho, Dong-San Kim, and Joon-Eon Yang(KAERI)
- 11:20 **Internal Flooding Probabilistic Safety Assessment of an OPR-1000 Plant during Low Power and Shutdown Operation**  
Yoon-Hwan Lee, Jin-Hee Park, and Ho-Gon Lim(KAERI)
- 11:40 **Structural Design of HRA Database using Generic Task for Quantitative Analysis of Human Performance**  
Seunghwan Kim, Yochan Kim, Sun Yeong Choi, Jinkyun Park, and Wondea Jung(KAERI)
- 12:00 **Probabilistic Risk Assessment of Cask Drop Accident during On-site Spent Nuclear Fuel Transportation**  
Jaehyun Ham, Robby Christian, Belal Al Momani, and Hyun Gook Kang(KAIST)

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**5K****5. 13 (금)****열수력 실험 III (Experimental Thermal-Hydraulics III, Critical Heat Flux)****| 좌장** 이권영(Kwon-Yeong Lee), 이주형(Juhyung Lee)**| 발표장소** 201A**초청발표**

- 14:00 **Development of Surface Modification Techniques for Enhanced Safety of Light Water Reactors: Recent Progress and Future Direction at THLAB**  
Gwang Hyeok Seo, Uiju Jeong, Hong Hyun Son, Gyoodong Jeun, and Sung Joong Kim(HYU)
- 14:30 **Neutralized Wettability Effect of Superhydrophilic Cr-layered Surface on Pool Boiling Critical Heat Flux**  
Hong Hyun Son, Uiju Jeong, Gwang Hyeok Seo, Gyoodong Jeun, and Sung Joong Kim(HYU)
- 14:50 **Effects of Vapor Path Structures on Critical Heat Flux and Boiling Heat Transfer in Pool Boiling**  
Han Seo and In Cheol Bang(UNIST)
- 15:10 **Coffee Break**
- 15:30 **Preliminary Study on CHF Enhancement of Cellulose Nano Fiber(CNF) Fluid with Wire Pool Boiling Experiment**  
Won-Ki Hwang, Yun-Seok Lee, Dong-Young Lim, Sub-Lee Song, Jae-Young Lee, and Kwon-Yeong Lee(HGU)  
Dong-Soo Hwang(POSTECH)
- 15:50 **FeCrAl Layer Fabricated by DC Sputtering Enhances Pool Boiling Critical Heat Flux**  
Gwang Hyeok Seo, Hong Hyun Son, Gyoodong Jeun, and Sung Joong Kim(HYU)
- 16:10 **Impairment of Heat Transfer in the Passive Cooling System Due to Mixed Convection**  
Myeong-Seon Chae and Bum-Jin Chung(KHU), Jong-Hwan Kim(KAERI)

## 5L 열수력해석 III (TH Analysis III, Thermal Hydraulic Analysis Method)

5. 13 (금) | 좌장 윤덕주(Deok Joo Yoon), 배성원(Sung Won Bae) | 발표장소 201B

### 초청발표

- 14:00 **Issues of Code Scaling and Uncertainty Method for LOCA**  
Bub-Dong Chung
- 14:30 **Enhancement of MARS with an Advanced Fuel Model by Coupling FRAPTRAN**  
Hyong Chol Kim, Young Jin Lee, and Sam Hee Han(NSE)
- 14:50 **Comparison of Critical Flow Models' Evaluations for SBLOCA Tests**  
Yeon-Sik Kim, Hyun-Sik Park, Seok Cho, Ki-Yong Choi, Sang-Ki Moon, Sung-Jae Yi, Tae-Soon Kwon, Dong-Jin Euh, Kyoung-Ho Kang, Nam-Hyun Choi, Jong-Kuk Park, and Bok-Deuk Kim(KAERI)
- 15:10 **Coffee Break**
- 15:30 **Preliminary Study of 1D Thermal-Hydraulic System Analysis Code Using the Higher-Order Numerical Scheme**  
Won Woong Lee and Jeong Ik Lee(KAIST)
- 15:50 **Stability and Well-Posedness of Horizontal Stratified Flow: Effect of Velocity Shape**  
Byoung Jae Kim and Kyung Doo Kim(KAERI), Joshua Kim Schimpf(UST)
- 16:10 **Introduction to New Regulatory Document on the Deterministic Safety Analysis in Canada**  
Jonghyun Kim and Sangkoo Han(ACT Co., Ltd.)
- 16:30 **Development and Validation of a Momentum Integral Numerical Analysis Code for Liquid Metal Fast Reactor**  
Xiangyi Chen and Kune Yull Suh(SNU)
- 16:50 **Numerical Study on Shpe of Liquid Inlet for Venturi Scrubber in Self-priming Mode**  
J. W. Lee, H. S. Kim, and W. S. Kim(BHI Co., Ltd)

## 5M 중대사고 III (Severe Accident III, In-Vessel)

5. 13 (금) | 좌장 박래준(Rae-Joon Park), 배준호(Jun Ho Bae) | 발표장소 202A

### 초청발표

- 13:30 **Efficacy of Severe Accident Mitigation Measures for Operating Nuclear Power Plant**  
Sung Joong Kim(HYU)
- 14:00 **Code Development Activity for Severe Accident Analysis at KAERI**  
Dong-Ha Kim(KAERI)
- 14:30 **Comparison of 2D and 3D Experiments for IVR**  
Hae-Kyun Park and Bum-Jin Chung(KHU)
- 14:50 **MELCOR Simulation of Effects of Cavity Flooding Strategy on the RPV failure and Containnent Leak for OPR1000**  
Kysang Song, Wonjun Choi, Nam Kyung Kim, Joongoo Jeon, Gyoodong Jeon, and Sung Joong Kim(HYU)
- 15:10 **Coffee Break**
- 15:30 **Measurements of Critical Heat Flux using Mass Transfer System**  
SeungHyun Hong and BumJin Chung(KHU)
- 15:50 **A Basic Study on the Injection of ICI Nozzle under Severe Accidents**  
Jihoon Bae, Jongrae Cho, and Kwanghyun Bang(KMOU), Jongwoon Park(DU)
- 16:10 **Preliminary Evaluations of CSPACE for a Station Blackout Transient in APR1400**  
Taebeom Lee, D.K. Lee, H.S. Lee, G.W. Lee, and T.S. Choi(KEPCO NF), R.J. Park and D.H. Kim(KAERI)
- 16:30 **Spent Fuel Pool Accident Analysis and Accident Management**  
Sanggil Park and Cheonhwey Cho(ACT Co., Ltd.), Jaeyoung Lee, Joonyoung Sung, and Yunhwan Maeng(HGU), Dongwook Jerng(CAU)

# 5N

5. 12(목)  
-13(금)

## 열수력 실험 (Experimental Thermal-Hydraulics) – Poster

| 좌장 윤병조(Byong-Jo Yoon), 김형대(Hyungdae Kim)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P05N01 **Analysis of CHF Enhancement in Subcooled Flow Boiling Experiment**  
Young Jae Choi, Dong Hoon Kam, and Yong Hoon Jeong(KAIST)
- P05N02 **Visualization Study of Interaction with 2-D Film Flow on the Vertical Plate and Lateral Air Velocity for DVI System**  
Han Sol Kim and Jae Young Lee(HGU), Dong Jin Euh and Jong Rok Kim(KAERI)
- P05N03 **Measurement of the Cupric Ion Concentration Variation Near Electrodes in the Copper Electroplating System**  
Je-young Moon and Bum-jin Chung(KHU)
- P05N04 **Inclination Angle Effects of Single Plate PCB Heater on Saturated Pool Boiling**  
Elvira F. Tanjung and Daeseong Jo(KNU)
- P05N05 **An External Condensation Heat Transfer Experiment for a Vertical Finned Tube**  
Yeong-Jun Jang, Dong-Jae Choi, and Yeon-Gun Lee(JNU), Sin Kim(CAU)
- P05N06 **Theraml-Hydraulic Performance of Scrubbing Nozzle Used for CFVS**  
HyunChul Lee, DooYong Lee, WooYoung Jung, JongChan Lee, and GyuTae Kim(FNC Tech.)
- P05N07 **Effect of Tube Pitch on Pool Boiling Heat Transfer of Vertical Tube Bundle**  
Myeong-Gie Kang(ANU)
- P05N08 **Development of Empirical Correlation to Evaluate Pool Boiling Heat Transfer on Inclined Tube Surface**  
Myeong-Gie Kang(ANU)
- P05N09 **Experimental Study on Desalination System using the Waste Heat of Nuclear Power Plants and Solar Energy Sytems**  
Khalid khasawneh and Yong Hoon Jeong(KAIST)
- P05N10 **Experimental Study of PWR Coolant Mixing Phenomena Using Wire-Mesh Sensor**  
Kihwan Kim, Kil-Won Park, Hae-Seob Choi, Dong-Jin Euh, and Tae-Soon Kwon(KAERI)
- P05N11 **The Natural Convection Heat Transfer Inside Vertical Pipe: Characteristic of Pipe Flow According to the Boundary Layer**  
Seung-Min Ohk and Bum-Jin Chung(KHU)
- P05N12 **Experimental Study on the Prolonged Station Blackout with the Steam Generator Tube Rupture**  
Byoung-Uhn Bae, Yu-Sun Park, Kyoung-Ho Kang, Jong-Rok Kim, Nam-Hyun Choi, and Ki-Yong Choi(KAERI)
- P05N13 **Development of Single Optical Sensor Method for the Measurement Droplet Parameters**  
Tae-Ho Kim, Tae-Hwan Ahn, and Byong-Jo Yun(PNU), Byoung-Uhn Bae and Kyoung-Doo Kim(KAERI)
- P05N14 **Integral Effect Test on Operational Performance of PAFS for Long Term Cooling**  
Yusun Park, Byoung-Uhn Bae, Seok Kim, and Kyoung-Ho Kang(KAERI)
- P05N15 **Experimental Results of OECD-ATLAS A3.1 Test**  
Seung Wook Lee, Kyung Ho Kang, Byoung Uhn Bae, Yusun Park, Nam Hyun Choi, Kyung Doo Kim, and Ki Yong Choi(KAERI)
- P05N16 **A Mechanistic Model of Onset of Flow Instability Due to Mergence of Bubble Layers in a Vertical Narrow Rectangular Channel**  
Juhyung Lee and Yong Hoon Jeong(KAIST), Soon Heung Chang(HGU)
- P05N17 **Comparison of 1-Train and 2-Train Passive Safety Injection Systems in the SMART-ITL Facility**  
Byong Guk Jeon, Hwang Bae, Sung-Uk Ryu, Hyobong Ryu, Sun-Joon Byun, Yong-Cheol Shin, Kyoung-Ho Min, Jong-Kuk Park, Nam-Hyun Choi, Yun-Gon Bang, Sung-Jae Yi, and Hyun-Sik Park(KAERI)

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5. 12(목)  
-13(금)

## 열수력해석 (TH Analysis) – Poster

| 좌장 이승욱(Seong Wook Lee), 조형규(Hyoung Kyu Cho)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P05001 **Sub-channel Analysis of Ductless SFR Fuel Assemblies with Periodic Boundary Condition**  
Jangsik Moon, Byung-Hyun You, and Yong Hoon Jeong(KAIST)
- P05002 **Analysis on Containment Response Following a LBLOCA of APR1400**  
KyuHyun Han(KINS)
- P05003 **A Study on the Turbulence Models for Full-Scale Analysis of Reactor Vessel Internals**  
Tae-Jin Kim, Sang-yun Je, and Yoon-Suk Chang(KHU)
- P05004 **Preliminary Analysis of Rapid Condensation Experiment with MARS-KS Code**  
Jae-Ho Bae, Hwang-Yong Jun, and Hae-Yong Jeong(SJU)
- P05005 **Feasibility Study to Reduce Thermal Resistance of Finned Containment Wall in Simplified OPR1000**  
Jong Hwi Lee and Hie Chan Kang(KNU), Hyung Gyun Noh(POSTECH)
- P05006 **Subchannel Scale Thermal-Hydraulic Analysis of Rod Bundle Geometry Under Single-phase Adiabatic Conditions Using CUPID**  
Seok Jong Yoon, Goon Cherl Park, and Hyoung Kyu Cho(SNU)
- P05007 **Analysis of Steam Condensation in the Presence of Noncondensable Gases using MARS-KS Code**  
Hyeon-MI Bang and Yeon-Gun Lee(JNU)
- P05008 **Assessment and Improvement of the Horizontal In-Tube Condensation Model of the MARS-KS 1.3**  
Hyun Jin Lee(SenTech), Tae Hwan Ahn, Byong Jo Yun, and Jae Jun Jeong(PNU)
- P05009 **A Quick Review on Steam Generator Water Level Tracking Methods and Its Uncertainties**  
Ki Moon Park and Jeong Ik Lee(KAIST)
- P05010 **Assessment of the Radiation Enclosure Models in SPACE and RELAP5 with GOTA Test 27**  
Taebeom Lee, G.W. Lee, and T.S. Choi(KEPCO NF)
- P05011 **Study on Fuel Channel behavior Following Various PT/CT Contact Angles under Late-heatup Condition with SBLOCA/LOECC**  
Eunkyung Jang, Bok Ja Moon, and Seoung Rae Kim(NESS)
- P05012 **Comparison of MARS-KS and SPACE for UPTF TRAM Loop Seal Clearing Experiment**  
Min-Gil Kim, Won Woong Lee, and Jeong Ik Lee(KAIST), Young Seok Bang(KINS)
- P05013 **CFD Analysis on the Passive Heat Removal by Helium and Air in the Canister of Spent Fuel Dry Storage System**  
Doyoung Shin, Uiju Jeong, and Sung Joong Kim(HYU)
- P05014 **Effect of Reactor Upper Region Nodalization on APR-1400 LBLOCA BEPU Analysis**  
Dong Gu Kang and Seung Hun Yoo(KINS)
- P05015 **Evaluation on Long-term Cooling of CANDU after Sump Blockage using MARS-KS**  
Seon Oh YU and Yong Jin CHO(KINS), Sung Joong KIM(HYU)
- P05016 **Numerical Simulation on Natural Convection Cooling of a FM Target**  
Jong-Pil Park and Suki Park(KAERI)
- P05017 **Numerical Simulation of Natural Convection in a Vertically Installed Wet Thermal Insulator**  
Youngmin Bae, Seong Hoon Kim, Jae-Kwang Seo, and Young-In Kim(KAERI)
- P05018 **Assessment of the MELCOR 1.8.6 Condensation Heat Transfer Model Under the Presence of Noncondensable Gases**  
Ji Min Yoo, Dong Hun Lee, and Jae Jun Jeong(PNU)

- P05019 **The Effect of the Holes Size Change of Lower-Support-Structure-Bottom Plate on the Reactor Core Thermal-Hydraulic Design**  
Gong Hee Lee and Ae Ju Cheong(KINS)
- P05020 **Implementation of R134a Thermophysical Properties for MARS Application**  
Gyu Min Son and In Cheol Bang(UNIST)
- P05021 **CFD Analysis and Visualization of the Two Phase Flow in a Thermosyphon for a Passive Heat Removal System of a Nuclear Power Plant**  
Joseph Seo and Jae-Young Lee(HGU)
- P05022 **Thermal-Hydraulic Analysis of a Once-Through Steam Generator Considering Performance Degradation**  
Hun Sik Han, Han-Ok Kang, Juhyeon Yoon, Young In Kim, Jae Seung Song, and Keung Koo Kim(KAERI)
- P05023 **Compressor Modeling for Transient Analysis of Supercritical CO<sub>2</sub> Brayton Cycle by using MARS Code**  
Joo-Hyun Park, Hyun Sun Park, Taeho Kim, and Jin Gyu Kwon(POSTECH), Sung Won Bae and Jae-Eun Cha(KAERI)
- P05024 **Study of Scenarios Related to Design Extension Conditions of PHWR Using PSA Methodology**  
Yang Hoon Kim, Sung Deok Yi, and Seoung Rae Kim(NESS)
- P05025 **Effect of Bottom Blockage on Heat Transfer in Single Equivalent Cooling Channel of a Spent Fuel Pool**  
Woo-Ram Lee and Jae-Young Lee(HGU)
- P05026 **Comparison of MATRA-S and COBRA-SFS for Low Flow Subchannel Analysis**  
Kyong-Won Seo, Hyuk Kwon, Seong-Jin Kim, and Dae Hyun Hwang(KAERI)
- P05027 **Thermal Flow and Structure Stability Analyses of High Power Waterload for 2450 MHz Microwave Applications**  
SangWon Seon, HaeJin Kim, andSonJong Wang(NFRI), JaeNam Kim(KRF)

## 5P

5. 12(목)  
-13(금)

### 중대사고 (Severe Accident) – Poster

| **좌장** 안상모(Sang Mo Ahn), 최유정(Yu Jung Choi)

| **발표장소** 3층 로비

| **게시시간** 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| **저자 발표시간** 5월 12일(목) 13:00 ~ 15:00

- P05P01 **Evaluation of Tube Ejection Failure for APR1400 ICI Penetration at Various Experimental Conditions**  
Sang Mo An and Hwan Yeol Kim(KAERI)
- P05P02 **Analysis of Small Break Loss of Coolant Accident for Chinese CPR1000**  
Juyoul Kim(FNC Tech.), Anthonie Cilliers(NWU), Li-Chi Cliff Po(MST)
- P05P03 **Current Status of Aerosol Generation and Measurement Facilities for the Verification Test of Containment Filtered Venting System in KAERI**  
Sung Il Kim, Sang Mo An, Kwang Soon Ha, and Hwan Yeol Kim(KAERI)
- P05P04 **Transfer Effect Ratio of Loosely Coupled Coils for Wireless Power Through CB Wall Under Station Blackout(SBO)**  
Kil Mo Koo, Seong-Wan Hong, Jin-Ho Song, and Won Pil Baek(KAERI), Sanghoon Cheon(ETRI)
- P05P05 **Pool Boiling CHF Enhancement in an External Reactor Vessel Cooling (ERVC) Using Graphene Oxide**  
Min ho LEE, Hyo HEO, and In Cheol BANG(UNIST)
- P05P06 **Preliminary Study of Applying Phase Change Materials (PCM) for Containment Passive Cooling**  
Areum Ko and Jeong Ik Lee(KAIST), Ho Joon Yoon(KUSTAR)
- P05P07 **Aerosol Deposition Models in the COMPASS-FP Beta Version**  
Hyung Seok Kang, Bo Wook Rhee, and Dong Ha Kim(KAERI)
- P05P08 **Numerical Simulation of the Penetration Tube Ejection Using PENTAP Plus**  
Jaehoon Jung, Sang Mo An, and Hwan Yeol Kim(KAERI)



- P05P09 **Numerical Analysis on Heat Flux Distribution Through the Steel Liner of the Ex-vessel Core Catcher**  
Se-Hong Oh and Choengryul Choi(ELSOLTEC), Byung-Jo Kim and Kyu-Bok Lee(KEPCO E&C)  
Do-Hyun Hwang(KHNP CRI)
- P05P10 **Centrifugal Filtration System for Severe Accident Source Term Treatment**  
Shuchang Liu and Man Sung Yim(KAIST)
- P05P11 **Numerical Analysis of Steam Jet Impingement in Containment During Pipe Rupture**  
Dae Kyung Choi, Se-Hong Oh, Choengryul Choi, and Sung-Man Son(ELSOLTEC), Won Tae Kim(RETECH)
- P05P12 **Review on Organic Iodide Retention in FCVS**  
Jonguk Lee and Jaeyoung Lee(HGU), Sanggil Park(ACT Co., Ltd.)
- P05P13 **Absorption of a Water Droplet Impacting on Porous Media**  
Jae Bong Lee(KAERI), Dominique Derome(EMPA), Peter Vontobel(PSI), Jan Carmeliet(ETHZ)
- P05P14 **MELCOR Simulation of Containment Spray for Potential Regulation of 100TBq Cesium-137 Release from OPR1000**  
Joongoo Jeon, Wonjun Choi, Nam Kyung Kim, Gyoodong Jeun, and Sung Joong Kim(HYU)

## 5Q

5. 12(목)  
- 13(금)

### 확률론적안전성평가 및 안전현안 (PSA & Safety Issues) – Poster

| 좌장 안광일(Kwang-Il Ahn), 장동주(Dong Ju Jang)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P05Q01 **Fire Safety Consideration in the Preconceptual Design State of Pyro-Facility**  
Hongrae Jeon, Seok-Jun Seo, and Hyojik Lee(KAERI)
- P05Q02 **Integrated Risk Assessment for Spent Fuel Transportation using Developed Software**  
Mirae Yun, Robby Christian, Bo Gyung Kim, Belal Almomani, Jaehyun Ham, and Hyun Gook Kang(KAIST)  
Sanghoon Lee(KMU)
- P05Q03 **A Study on the Domestic Application of Canadian Regulatory Document REGDOC-2.4.1(Deterministic Safety Analysis) for CANDU**  
Yang Hoon Kim, Sung Deok Yi, and Seoung Rae Kim(NESS)
- P05Q04 **Conceptual Design of Hybrid Safety Features for NPP by Utilizing Solar Updraft Tower**  
Sub Lee Song(HGU), Young Jae Choi and Yong Jin Kim(KAIST), Hyo Chan Park and Younwon Park(BEES, Inc)
- P05Q05 **Comparison of Domestic Safety Review and EU Stress Test After Nuclear Accident in Fukushima Daiichi NPPs**  
Hwa Sung Kang and Jin Weon Kim(CSU)
- P05Q06 **Development of A Methodology for Assessing Various Accident Management Strategies Using Decision Tree Models**  
Namyoung Kim, Jintae Kim, and Moosung Jae(HYU), Dong-Wook Jerng(CAU)
- P05Q07 **Accident Sequence Precursor Analysis for SGTR by Using Dynamic PSA Approach**  
Hansul Lee and Gyunyoung Heo(KHU), Taewan Kim(INU)
- P05Q08 **Development of A Framework For Assessing Accident Sequence Precursor and Its application**  
Sunghyun Park, Seunghyun Jang, and Moosung Jae(HYU)
- P05Q09 **Sequence Tree Modeling for Combined Accident and Feed-and-Bleed Operation**  
Bo Gyung Kim and Hyun Gook Kang(KAIST), Ho Joon Yoon(KUSTAR)
- P05Q10 **Generating Log-Normally Distributed Random Numbers by Using the Ziggurat Algorithm**  
Jongsoo Choi(KINS)
- P05Q11 **Sensitivity Study for Feed & Bleed Operation for Domestic CANDU Nuclear Power Plants**  
Koosam Kim, Bumseok Kim, Hyunggeun Yoo, and Hyungjin Kim(ACT Co., Ltd.), Seokwon Hwang(KHNP CRI)

## 6A

5. 12 (목)

## 방사선 이용 및 방호 (Radiation Utilization and Protection (I))

I 좌장 김도현(Do Heon Kim), 이정일(Jungil Lee)

I 발표장소 삼다홀A

## 초청발표

- 09:00 Assessment of Occupational Exposure Due to Intakes of Uranium  
Jong Il LEE(KAERI)
- 09:30 A Dose Rate Evaluation on the Surface of Spent Fuel Storage Pool and Outer Surface of Concrete Structure Applying Monte Carlo Methodology with PLUS 7 Spent Fuel Storage Condition  
Hee Dong SOHN(DOOSAN)
- 10:00 Multiple Beta Spectrum Analysis Method Based on Spectrum Fitting  
Uk Jae Lee, Yun Song Jung, and Hee Reyoung Kim(UNIST)
- 10:20 Monte Carlo Estimation of the Absorbed dose Distributions in Computed Tomography  
Jinwoo Kim, Hanbean Youn, and Ho Kyung Kim(PNU)
- 10:40 Coffee Break
- 11:00 Characterization of Neutron Energy Spectrum at KIRAMS MC-50 Cyclotron Using Genetic Algorithm  
Sy Minh Tuan Hoang, Gwang Min Sun, Hani Beak, and Jiseok Kim(KAERI)
- 11:20 An Evaluation Method for Activation Analysis using Pre-evaluated Contribution of Nuclides with Impurity  
MyeongHyeon WOO, SongHyun KIM, DoHyun KIM, and ChangHo SHIN(HYU), Ji Seok Kim(KAERI)
- 11:40 A Sensitivity Study on Radiation Dose of 500W RTPV having Different Source Shapes  
Seong Jae Cheon and Ser Gi Hong(KHU)
- 12:00 Developing Off-site Emergency Preparedness and Response Model (OEPRM) for Severe Accident of NPP in a Densely Populated Country Using System Dynamics Approach  
Muhammed Mufazzal Hossen, Kyoung-Ho Kang, and Jin Ho Song(UST, KAERI)

## 6B

5. 13 (금)

## 방사선 이용 및 방호 (Radiation Utilization and Protection (II))

I 좌장 금동권(Dong-Kwon Keum), 김기현(Geehyun Kim)

I 발표장소 303A

## 초청발표

- 09:00 Compact Accelerator-driven Neutron Sources and its Applications (from the Policy and Planning Syudy in 2015)  
Chang-Hee LEE, TaeJoo KIM, Kye Ryung KIM, Min Goo HUR, Seung Dae YANG, and Myungkook MOON(KAERI)  
Jong Seo CHAI(SKKU)
- 09:30 Computed Tomography- Medical vs. Industrial Application  
Seungryong CHO(KAIST)
- 10:00 Indoor Air Radon dose Assessment for Elementary, Middle and High Schools at Ulju County in Korea  
ChoongWie Lee and HeeReyoung Kim(UNIST)
- 10:20 Rapid Analysis of U Isotopic Ratios in Food Stuff Samples Using Fusion and ICP-MS Measurement: For Radiation Monitoring Program in the Vicinity of Nuclear Facilities  
Jong-Myoung Lim, Ji-Young Park, Yoonhee Chung, Hyuncheol Kim, Won-Young Kim, Gun Ho Chung, and Mun-Ja Kang(KAERI)

- 10:40 **Coffee Break**
- 11:00 **A Study on the Improvement of Switching Speed of NPT-IGBT by Fast Neutron Irradiation**  
Hani Baek, Gwang Min Sun, Ji Seok Kim, Sy Minh Tuan Hoang, Mi Eun Jin, Seong Bok Jin, and Sung Ho Ahn(KAERI)
- 11:20 **Optimal Design of Detector Thickness for Dual-energy X-ray Imaging**  
Dong Woon Kim and Ho Kyung Kim(PNU)
- 11:40 **Impulse-response Analysis of Planar Computed Tomography for Nondestructive Test**  
Daechon Kim, Seung Ho Kim, and Ho Kyung Kim(PNU)
- 12:00 **Development of the 2<sup>nd</sup> Generation of a Quad-CZT Array based Uranium Enrichment Measurement Equipment**  
Ae-Ri Lee, UK Ryang Park, Seunghoon Park, Heejun Chung, and Sung-Woo Kwak(KINAC), Jung-Ki Shin(KINS), Yongkwon Kim(NMS)

## 6C

5. 13(금)

### 방사선 이용 및 방호 (Radiation Utilization and Protection (III))

| 좌장 이원호(Wonho Lee), 최강혁(Kang Hyuk Choi)

| 발표장소 401B

#### 초청발표

- 14:00 **History and Future of Fission Mo-99 Process**  
Gerd Beyer(ESI)
- 14:30 **The Proof Studies of Novel Aluminum Precipitation Technique for Fission Moly Production**  
Won-Je Cho, Seung-Kon Lee, Suseung Lee, Kyung-Duk Jang, Soon-Bog Hong, Kwon Mo Yoo, Kang Hyuk Choi, and Jun Sig Lee(KAERI)
- 14:50 **Development of Fission Mo-99 Process for LEU Dispersion Target**  
Seung-Kon Lee, Suseung Lee, Soon-Bog Hong, Kyung-Duk Jang, Ul Jae Park, and Jun Sig Lee(KAERI)
- 15:10 **Coffee Break**
- 15:30 **The Calculation of Ho Production by Indirect Method and Preparation of Polymeric Microsphere for Radioembolisation**  
KangHyuk Choi, J. B. Kim, U. J. Park, E. H. CHO, S. S. Nam, K. M. Yoo, and K. D. Jang(KAERI)
- 15:50 **Design and Fabrication of the Xenon Emission Mitigation System for the Fission Mo-99 Production Process**  
Suseung Lee, Seung-Kon Lee, Won-Je Cho, Taewoon Kim, Sung-Soo Nam, Kwon Mo Yoo, and Jun Sig Lee(KAERI)
- 16:10 **The Preliminary Beam Irradiation Test for the RI Production Target at KOMAC**  
Sang-pil Yoon, Hyeok-jung Kwon, Han-sung Kim, Yong-sub Cho, Kyung-tae Seol, Young-gi Song, Dae-il Kim, Myung-hwan Jung, Kye-ryeong Kim, and Yi-sub Min(KAERI)
- 16:30 **Estimation of Source Term Behaviors in SBO Sequence in a Typical 1000MWth PWR and Comparison with Other Source Term Results**  
Tae Woon Kim, Seok Jung Han, Kwang Il Ahn, Douglas Fynan, and Yong Hoon Jung(KAERI)
- 16:50 **Bone-suppressed Radiography Using Machine Learning**  
Junbeom Park, Daechon Kim, and Ho Kyung Kim(PNU)
- 17:10 **Review of Health Effects Models for Level 3 PSA**  
Seunghye Lee and Juyoul Kim(FNC Tech.), Seokjung Han(KAERI)

## 6D

5. 12(목)  
-13(금)

### 방사선 이용 및 방호 (Radiation Utilization and Protection (IV)) – POSTER

| 좌장 최호신(Ho Sin Choi), 선광민(Gwang-Min Sun)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P06D01 [ANSTO Experience] Evaluation of Filters in RSPCS (Reactor Service Pool Cooling System) and HWL (Hot Water Layer) in OPAL Research Reactor at ANSTO (Australian Nuclear Science and Technology Organization) Using Gamma Spectrometry System and Liquid Scintillation Counter  
Jimin Lee, Seongmoon Jung, Hyeonsuk Park, and Sung-Joon Ye(SNU), Robin Foy(ANSTO)
- P06D02 A Preliminary Study for Safety Shutter Design to Protect Streaming of Residual Radiation Passing through Beamline in Pre-Separator Room of ISOL  
Jong Woo KIM, Do Hyun KIM, Song Hyun KIM, and Chang Ho SHIN(HYU), Shin Woo NAM(IFS)
- P06D03 Calculation of Wind Speeds for Return Period Using Weibull Parameter: A Case Study of Hanbit NPP Area  
Jongkuk Lee, Kwan-Hee Lee, Sung Il Kim, Daesik Yook, and Sangmyeon Ahn(KINS)
- P06D04 Study of Developing Nuclear Fabricaion Facility's Integrated Emergency Response Manual  
Taehyeong Kim, Namchan Cho, Seunghoon Han, Jonghan Moon, and Jinhang Lee(KEPCO NF), Guemyoung Min and Jiah Han(DU)
- P06D05 Derivation of the Radioactivity Index for Consumer Goods Containing NORM  
Mee Jang, Kun Ho Chung, Young Yong Ji, Chang Jong Kim, and Mun Ja Kang(KAERI)
- P06D06 Characteristics of Airborne Particulates Containing Naturally Occurring Radioactive Materials in Monazite Industry  
Yong Geon Kim, Cheol Kyu Choi, Il Park, Min Jun Kim, A Ra Go, Seung Woo Ji, and Kwang Pyo Kim(KHU), Bon Cheol Koo(KINS)
- P06D07 Validating the ICRP Reference Values on Airborne Contaminants as Representative of Domestic Workplace Environments Involving NORM  
Ji-Yong Shin, Wanook Ji, and Eun-Hee Kim(SNU)
- P06D08 Occupational Doses and the Contribution to the Population Dose in Korea  
Seungjae Han and Kyu Hwan Jeong(KINS)
- P06D09 Controlled Platform for the Radiation dose Data Measured in Radiation Controlled Area of KOMAC  
Sung-Kyun Park, Yi-Sub Min, Jeong-Min Park, and Yong-Sub Cho(KAERI)
- P06D10 Introduction of the Activity of the Radiation Safety for KOMAC  
Yi-Sub Min, Sung-Kyun Park, Jeong-Min Park, and Yong-Sub Cho(KAERI)
- P06D11 Development of NORM Determination Algorithm for Radiation Portal Monitors  
Jinhwan kim, Yewon Kim, Hyunjun Yoo, Chankyu Kim, Sangheon Lee, Hyeon Dock Kim, Hojong Chang, and Gyuseong Cho(KAIST)
- P06D12 Study of the Monochromator Shielding Block Redesign of the HANARO Cold Neutron Triple-Axis Spectrometer  
Ji-Myung Ryu, J. M. Sungil Park, and Beak-Seok Seong(KAERI)
- P06D13 A Study on the Thermal Neutron Filter for the Irradiation of Electronic Materials at HANARO  
Seong Woo Yang, Sung Ryul Kim, Seung Jae Park, Yoon Taeg Shin, Man Soon Cho, and Kee Nam Choo(KAERI)
- P06D14 Evaluation of the Shielding Performance for the Hot-cell Built in 100-MeV Isotope Beam-line of KOMAC  
Jeong Min Park, Sung Kyun Park, Yi Sub Min, and Yong Sub Cho(KAERI)
- P06D15 Development on Dose Assessment Model of Northeast Asia Nuclear Accident Simulator  
Juyub Kim, Juyoul Kim, Sukhoon Kim, Seunghye Lee, and Taebin Yoon(FNC Tech.)
- P06D16 A Parametric Study of MELCOR Accident Consequence Code System 2 (MACCS2) Input Values for the Predicted Health Effect  
Sora Kim, Kyung-suk Suh, Byung-Il Min, Kihyun Park, and Byung-Mo Yang(KAERI)
- P06D17 Elemental Concentration Ratios for Benthic Animals in the Seas Around the Gyeongju Nuclear Site  
Kwang-Muk Lim, Yong-Ho Choi, In Jun, Byeong-Ho Kim, and Dong-Kwon Keum(KAERI)

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- P06D18 Study on the Flow Rate of Column in Uranium Separation and Extraction**  
UkRyang Park, Seunghoon Park, HeeJun Chung, Aeri Lee, and SungWoo Kwak(KINAC)
- P06D19 Characterization of  $^{238}\text{U}$ ,  $^{232}\text{Th}$ ,  $^{40}\text{K}$ , AND  $^{226}\text{Ra}$  in NORM and Air Particulate Occurring from Phosphate Processing Facility**  
Yoonhee Jung, Jong-Myoung Lim, Young-Young Ji, Chang-Jong Kim, Hyuncheol Kim, KunHo Chung, and Mun-Ja Kang(KAERI), Ji-Yong Park(UST)
- P06D20 Optimization for Tritium Radioactivity Analysis in Rain Water by Liquid Scintillation Counter**  
Sung Jin Noh, HyoJin Kim, Hyun Kim, Manwoo Lee, Dong Hyeok Jeong, Jung Ki Kim, Sang-Hee Nam, Yeong-Rok Kang, and Kwangmo Yang(DIRAMS)
- P06D21 AMRI-59 has a Role of Radiosensitizer Via Enhancement of  $\gamma$ -ionizing Radiation-induced Apoptotic Cell Death**  
Wan Gi Hong, Jeong Hyun Cho, Ju Yeon Kim, Sang-Gu Hwang, Hong-Duck Um, and Jong Kuk Park(KIRAMS)
- P06D22 A Virtual Source Method for Monte Carlo Simulation of Gamma Knife Model C**  
TaeHoon Kim and Yong-Kyun Kim(HYU), Hyun-Tai Chung(SNU)
- P06D23 Cell Size Matters in Gamma-H2AX Assay for Low-dose Alpha Particle Effect Assessment**  
Ui-seob Lee and Eun-hee Kim(SNU)
- P06D24 A Secretome Analysis Reveals that PPAR $\alpha$  is Upregulated by Fractionated-dose  $\gamma$ -irradiation in Three-dimensional Keratinocyte Cultures**  
Jeeyong Lee, Hyun-Ji Kim, and Jae Youn Yi(KIRAMS)
- P06D25 Residual Stress Measurement of SiC Tile/Al7075 Hybrid Composites by Neutron Diffraction**  
Jongbok Park, Junho Lee, Soon Hyung Hong, and Ho Jin Ryu(KAIST), Sang bok Lee, and Sang Kwan Lee(KIMS), Rifai M.(PSTBM)
- P06D26 Experimental Study of Fast Neutron Irradiation on Si Transistor**  
Sung Ho Ahn, Gwang Min Sun, Hani Baek, Seong Bok Jin, and Sy Minh Tuan Hoang(KAERI)
- P06D27 Development of Fast-Neutron Imaging Techniques in Korea**  
Young-Seok Lee, Seungtae Oh, Jong-Gu Kwak, and Heesoo Kim(NFRI)
- P06D28 A Preliminary Test of Two-dimensional Neutron Grating Interferometer**  
Jongyul Kim, Myung Kook Moon, and TaeJoo Kim(KAERI), Youngju Kim and Seung Wook Lee(PNU)
- P06D29 Energy Selective Imaging Using Cold Neutron at NIST**  
Ohsung Oh, Youngju Kim, and Seung Wook Lee(PNU), Jongyul Kim, Myungkook Kim, Tae Joo Kim, and Wan Chuck Woo(KAERI)
- P06D30 Preliminary Study on the Provenance Interpretation of Obsidian Artifacts Using Neutron Activation Analysis**  
Mi-Eun Jin and Yong-Joo Jwa(GNU), Gwang Min Sun, Hani Baek, Jong Hwa Moon, and Yong Sam Chung (KAERI)
- P06D31 Visualizing Magnetic Domain of Electric Steel Using Grating Interferometer at NG6 of NIST**  
Youngju Kim, Ohsung Oh, Seho Lee, Daeseung Kim, Seung Wook Lee(PNU), Jongyul Kim(KAERI), Oh Yeoul Kwon(POSCO), D.S. Hussey, D.L. Jacobson, and J.M. LaManna(NIST)
- P06D32 Conceptual Design of Target Assembly System for Boron Neutron Capture Therapy**  
Yong Uk Kye, Sung Gyun Shin, Moo Hyun Cho, and Won Namkung(POSTECH), Young Soon Bae(NFRI)
- P06D33 A Preliminary Study on Detecting Fake Gold Bars Using Prompt Gamma Activation Analysis: Simulation of Neutron Transmission in Gold Bar**  
Ki-Man Lee and Gwang-Min Sun(KAERI)
- P06D34 Imaging of Gastrin-Releasing Peptide Receptor-Expressing Prostate Tumor Using a  $^{68}\text{Ga}$ -Labeled Bombesin Analog**  
Jaecheong Lim, Sohee Dho, Eunha Cho, Soyoung Lee, and Sooyong Kim(KAERI)
- P06D35 The Process of Ni-63 Production and Measurement of Beta Radiation of Irradiated Ni-63**  
Jin Joo Kim, Young Rang Uhm, Jong Bum Kim, Sang Mu Choi, Kwang Jae Son, Jintae Hong, and Jong Han Park(KAERI)
- P06D36 Development of Silver-exchanged Adsorbents for the Removal of Fission Iodine from Alkaline Dissolution**  
Taewoon Kim, Seungkon Lee, Suseung Lee, and Junsig Lee(KAERI), Sangwook Kim(DGU)
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- P06D37     **The Natural Xe Gas Transfer Test for the  $^{123}\text{I}$  Production System Using the Enriched Xe-124 Gas**  
HyunWoo Jung, Kwon Soo Chun, Seyoung Oh, JunYong Choi, JaeJun You, SangKwon Bang,  
and ByungIl Kim(KIRAMS)
- P06D38     **Alpha Beam Energy Determination Using a Range Measuring Device for Radioisotope Production**  
Junyong Choi, Byeongil Kim, Seungpyo Hong, Ranyoung Kim, and Kwonsoo Chun(KIRAMS)
- P06D39     **Fourier Analysis of Single-Shot Dual-Energy X-ray Imaging Characteristics**  
Junwoo Kim, Dong Wonn Kim, and Ho Kyung Kim(PNU)
- P06D40     **Optimizing Simulation of Polyethylene Thickness for Applying a GEM-based Fast Neutron Detector**  
Cheol Ho Lee, Jaebum Son, Tae-Hoon Kim, and Yong-Kyun Kim(HYU)
- P06D41     **Development of Hybrid L-edge/XRF Densitometer for Nuclear Material Solution Assay**  
Seunhoon Park, Sung-Woo Kwak, Uk-Rayng Park, Ae-Ri Lee, and Heejun Chung(KINAC), Jerry Park(ISP)
- P06D42     **Effect Evaluation of the Converter/Absorber for Measuring 14 MeV Fast Neutron**  
Cheol Ho Lee, Jaebum Son, Tae-Hoon Kim, and Yong-Kyun Kim(HYU)
- P06D43     **Response Function for Neutron of Stilbene Scintillator Using Simulation Codes**  
Jaebum Son, Cheol Ho Lee, Tae Hoon Kim, and Yong Kyun Kim(HYU)
- P06D44     **A Preliminary Study on the X-ray Bubble Visualization in Liquid-gas Two-phase Flow Using 90° Compton Scattering**  
Che Wook YIM, Song Hyun KIM, Do Hyun KIM, and Chang Ho SHIN(HYU)
- P06D45     **Development and Performance Characteristics of Personal Gamma Spectrometer for Radiation Monitoring Applications**  
Hye Min Park, Jeong Ho Kim, Chan Jong Park, and Koan Sik Joo(MJU)
- P06D46     **Development of Pixelated Scintillator-based Compact Radio-TLC**  
Sang June Jeon, Kyeong Min Kim, and JongGuk Kim(KIRAMS)
- P06D47     **Design Validation of a  $^{10}\text{B}_4\text{C}$  Coated RSP with Multi-layered Structure for Homeland Security**  
Suhyun Lee, Jongyul Kim, Joo Hyun Lee, and Myung-Kook Moon(KAERI), Chang Hwy Lim(KRISO), Ki Seo Lim(MU)
- P06D48     **Development of a Novel Endorectal Balloon for Two-dimensional in-vivo Rectal Dosimetry**  
Young Kyung Lim, Eun Hee Jeang, Soonki Min, and Kwan Ho Cho(NCC), Ui-Jung Hwang(NMC),  
Sang Hyoun Choi(KIRAMS), Jungwon Kwak(AMC)
- P06D49     **Threat Object Detection Using Covariance Matrix Modeling in X-ray Images**  
Byoungil Jeon, Jongyul Kim, and Myung-kook Moon(KAERI)
- P06D50     **Dual-gamma-source CT Imaging System: Feasibility Study with Simulation and Experiment**  
Sunhee Wi, Sunho Lim, and Seungryong Cho(KAIST)
- P06D51     **The Effects of PN Spacing of Vertical Electrodes on Betavoltaic Characteristics**  
Byoung Gun Choi, Sung Weon Kang, and Kyung Hwan Park(ETRI)
- P06D52     **Verification of Photon Attenuation Characteristics for 3D Printer based Small Animal Lung Model**  
Se-Ho Lee and Seung Wook Lee(PNU), Seungwoo Park and Su Chul Han(KIRAMS)
- P06D53     **Monte Carlo Simulation of Proton Boron Fusion Reaction for Radiation Therapy**  
Sunmi Kim, Do-Kun Yoon, and Tae Suk Suh(Catholic Univ.)
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## 7A

5. 12 (목)

## 양자공학 및 핵융합기술 (Quantum Engineering and Nuclear Fusion)

| 좌장 김석권(Suk-Kwon Kim), 윤재성(Jae Sung Yoon)

| 발표장소 303A

## 초청발표

09:00 Rare Isotope Science Project in Korea  
Sunchan Jeong(RISP)09:30 Laser-Plasma Acceleration Results at GIST  
Hyyong Suk(GIST)10:00 Reduced Activation W Alloys for Plasma Facing Materials  
Owais Waseem, Seungsu Kim, Jun Ho Lee, Soon Hyung Hong, and Ho Jin Ryu(KAIST)10:20 Numerical Study on Multiple Jet Impingement Cooling System for Nuclear Fusion Reactor Divertor  
Hyoyeon Jung and Kwangyong Kim(Inha Univ.)

10:40 Coffee Break

11:00 Thermal Hydraulic Analysis of K-DEMO Single Blanket Module for Preliminary Accident Analysis Using MELCOR  
Sung Bo Moon and In Cheol Bang(UNIST)11:20 Experimental Measurements of Helicon Wave Coupling in KSTAR Plasmas  
Haejin Kim, Hyunho Wi, Sonjong Wang, Suyeon Park, Jinhyun Jeong, Jongwon Han, Jong-gu Kwak, and Yeongkook Oh(NFRI), Myunghwan Chun and Inha Yu(POSTECH)11:40 A Miniature X-ray Tube Based on Carbon Nanotube for an Intraoral Dental Radiography  
Hyun Jin Kim, Han Beom Park, Ju Hyuk Lee, and Sung Oh Cho(KAIST)12:00 Numerical Investigation for the Plasma Coal Gasifier of 150kW and 1400kW  
Hyeongyeong Choi and Jaeseung Suh(SenTech.), Taihyeop Lho(NFRI)

## 7B

5. 12 (목)  
- 13 (금)

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

| 좌장 석희용(Hyyong Suk), 김해진(HaeJin Kim)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

P07B01 Graphene-Like Carbon Nanosheet Field Emitters Using Metal Particle Catalyst for Miniature X-ray Tubes  
Jun Mok Ha, Hyun Jin Kim, Han Beom Park, Ju Hyuk Lee, and Sung Oh Cho(KAIST)P07B02 Operational Parameters Stability of KOMAC Proton Linac  
Han-Sung Kim, Dong-Hyuk Seo, Seong-Gu Kim, Kyung-Tae Seol, Jae-Ha Kim, Young-Gi Song, Hae-Seong Jeong, Tae-Sung Ahn, Dae-Il Kim, Cho-Rong Kim, Hyeok-Jung Kwon, Yong-Sub Cho, and Sang-Pil Yun(KAERI)P07B03 Study on the Effects of the Modulator Output Ripple on the RF System of the KOMAC 100-MeV Proton Linear Accelerator  
Hyeok-Jung Kwon, Han-Sung Kim, Kyung-Tae Seol, Hae-Sung Jeong, Sung-Gu Kim, and Yong-Sub Cho(KAERI)P07B04 Troubleshooting of Modulator DC Power Supply at KOMAC  
Hae-Seong Jeong, Han-Sung Kim, Hyeok-Jung Kwon, Seong-Gu Kim, Dae-il Kim, Seok-geun Lee, Jae-ha Kim, Kyeong-tae Seol, and Yong-Sub Cho(KAERI)

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- P07B05**     **Installation and Preliminary Test of the Ion Accelerator for the Surface Analysis at KOMAC**  
Dae-II Kim, Tae-Sung Ahn, Dong-Hyuk Seo, Hyeok-Jung Kwon, Han-Sung Kim, Cho-Rong Kim, Jun-Kue Park, and Yong-Sub Cho(KAERI)
- P07B06**     **EPICS-Based Control System for KOMAC RI Beam Line**  
Jae-Ha Kim, Young-Gi Song, Hyeok-Jung Kwon, and Yong-Sub Cho(KAERI)
- P07B07**     **Development of KOMAC Beam Permission System Using EPICS Framework**  
Young-Gi Song, Jae-Ha Kim, Hyeok-Jung Kwon, and Yong-Sub Cho(KAERI)
- P07B08**     **Preliminary Test of Chillers for RFQ and MEBT at KOMAC**  
Dong-Hyuk Seo, Seong-Gu Kim, Kyung-Tae Seol, Han-Sung Kim, Hyeok-Jung Kwon, and Yong-Sub Cho(KAERI)
- P07B09**     **Status of IH and RFQ Linacs in the Daejeon Ion Accelerator Complex at KAERI**  
Sung-Ryul Huh, Dae-Sik Chang, Churl-Kew Hwang, Seok-Kwan Lee, Jeong-Tae Jin, and Byung-Hoon Oh(KAERI)
- P07B10**     **Alignment of Ion Accelerator for Surface Analysis Using Theodolite and Laser Tracker**  
Tae-Sung Ahn, Dong-Hyuk Seo, Dae-II Kim, Han-Sung Kim, Hyeok-Jung Kwon, and Yong-Sub Cho(KAERI)
- P07B11**     **Mission to Mars by Catalyzed Nuclear Reactions of the Commercialized Cold Fusion Power - Last Ambition of Dr. George H. Miley (Born 1933)**  
Tae-Ho Woo(Yonsei Univ.)
- P07B12**     **Bed System Performance in Helium Circulation Mode**  
Yeanjin Kim, Hongsuk Chung, Kwangjin Jung, Hee-suk Kang, and Do-hee Ahn(KAERI), Sei-hun Yun(NFRI)
- P07B13**     **Filtration and Hydrogen Reaction Modeling in a Depleted Uranium Bed**  
Kwangjin Jung, Yeanjin Kim, Hee-Seok Kang, Do-Hee Ahn, and Hongsuk Chung(KAERI), Sei-Hun Yun(NFRI)
- P07B14**     **Development and Qualification Test for ITER Plasma Facing Components in Korea**  
Suk-Kwon Kim, Seong Dae Park, Hyung Gon Jin, Eo Hwak Lee, Jae-Sung Yoon, and Dong Won Lee(KAERI)
- P07B15**     **Cooling Performance of TBM-shield Designed for Manufacturability**  
Seong Dae Park, Dong Won Lee, Dong Jun Kim, and Jae Sung Yoon(KAERI), Mu-Young Ahn(NFRI)
- P07B16**     **Current Status of HCCR TBM Design for the Preliminary Design Phase Preparation**  
Seong Dae Park, Dong Won Lee, and Dong Jun Kim(KAERI), Mu-Young Ahn(NFRI)
- P07B17**     **Nuclear Fusion Research Activities at KAERI**  
Dong Won Lee, Sun Ho Kim, Seung Ho Jeong, and Byung Hoon Oh(KAERI)
- P07B18**     **Thermal-Fatigue Analysis of W-coated Ferritic-Martensitic Steel Mockup for Fusion Reactor Components**  
Dong Won Lee, Suk-Kwon Kim, Seong Dae Park, and Dong Jun Kim(KAERI),  
Se Yeon Moon and Bong Guen Hong(CBNU)
- P07B19**     **Fabrication of small mock-ups for the KO HCCR TBM**  
Jae Sung Yoon, Suk Kwon Kim, Eo Hwak Lee, Hyung Gon Jin, and Dong Won Lee(KAERI), Seungyon Cho(NFRI)
- P07B20**     **Analysis of Simplified Hydrogen and Dust Explosion in the Vacuum Vessel Accident Using MELCOR Code**  
Soo Min Lim, Sung Bo Moon, and In Cheol Bang(UNIST)
- P07B21**     **Contamination Analysis on the Outer Vessel of the KSTAR Using MCNP Simulation and Measuring the Neutron Flux with Ni Specimen**  
Dae-Sun Son, San Chae, Jae-Yong Lee, Min-Young Lee, and Yong-Soo Kim(HYU)
- P07B22**     **Development Status of the Helium Circulator for the HCS of HCCR-TBS**  
Eo Hwak Lee, Hyung Gon Jin, Jae-Sung Yoon, Suk-Kwon Kim, and Dong Won Lee(KAERI),  
Si-Woo Lee(JM Co., Ltd.), Seungyon Cho(NFRI)
- P07B23**     **GAMMA-FR and MELCOR Validation Using HCS Heat Exchanger Break Accident**  
Hyung Gon Jin and Yunjeong Hong(KAERI), Seungyon Cho(NFRI)
- P07B24**     **Phase Change of First Wall in Water-Cooled Breeding Blankets of K-DEMO for Vertical Displacement Events**  
Geon-Woo Kim, Jeong-Hun Lee, Hyoung-Kyu Cho, and Goon-Cherl Park(SNU), Kihak Im(NFRI)
- P07B25**     **Development of Vector Following Mesh Generator (VEGA); Improvement to Adapting General Magnetic Flux Configuration**  
Jae-Gon Lee, Young-Jin Kim, Jin-Woo Park, Min-Gu Yoo, Dong-Hyun Na, and Yong-Su Na(SNU)
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- P07B26**    **Self-Passivating Bulk W-Based Alloys as Plasma Facing Material**  
Seung Su Kim and Ho Jin Ryu(KAIST)
- P07B27**    **Design and RF Test Result of High Power Hybrid Combiner for Helicon Wave Current Drive in KSTAR Plasmas**  
Su Yeon Park, Hae Jin Kim, Hyun ho Wi, Son Jong Wang, and Jong Gu Kwak(NFRI)
- P07B28**    **Status of Design and Manufacturing of ITER 1st Batch Assembly Tools**  
Jinho Bae, Kyounggo Nam, Sikun Chung, and Min-su Ha(NFRI), Geun-hong Kim(ITER)
- P07B29**    **Neutron Diagnostics Using Compton Suppression Gamma-ray Spectrometer**  
C. S. Kim, M. S. Chenon, and S. Cho(NFRI), S. P. Hong and B. S. Kang(KYU)
- P07B30**    **Preliminary Study on Accelerator Based D-D Neutron Generator with Hydrocarbon Liquid Target**  
Jeong-Jeung Dang, Kyoung-Jae Chung, and Yong-Seok Hwang(SNU)
- P07B31**    **Fabrication of Applicator System of Miniature X-ray Tube Based on Carbon Nanotubes for a Skin Cancer Therapy**  
Han Beom Park, Hyun Jin Kim, Ju Hyuk Lee, Jun Mok Ha, and Sung Oh Cho(KAIST)

## 8A

5. 12 (목)

## 정비1 (Maintenance1)

I 좌장 정성규(Sunggyu Jung), 박인식(In Sik Park)

I 발표장소 303B

## 초청발표

- 09:30 **Aging Management Strategy and Requirements of Pressurized Water Reactor Internal Components**  
Jun Seog Yang, Sung Jin Oh, Se Yol Won, and Sun Mi Jeong(KHNP CRI)
- 10:00 **Effects of Blast Wave to Main Steam Piping under High Energy Line Break Conditions by TNT Model**  
Seung Hyun Kim, Eung-Seok Lee, and Yoon-Suk Chang(KHU)
- 10:20 **Design Features of a Spent Fuel Transfer Device between Spent Fuel Storage Pools in NPPs**  
Il Seon Hwang, Kwang Jeok Ko, Min Gyu Kim, Yeon Ho Cho, and Hyun Min Kim(KEPCO E&C)
- 10:40 **Coffee Break**
- 11:00 **Seismic Capacity Estimation of Steel Piping Elbow under Low-cycle Fatigue Loading**  
Bub Gyu Jeon, Sung Wan Kim, Hyoung Suk Choi, and Nam Sik Kim(PNU), Dae Gi Hahm(KAERI)
- 11:20 **A Study of System Pressure Transients Generated by Isolation Valve Open/Closure in Orifice Manifold**  
Min Kim(KEPCO E&C), Sangwook Bae, Jeongin Kim, and Seonjoung Kim(KHNP)
- 11:40 **Heat Transfer Properties for RMI(Reflective Metal Insulation) Thin Plate Designs**  
Sungmyung Lee, Kyewhan Jang, and wonseok Kim(BHI Co., Ltd)
- 12:00 **Sensitivity Analysis on Elbow Piping Components in Seismically Isolated NPP under Seismic Loading**  
Heekun Ju, Daegi Hahm, and Min Kyu Kim(KAERI), Bub Gyu Jeon and Nam Sik Kim(PNU)

## 8B

5. 12 (목)

## 정비2 (Maintenance2)

I 좌장 조홍석(Hong Seok Cho), 박진호(Jinho Park)

I 발표장소 400

## 초청발표

- 09:30 **Improvement of Integrated NSSS Integrity Monitoring System**  
Jin-Ho Park and Doo-Byung Yoon(KAERI)
- 10:00 **Applicability of Alignment and Combination Rules to Burst Pressure Prediction of Multiple-flawed Steam Generator Tube**  
Myeong-Woo Lee, Ji-Seok Kim, and Yun-Jae Kim(KU), Jun-Young Jeon(DOOSAN), Dong-Min Lee(KEPCO KPS)
- 10:20 **Autonomous Monitoring Aerial Robot System for Nuclear Power Plants**  
Ji H. Kim, Beom W. Gu, Van X. Thai, and Chun T. Rim(KAIST)
- 10:40 **Coffee Break**
- 11:00 **New Approach to Enhance an Effect of Condition Monitoring of Mid/Small Size Rotating Equipment in Nuclear Power Plant**  
You-Soo Shin and Hee-Seung Chang(KHNP)
- 11:20 **Development of Preemptive Repair Technology for Alloy 600 J-Groove Welds of Reactor Vessel Upper Head CEDM Nozzles**  
Kwang Woon Jung, Jang Wook Lee, Ki Hyun Cho, Kwang Min Choi, Dong Chul Choi, Sang Beum Cho, and Hong Seok Cho(KEPCO KPS)

- 11:40 **Development Methodology of a P-Number Equivalent Table of Unassigned Materials for Nuclear Power Plants**  
Hong Seok Cho, Jang Wook Lee, and Kwang Woon Jung(KEPCO KPS), Sang Woo Song and Sang Hoon Lee(KIMS), Myoung Sung Sohn(KEA)
- 12:00 **Application of Ultrasonic NDT Technique for Butt Fusion Joints of Plastic Pipes**  
Taegyung Kim, Hyungtaik Lim, Jeongguen Choi, and Jaemyung Lee(ANSCO)

## 8C 5. 13 (금)

### 건설/내진 (Construction/Seismic)

| 좌장 김윤구(Yoon Gu Kim), 백용락(Yong Lak Paek)

| 발표장소 400

#### 초청발표

- 09:30 **A Study for EVMS Application to NPP Construction Project**  
MyungSub Roh and JeongKeun Kwak(KINGS)
- 10:00 **Identifying Issues in Applying Integrated Project Delivery to Domestic Nuclear Power Plant Construction Projects**  
Young Joo Kim(KNS)
- 10:20 **Flaw Detection using Electromagnetic Acoustic Resonance for a Tube of NPP**  
Dong Min Lee, Yong Kwon Kim, and Sang Hoon Choi(KEPCO KPS)
- 10:40 **Coffee Break**
- 11:00 **Criticality Analysis of SFP Region I under Dry Air Condition**  
Kiyoung Kim and Minchul Kim(KHNP CRI)
- 11:20 **Shear Performance Evaluation for Lead Rubber Bearings by Accelerated Aging Test**  
Junhee Park, Young-Sun Choun, and Min Kyu Kim(KAERI)
- 11:40 **State of the Art in Input Ground Motions for Seismic Fragility and Risk Assessment**  
Jung Han Kim, In-Kil Choi, and Min Kyu Kim(KAERI)
- 12:00 **Application of GTN Model to TWC Pipe Test**  
Young-Ryun Oh, Hyun-Suk Nam, and Yun-Jae Kim(KU)
- 12:20 **Ductile Fracture Simulation of SA508 Gr. 1a under LCF Loading Condition**  
Hyun Suk Nam and Yun Jae Kim(KU), Jin Weon Kim(CSU)

## 8D 5. 13 (금)

### 구조/내진 (Structure/Seismic)

| 좌장 이진우(Jinwoo Lee), 김민규(Min Kyu Kim)

| 발표장소 400

#### 초청발표

- 14:00 **Introduction of Integrity Evaluation Criteria Developing During and After Fire for Nuclear Power Plant Buildings**  
Jinwoo Lee(KEPCO E&C)
- 14:30 **Prediction of Typhoon Wind Speeds under Global Warming Conditions**  
Young-Sun Choun and Min-Kyu Kim(KAERI), Ju-Whan Kang and Yang-Seon Kim(MNU)
- 14:50 **A Study on Residual Stress of U-Bending Heat Transfer Tube using Rotary Draw Bending Processing**  
Ok-gyu Kwak, Kye-hwan Jang, and Won-seok Kim(BHI Co., Ltd), Tae-wan Ku(PNU)
- 15:10 **Coffee Break**
- 15:30 **Probabilistic Assessment Method of Turbojet Engine Impact on an Interim Dry Storage Facility**  
Belal Almomani and Hyun Gook Kang(KAIST), Sanghoon Lee(KMU)
- 15:50 **Coupon Test of an Elbow Component by Using Vision-based Measurement System**  
Sung Wan Kim, Bub Gyu Jeon, Hyoung Suk Choi, and Nam Sik Kim(PNU)

16:10

**Analytical Model of Coil Spring Damper Based on the Loading Test**

Sunggook Cho and Woong-ki Park(INNOSE TECH), Osamu FURUYA(Tokyo Denki Univ.)  
Hiroshi KURABAYASHI(Vibro-System)

**8E**

**5. 12(목)  
-13(금)**

**화학,정비&내진 (Chemistry, Maintenance & Seismic) – POSTER**

**| 좌장** 성기방(Ki Bang Sung), 주광호(Kwangho Joo)

**| 발표장소** 3층 로비

**| 게시시간** 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

**| 저자 발표시간** 5월 12일(목) 13:00 ~ 15:00

- P08E01 Basic Study on Data-Centric Design Information Integration System Framework Development for Adapting Nuclear Power Plant Construction in Korea**  
Byung-Ki Lim(KHNP CRI)
- P08E02 Status of Kijang Research Reactor Project**  
Jee. Y. Kim, T.H. Kwon, Jun. Y. Kim, and K.B. Oh(KAERI)
- P08E03 A Plan to Optimize the Management of Weld ID SSN Numbering System for Nuclear Power Plants in Korea**  
Hyun-Ju Yoo, Chan-Hee Cho, and Chan-Hee Kim(KHNP CRI), Dong-Min Park(ANSCO)
- P08E04 Predicted Tube Wear Due to Foreign Objects on the Flow Distribution Baffle in the Secondary Side of Steam Generator**  
Hyung Nam Kim(KHNP CRI), Kuk Hee Lee(KHNP)
- P08E05 Status of Functional Qualification System for Nuclear Valve Assembly in KIMM**  
J.H KIM, T.J PARK, and Y.J KIM(KIMM)
- P08E06 Dynamic Behaviors of Main Steam Piping under High Energy Line Break Conditions**  
Eung-Seok Lee, Seung Hyun Kim, and Yoon-Suk Chang(KHU)
- P08E07 Experimental Study of Condensation Heat Transfer on Titanium Tube with Super-hydrophobic Surface**  
Dae-Yun Ji, Hyun-Gyu Park, and Kwon-Yeong Lee(HGU)
- P08E08 Flow Accelerated Corrosion: Effect of Water Chemistry and Database Construction**  
Eun-Hee Lee, Kyung-Mo Kim, Gyeong-Geun Lee, and Dong-Jin Kim(KAERI)
- P08E09 Stress Corrosion Cracking of Ni-base Alloys in Sulfur Containing Solutions at 340°C**  
Eun-Hee Lee, Seong-Sik Hwang, Dong-Jin Kim, and Sung-Woo Kim(KAERI)
- P08E10 Prediction of Support Reaction Forces of ITA Via Response Spectrum Analysis**  
Jinsung Kwak, Joonho Jeong, Sangjin Lee, Jinho Oh, and Jongmin Lee(KAERI)
- P08E11 Parametric Study on Ultimate Failure Criteria of Elbow Piping Components in Seismically Isolated NPP**  
Daegi Hahm and Min Kyu Kim(KAERI), Bub Gyu Jeon and Nam Sik Kim(PNU)
- P08E12 Safety Evaluation of an Aircraft Crash on the Containment Building**  
JaeMin Sim, SeungHyun Kim, and Yoon-Suk Chang(KHU)
- P08E13 Parametric Study on Floor Response Spectra of Nuclear Structure Subjected to Aircraft Impact**  
Sang Shup Shin, Daegi Hahm, and Min Kyu Kim(KAERI)



## 제9분과

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

## 9A

5. 12 (목)

### 원자력보안 (Nuclear Security Policy)

| 좌장 이나영(Na Young Lee), 황용수(Yong Soo Hwang)

| 발표장소 402A

#### 초청발표

- 09:00 The Proliferation Resistance of a Nuclear Fuel Cycle Using Fuel Recovered from the Electrolytic Reduction of Pressurized Water Reactor Spent Fuel  
Jungmin Kang, Thomas Cochran, and Matthew McKinzie(NRDC)
- 09:30 Current Status of Yongbyon Nuclear Complex  
Yongsoo Hwang(KINAC)
- 10:00 Import/Export Control for ITT in KAERI  
Sung Ho Lee, In Cheol Kim, Hyun Jo Kim, Hyun Sook Kim, and Mun Ja Kim(KAERI)
- 10:20 Calculation of MUF for the Pyro-processing Facility  
Yon Hong JEONG, Jae-Jun Han, Sunyoung Chang, and Yongsoo Hwang(KINAC)
- 10:40 Coffee Break
- 11:00 Verification of a Fissile Material Cut-off Treaty (FMCT): The Potential Role of the IAEA  
Jinho Chung(KINAC)
- 11:20 KINAC/INSA International Training Activities and Lessons Learned  
Hyun-Chul KIM(KINAC)
- 11:40 A Study on the Improvement of Nuclear Forensics Legal Regime in Korea  
Jung-Hyun LEE, Ye Ji Baek, Jae Kwang Kim, Sunyoung Chang, and Yongsoo Hwang(KINAC)

## 9B

5. 13 (금)

### 원자력 및 에너지 정책 (Nuclear and Energy Policy)

| 좌장 김균태(Kyun Tae Kim), 노승국(Seungkook Roh)

| 발표장소 402A

#### 초청발표

- 09:00 Regulation Plans on Severe Accidents Developed by KINS Severe Accident Regulation Preparation TFT  
Kyun-Tae Kim, Ku Young Chung, and Hanbee Na(KINS)
- 09:30 Nuclear Power Policy Direction Depending on Condition Changes  
Dong Seok Roh(KEEI)
- 10:00 Comparative Study of National Nuclear HRD Policy between Korea and Japan  
Junyung Kim, Mincheol Park, Youngjune Kim, and Incheol Moon(KONICOF)
- 10:20 Nuclear Safety Culture Assessment for a Newcomer Country: Case Study of Jordan  
Khalid Khasawneh(KAIST), Yun Woon Park(BEES, Inc)
- 10:40 Coffee Break
- 11:00 Analyzing the Differences between Seoul Versus Other Regions in Response to Nuclear Power Information  
Seungkook Roh(KAERI), Chulmin Kim(KAIST)
- 11:20 Consolidation and Decomposition of APR1400 NRC Design Certification Processes for Collaborative and Accelerated Processing  
Young-Chul Cho(FNC Tech.), Deog-Ji Kang(KHNP CRI)

- 11:40 **Conceptual Framework of Energy Security Assessment in Korea**  
Kee-Hwan Moon, Whan-Sam Chung, and Seung-Su Kim(KAERI)
- 12:00 **External Cost Assessment of Nuclear Power Plant Accident Considering Public Risk Aversion Behavior: the Korean Case**  
Sang Hun Lee and Hyun Gook Kang(KAIST)

## 9C 5. 13 (금)

### 원자력 정책 및 R&D (Nuclear Policy and R&D)

| 좌장 조승호(Seongho Cho), 정환삼(Whan-sam Chung)

| 발표장소 402A

#### 초청발표

- 14:00 **An Application of Nuclear Technology in Extreme Environment: Space**  
Gi Hyuk Choi(KARI), Kwang Jae Son and Whan-sam Chung(KAERI)
- 14:30 **Economic Performance Analysis of National R&D Projects**  
Seung-su KIM, Sung-won YUN, and Soo-eun KIM(KAERI)
- 14:50 **A New Regulation Policy for Accounting and Control of Nuclear Material**  
Kim Kihyun, Kim Min Su, and Ahn Seung Ho(KINAC)
- 15:10 **Coffee Break**
- 15:30 **Modeling the Multinationality and Other Socio-Political Aspects of the Nuclear Fuel Cycle**  
Viet Phuong Nguyen and Man-Sung Yim(KAIST)
- 15:50 **Conceptual Design of Simulated Radiation Detector for Nuclear Forensics Exercises Purposes**  
Jae Kwang Kim, Ye Ji Baek, and Seung Min Lee(KINAC)
- 16:10 **Domestic Politics and Nuclear Proliferation Risk**  
Chul Min Kim and Man-Sung Yim(KAIST)

## 9D 5. 12 (목) - 13 (금)

### 원자력 에너지 개발 (Nuclear Energy Development) – POSTER

| 좌장 박민철(Min Cheol Park), 정익(Ik Jeong)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P09D01 **Communication Analysis and Strategy for Nuclear from a University Student's Point of View**  
Minji Park(Ewha Univ.)
- P09D02 **Overview of the IAEA Joint Convention and Implementation Status of the Obligation as the Contracting Party of the 5<sup>th</sup> Joint Convention**  
Jeongken LEE, Youn Keun LEE, and Sangmyeon AHN(KINS)
- P09D03 **Analysis of Trends in Cooperative Network Patterns for KAERI Researchers**  
Young Choon Chun(KAERI), Hyun Soo Lee(Hannam Univ.)
- P09D04 **An Analysis of the Current Status of Media Reports About the Social Acceptance of Nuclear Industry**  
Ho-Yeon Lee and Jae-Young Lee(HGU), Wons-Seok Park(KAERI)
- P09D05 **Review of NRC Commission Papers on Regulatory Basis for Licensing and Regulating Reprocessing Facilities**  
Jaeyeong Park and HyeongKi Shin(KINS)
- P09D06 **Priorities for Addressing Severe Accident and L3PSA in Radiation Environmental Report**  
Misuk Jang, Hyunsik Kang, and Seoung Rae Kim(NESS), Yanghee Yang and Yongil Yoon(KHNP CRI)

- P09D07 **A Study of KHNP Nuclear Power Plant Technology Level Evaluation**  
Seunghan Yang, Sung-Jin Lee, and Yo-Han Kim(KHNP CRI)
- P09D08 **Survey of Regulations Applicable to the Finned Containment in Korean Nuclear Power Plant for Light Water Reactor**  
Hyung Gyun Noh(POSTECH), Hie Chan Kang(KNU)

## 9E

5. 12 (목)  
- 13 (금)

### 원자력보안 (Nuclear Security and Safe Guard) – POSTER

| 좌장 이태준(Tae Joon Lee), 신동훈(Dong Hoon Shin)

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P09E01 **A Development of Group Decision Support System for the Strategic Item Classification Using Analytic Hierarchy Process**  
Sung-ho Yoon, Jae-woong Tae, Seung-hyo Yang, and Dong-hoon Shin(KINAC)
- P09E02 **An Introduction to the Nuclear Document Crawling System**  
Jae-woong Tae, Sung-ho Yoon, and Dong-hoon Shin(KINAC)
- P09E03 **Consideration on Preventive and Protective Measures Against Insider Threats at R.O.K. Nuclear Facilities**  
Seungmin Lee, Jungho Lee, and Moonsung Koh(KINAC)
- P09E04 **Implementation Status of the Additional Protocol at KAERI**  
Byung-Doo Lee, Seung-Ho Lee, Ju-Ang Jung, Hyun-Jo Kim, Hyun-Sook Kim, and In-Chul Kim(KAERI)
- P09E05 **IAEA Nuclear Security Assessment Methodologies (NUSAM) Project for Regulated Facilities**  
Sung Soon Jang(KINAC)
- P09E06 **DPRK's 4th Nuclear Test and Tritium Production**  
Minsoo Kim, Sangjoon Lee, and Sunyoung Chang(KINAC)
- P09E07 **Analysis on Approach of Safeguards Implementation at Research Reactor Handling Item Count and Bulk Material**  
Hyun-Jo Kim, Sung-Ho Lee, Byung-Doo Lee, and Juang Jung(KAERI)
- P09E08 **Management of Small Quantity of Nuclear Material at Locations Outside Facilities in Korea**  
Seung Sik Park and Ki Hyun Kim(KINAC)
- P09E09 **X-Ray CBT Program for Physical Protection Training of Nuclear Security Guards**  
Hyun-Kyung Lee and Hyun-Chul Kim(KINAC)

## 제10분과

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

10A

5. 12 (목)

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

| 좌장 이철권(Cheol Kwon Lee), 이승준(Seung Jun Lee)

| 발표장소 402B

### 초청발표

- 09:00 The Method of System Test using I/O Stimulator  
Jang-Yeol Kim, Dong-Young Lee, and Chang-Hoi Kim(KAERI)
- 09:30 Development of Safety Grade Control Platforms for Safety I&C System against Common Cause Failures  
Jong Gyun Choi and Chang Hoi Kim(KAERI)
- 10:00 Current Status of the Cyber Threat Assessment for Nuclear Facilities  
Hyundoo Kim(KINAC)
- 10:20 An Approach to Identify the Risk Induced by Cyber-Attack on the Non-safety NPP I&C System  
Hee Eun Kim and Hyun Gook Kang(KAIST), Jonghyun Kim(CSU), Han Sung Son(JBU)
- 10:40 Coffee Break
- 11:00 An Analysis of Cyber-Attack on NPP Considering Physical Impact  
In Hyo Lee and Hyun Gook Kang(KAIST), Han Seong Son(JBU)
- 11:20 Suggestion of a Frmework to Analyze Failure Modes and Effect of Cyber Attacks in NPP  
Chanyoung Lee and Poong Hyun Seong(KAIST)
- 11:40 Comparison of Unsafe Acts Identified from Simulator Training Record Analysis under ISLOCA and MLSB+SGTR Scenarios  
Sun Yeong Choi, Yochan Kim, Jinkyun Park, Seunghwan Kim, and Wondea Jung(KAERI)
- 12:00 Reliability Improved Design for a Safety System Channel  
Eung Se Oh and Yun Goo Kim(KHNP CRI)

10B

5. 13 (금)

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

| 좌장 김종현(Jonghyun Kim), 정연섭(Yeonsub Jung)

| 발표장소 402B

### 초청발표

- 09:00 Groundbreaking Safety Enhancement Based on Digital I&C Technology  
Sung Min Shin, Bo Gyung Kim, and Hyun Gook Kang(KAIST)
- 09:30 How to Maintain Computerized Procedure System in the Same Version  
Yeonsub Jung(KHNP CRI)
- 10:00 Improved Design of Crew Operation in Computerized Procedure System of APR1400  
Nokyu Seong, Yeonsub Jung, and Chanho Sung(KHNP CRI)
- 10:20 Effect of Procedure Types and Operator's Experience on Human Performances  
Jooyoung Park and Jonghyun Kim(CSU),  
Wondae Jung, Jinkyun Park, Sunyoung Choi, Yochan Kim, and Inseok Jang(KAERI)
- 10:40 Coffee Break
- 11:00 Derivation of Main Drivers Affecting the Possibility of Human Errors during Low Power and Shutdown Operation  
Ar Ryum Kim and Poong Hyun Seong(KAIST), Jinkyun Park and Jaewhan Kim(KAERI)

- 11:20 Development of an Evaluation Method for Team Safety Culture Competencies Using Social Network Analysis  
Sang Min Han, Ar Ryum Kim, and Poong Hyun Seong(KAIST)
- 11:40 Development of Nuclear Safety Culture Continuous Improvement System  
Hyo Chan Park, Heung Gyu Park, Youn Won Park, and Jin Young Park(BEES, Inc)
- 12:00 Case Study on Influence Factor Trend Analysis of the Accidents & Events of Nuclear Power Plants by Applying Nuclear Safety Culture Framework  
Jin Young Park, Youn Won Park, and Heung Gue Park(BEES, Inc)

## 10C

5. 13(금)

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

| 좌장 강현국(Hyun Gook Kang), 김장열(Jang-Yeol Kim)

| 발표장소 402B

- 13:30 Smart Sensing of the Aux. Feed-water Pump Performance in NPP Severe Accidents Using Advanced GMDH Method  
Young Gyu No and Poong Hyun Seong(KAIST)
- 13:50 Prediction of LOCA Break Size Using CFNN  
Geon Pil Choi, Kwae Hwan Yoo, Ju Hyun Back, Dong Yeong Kim, and Man Gyun Na(CSU)
- 14:10 Design Verification Enhancement of FPGA-based Plant Protection System Trip Logics for Nuclear Power Plant  
Ibrahim Ahmed and Heo Gyunyoung(KHU), Jaecheon Jung(KINGS)
- 14:30 MC/DC and Toggle Coverage Measurement Tool for FBD Program Simulation  
Eui-Sub Kim, Sejin Jung, Jaeyeob Kim, and Junbeom Yoo(Konkuk Univ.)

## 10D

5. 12(목)  
- 13(금)

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

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

| 발표장소 3층 로비

| 게시시간 5월 12일(목) 13:00 ~ 18:00 / 5월 13일(금) 09:00 ~ 17:00

| 저자 발표시간 5월 12일(목) 13:00 ~ 15:00

- P10D01 Studies of Effect Analysis of Electromagnetic Pulses (EMP) in Operating Nuclear Power Plants (NPP)  
Songhae Ye, Hosun Ryu, Minyi Kim, and Euijong Lee(KHNP CRI)
- P10D02 Module Testing Techniques for In-Core Protection System Software  
Soo-Hyun Jeong, Kwon-Ki Moon, Hyeong-Soon Yim, and Jae-Hee Yun(KEPCO E&C)
- P10D03 Safety Evaluation Approach with Security Controls for Safety I&C Systems on Nuclear Power Plants  
Dae Hee Kim, Sang Yong Jeong, Young Mi Kim, and Hyun Shin Park(KINS)  
Min Soo Lee and Tae Hyo Kim(Formal Works Inc)
- P10D04 A Framework for the Testing&Validation of the I&C System Based on a Simulator  
Young-Jun Lee, Kee-Choon Kwon, and Jang-Soo Lee(KAERI)
- P10D05 Implementation of Moderator Circulation Test Temperature Measurement System  
Yeong Muk Lim, Seok Boong Hong, Min Seok Kim, and Hwa Rim Choi(KAERI), Hyung Shin Kim(CNU)
- P10D06 An Open Source-based Approach to the Development of Research Reactor Simulator  
Sungmoon Joo, YongSuk Suh, and Cheol Park(KAERI)
- P10D07 A Study on Impact of Safety Culture on Safety Behavior: Moderating Effect of Prevention Focus  
Sun Chul Hwang, Su Jin Jung, and Young Sung Choi(KINS)
- P10D08 Electrostatic Analysis of Annular Holes Penetrated by Shorted-Cable  
Jaeyul Choo, Hyung Tae Kim, Hyun Shin Park, and Youngsik Cho(KINS)

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- P10D09**     **Design Methodology of Process Layout Considering Various Equipment Types for Large-scale Pyroprocessing Facility**  
Seungnam Yu, Jongkwang Lee, and Hyojik Lee(KAERI)
- P10D10**     **Framework for Grading of Cyber Security Check-List upon I&C Architecture**  
Jinsoo Shin and Gyunyoung Heo(KHU), Hanseong Son(JBU)
- P10D11**     **Development of Information Display System for Operator Support in Severe Accident**  
Kwang-Il Jeong and Joon-Ku Lee(KAERI)
- P10D12**     **Instrumentation and Control Systems for Sodium Thermal Hydraulic Experiment Loop for Finned-tube Sodium-to-Air Heat Exchanger (SELFA)**  
Byeong-Yeon Kim, Hyungmo Kim, Youngil Cho, Jong-Man Kim, Yung Joo Ko, Byeong Su Kang, Min-Hwan Jung, and Ji-Young Jeong(KAERI)



**A**  
5. 13 (금)

학생/청년 Competition Session

| 좌장 문상기(Sang Ki Moon), 김용희(Yong Hee Kim)

| 발표장소 303A

- 13:30 Experimental Investigation of Condensation with Bundle Geometry for the Passive Containment Cooling System  
Jinhoon Kang and Byongjo Yun(PNU), Dongwook Jerng(CAU)
- 13:50 Investigation of the Effective Thermal Conductivity in Containment Wall of OPR1000  
Hyung Gyun Noh(POSTECH), Jong Hwi Lee and Hie Chan Kang(KNU)
- 14:10 Performance Enhancement of Anisotropic Scattering Treatment in MOC Calculation by Angular Flux Storage  
Min Ryu and Han Gyu Joo(SNU)
- 14:30 Thermal-Hydraulic Effect of Pattern of Wire-wrap Spacer in 19-Pin Rod Bundle for SFR Fuel Assembly  
Yeong Shin Jeong and In Cheol Bang(UNIST), Seong Dae Park(KAERI)
- 14:50 Multiple Boundary Layer Stripping Model by Plateau-Rayleigh Instability for Fuel-Coolant Interactions  
Woo Hyun Jung, Kiyofumi Moriyama, and Hyun Sun Park(POSTECH)
- 15:10 Coffee Break
- 15:30 Analysis of Long-term Ex-vessel Debris Coolability with a Simple Model  
Byoungcheol Hwang, Kiyofumi Moriyama, and Hyun Sun Park(POSTECH)

**B**  
5. 13 (금)

학생/청년 Competition Session

| 좌장 차완식(Wan Sik Cha), 박정용(Jeong Yong Park)

| 발표장소 303B

- 13:30 Borate Glasses with High Lanthanide Oxides Solubility for the Cold Crucible Induction Melter(CCIM) Applications  
Miae Kim and Jong Heo(POSTECH)
- 13:50 Comparison of Probabilistic Fracture Mechanics Codes for PTS Transient Evaluation of PWR  
Tae Hyun Kim and Yoon-Suk Chang(KHU), Jong-Min Kim(KAERI)
- 14:10 Investigation of Flow Condition on the Oxidation of Zircaloy-4 in Air at 850 and 1100°C  
Yunhwan Maeng and Jaeyoung Lee(HGU), Sanggil Park(ACT Co., Ltd.)
- 14:30 Parametric Investigation of Nitriding and Re-Oxidation Behaviors of Pre-Oxidized Zry-4  
Sanggil Park(ACT Co., Ltd.)
- 14:50 Glass Waste Forms for Heat-Generating  $Cs^+$  and  $Sr^{2+}$  Wastes From Pyro-Processing  
Minsuk Seo and Jong Heo(POSTECH), Hwanseo Park(KAERI)
- 15:10 Coffee Break
- 15:30 Corrosion Behavior and Oxide Properties of Zr-Nb-Cu and Zr-Nb-Sn Alloy in High Dissolved Hydrogen Primary Water Chemistry  
Yun Ju Lee, Taeho Kim, and Ji Hyun Kim(UNIST)
- 15:50 Effect of B and N on Microstructure of Modified 9Cr-2W Steel During Aging and Creep  
Hyeong Min Heo and Jong Ryoul Kim(HYU), Sung Ho Kim(KAERI)

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**C**  
**5. 13 (금)**

**학생/청년 Competition Session**

| 좌장 박종국(Jong Kuk Park). 장호종(Ho Jong Chang)

| 발표장소 302

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- 13:30     **Evaluating New Digital Gamma-ray Spectrometer (DSPec50) System and Comparison between DSPec50 and Standard Nuclear Instrumentation Method (NIM) Systems**  
Geehyun Kim and Bao Viet Le(Sejong Univ.)
- 13:50     **Detection Optimization for Prompt Gamma Ray Imaging during Boron Neutron Capture Therapy (BNCT): A Monte Carlo Simulation Study**  
Moo-Sub Kim, Do-Kun Yoon, and Tae Suk Suh(Catholic Univ.)
- 14:10     **Bone-enhancing Microtomography for Preclinical Imaging**  
Seung Ho Kim and Ho Kyung Kim(PNU)
- 14:30     **Modeling of Detective Quantum Efficiency Considering Scatter-Reduction Devices**  
Jiwoong Park, Dong Woon Kim, and Ho Kyung Kim(PNU)
- 14:50     **Feasibility Study of Tumor Monitoring Technique using Prompt Gamma Rays during Antiproton Therapy**  
Han-Back Shin, Do-Kun Yoon, and Tae Suk Suh(Catholic Univ.)
- 15:10     **Coffee Break**
- 15:30     **Prompt Gamma Ray Imaging during Proton Boron Fusion Therapy: A Monte Carlo Study**  
Do-Kun Yoon, Han-Back Shin, and Tae Suk Suh(Catholic Univ.)
- 15:50      **$\Gamma$ -Ionizing Radiation Activated EGFR-p38/ERK-STAT3/CREB-1-EMT Pathway for Promotion of the Migration/Invasion of Lung Cancer Cell and Its Inhibition by Podophyllotoxin Acetate**  
Jeong Hyun Cho, Hong-Duck Um, and Jong Kuk Park(KIRAMS)
- 16:10     **Effects of Misalignments on Microtomography**  
Jae Hong Hwang, Jonghee Yun, and Ho Kyung Kim(PNU)

번호 | 일시 5월 13일(금) 13:00~17:00

| 발표장소 3층 삼다홀 A

- 1 **Macrophage Polarization Alters Metabolism and Radiation Sensitivity of Tumor**  
Hoibin Jeong, Chan-Ju Lee, Beom-Ju Hong, Dong-Young Park, Seoyoen Bok, and G-One Ahn(POSTECH)
- 2 **Development of EMMA's Magnets**  
SangHun Lee, Y. S. Kim, and J. H. Kim(DU)
- 3 **Development of a Probability-based Core Positioning Module for High-resolution PET Detectors**  
JaeHee Chun, Seungbin Bae, and Kisung Lee(KU)
- 4 **Optimum Conditions of Treatment Planning for Patients in Proton Scanning Irradiation**  
HyeJeong Yang, Seung Hoon Yoo, Sungho Cho, Yongkeun Song, Jae-ik Shin, Eun Ho Kim, Won-Gyun Jung, Se Byeong Lee, Dongho Shin, Kwan Hon Cho, Sung Yong Park, and Kitae Lee(DAU)
- 5 **Investigation of the Role of Hepatic Lactotransferrin in Inducing Fatty Liver in Hormone Disturbance Mouse Model**  
Ohjin Kwon and BuHyun Youn(PNU)
- 6 **Enhancement of FAC Resistance in Carbon Steels Using Cold-sprayed WC-Ni Coatings**  
Jeongwon Kim, Seunghyun Kim, and Ji Hyun Kim(UNIST)
- 7 **Assessment of Steam Generator Injection Strategy for Severe Accident Mitigation during Steam Generator Tube Rupture**  
WonJun Choi and Sung Joong Kim(HYU)
- 8 **Verification of Depletion Module in RAST-K 2.0 for Shin-Kori Unit-3**  
MinYong Park, Deok Jung Lee, Eun Ki Lee, and Hyun Chul Lee(UNIST)
- 9 **Effective and Fine Controlling for Doping Level of Polymer Nanowire through E-beam Irradiation in a Vacuum State**  
SeokHo Kim, Jin Ho Choi, Hyeong Tae Kim, and Dong Hyuk Park(Inha Univ.)
- 10 **Analyzing Change of Interior Radon Concentration by Construction Year and Building Materials**  
Areum Jeong, Jungmin Kim, and Seonhwa Lee(KU)
- 11 **Breakaway Oxidation Behavior of the Advanced Zirconium Alloy in Air and Oxygen**  
JuHyeong Lee, Kwang Heon Park, and Sung Woo Ha(KHU)
- 12 **Retired Steam Generator Tube Decontamination by Electrorefining Simulation**  
DaeGwon Eun, Pyeong-Hwa Kim, and Il-Soon Hwang(SNU)
- 13 **Study to Establish Diagnosis of Tinea Capitis by Phase Contrast Hard X-Ray Imaging**  
Jiyun Hong and Onseok Lee(GCU)
- 14 **Evaluation of Exposure Dose and Image Quality Using Automatic Exposure Control and Sensitivity in the Digital Chest Image**  
SeokHyeon Yoon and Kim Chang-soo(Catholic Univ.)
- 15 **Evaluation of Dose on Organs from Total Body Irradiation in Child's Leukemia Cases**  
NaHye Kwon and Jung-hoon Kim(Catholic Univ.)
- 16 **Evaluation of Possibility on Early Discharge for Thyroid Therapy Patients Waiting for Treatment**  
DaGyeong Lee and Dong-hyun Kim(Catholic Univ.)
- 17 **A Study of Evaluation of Dose on Target Organ and People Close to Implantation Recipient during Brachytherapy**  
ChanIn Bae and Kang Se-sik(Catholic Univ.)
- 18 **A Fracture Mechanics Study on Beltline Weld Region in a Reactor Pressure Vessel**  
YeRin Choi, Sang-Hwan Lee, and Yoon-Suk Chang(KHU)

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- 19     **The Usability Evaluation According to the Application of Bismuth Shields in PET/CT Examination**  
SungWook Hong, Jooyoung Lee, Ji-Hyun Kim, and Hoon-Hee Park(SGC)
  - 20     **The Patient Radiation Dose Evaluation of Cardiovascular Intervention and Development of Diagnostic Reference Levels**  
JounHyuk Lee and Jung-Su Kim(WHSU)
  - 21     **Optimization of Ray Tracing Module in Whole Core Transport Code nTRACER**  
NamJae Choi and Han-Gyu Joo(SNU)
  - 22     **The Study on Critical Heat Flux(CHF) Enhancemnet Using Heat Exchanger Surface Deposition Method of Carbon Nano Materials in Flow Fields**  
DaMin Shim(JNU)
  - 23     **Initial Comparison of Domestic and International Nuclear Regulations for the Physical Protection of Nuclear Facilities**  
SoHyun Park(Sejong Univ.)
  - 24     **A Study of Image Evaluation and Exposure Dose with the Application of Tube Voltage and ASIR of Low dose CT Using Chest Phantom**  
TaeJoon Moon, Ki Jeong Kim, and Hye Nam Lee(WHSU)
  - 25     **Dose Reduction with Adaptive Statistical Iterative Reconstruction in Brain CT**  
YoonJeong Kim and Lim Cheonghwan(HSU)
  - 26     **The Biomarker Excavation of Intracerebral Hemorrhage Animal Model for Evaluating Rehabilitation Therapy Effect**  
DaHye Byeon and Seung-Man Yu(GCU)
  - 27     **Research on Dose Reduction by BMI Index Different Protocol Applied in Low-dose Chest CT Examination**  
AhRam Cho and Hongryang Jung(HSU)
  - 28     **Development of 3D Radiological Scanner Based on Stereo-scopic Imaging Technology**  
SangMyung Lee and Youngjin Jung(DSU)
  - 29     **Development of Volume Fraction Measurement Conductance Sensor in Two Phase Flow Using Wire Electrode**  
SoHyeon Lee, Woo Yeon Won, Yeon Gun Lee, and Sin Kim(JNU)
  - 30     **Numerical Analysis of Transferred Arc Plasma for the Vitrification of Radioactive Wastes**  
JuYoung Ko, Sooncheol Kang, and Seungwan Lee(JNU)
  - 31     **Optimization of Image Quality and Dose Reduction in Dual-energy X-ray Mammography with an Energy-resolved Photon-counting Detector**  
JiSoo Eom, Sooncheol Kang, and Seungwan Lee(KYU)
  - 32     **Development of Nuclear Forensics Methodology Using Machine Learning**  
SangHwa Lee and Gyunyoung Heo(KHU)
  - 33     **A Study on Thermal Mixing and Stratification Inside the Nuclear Power Plant Containment Using a CFD Code**  
YuJin Heo and Dong-Wook Jerng(CAU)
  - 34     **Study on Radiation Imaging Technology Using Grating Interferometers**  
Jeongsun Jee and Seung Wook Lee(PNU)
  - 35     **A Simulation Study of Coded Aperture Gamma Camera for Coded Aperture Optimization**  
TaeJeong Kim(DSU)
  - 36     **A Study on Evaluation of Usefulness Depending on Algorithm in Bone SPECT Scan of  $^{99m}\text{Tc}$ -MDP**  
GuIn Kang, Woo-Hyun Kim, and Kyung-Rae Dong(GHU)
  - 37     **A Study on Exposure Dose Reduction and Image Evaluation Depending on Distance from Dental Periapical X-ray Machine**  
GaYoung Cho, Yong-Soon Park, and Kyung-Rae Dong(GHU)
  - 38     **A Study on Effects of Calcium Drug on Bone Mineral Density (BMD)**  
HyoJin Son, Eun-Mi Kim, Ho-Sung Kim, Il-Bong Moon, and Kyung-Rae Dong(GHU)
  - 39     **A Investigation on the Peoples Realization toward Food Irradiation**  
JeongPil Hwang, Chang-Bok Kim, and Kyung-Rae Dong(GHU)
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- 40 **A Study on the Variation of Maxillary Sinus Volume and Projection Angle in Children for CT Scan**  
SangGi Cho, Kyung-Rae Dong, and Youn-Sang Ji(GHU)
- 41 **Preliminary Performance Test of a Tesla Turbine for Potential S-CO<sub>2</sub> Cycle Application**  
HyeonTae Kim, Seungjoon Baik, and Jeong Ik Lee(KAIST)
- 42 **Performance Optimization of an Arc Plasma Electron Source**  
EuiChan Jung, JongYoon Park, K. H. Lee, Y. S. Kim, and Y. S. Hwang(SNU)
- 43 **Development of Electrical Liquid Film Sensor Based on Flexible Printed Circuit Board**  
HyunSuk Lee(SNU)
- 44 **Analysis of Enhanced Oxidation Resistance of Graphene Coated Fuel Cladding and Long-Term Storage Performance Evaluation : Graphene anoplatelet Preparation**  
HakJun Lee, Joon Hui Kim, Soon Hyung Hong, and Ho Jin Ryu(KAIST)
- 45 **A SiPM-based TOF-DOI PET Detector Module**  
YoungBeen Han and Seong Jong Hong(EJU)
- 46 **Multiphysics Supercomputing Analysis of Pyrochemical Electrorefining**  
DoKyu Kang and Sungyeol Choi(UNIST)
- 47 **Irradiation Characteristics of High Radiation-tolerant Stainless Steel for Cladding Material**  
HyunSu Do, Hyun-Myung Kim, and Dong-Chan Jang(KAIST)
- 48 **Development of Electrical Impedance Method for Void Fraction Measurement in the Simulated Subchannel for Plate Type Fuel of Research Reactor**  
ChanJong Park and Byong-jo Yun(PNU)
- 49 **Reduction of Dose to the Female Breast in Whole Spine X-ray**  
GiHo Lee(NBU)
- 50 **Study on the Motion of Electrons in Curved Magnetic Fields Using Langmuir Probes**  
Jonghyun Ryu, K. S. Chung, and Y.S. Hwang(SNU)
- 51 **Development of Automated Quantitative Analysis Method Evaluating Contrast Resolution and Spatial Resolution in Computed Tomography Quality Control Tests**  
DongSuk Kim, Ki Baek Lee, and Ho Chul Kim(EJU)
- 52 **Study on Design of Radiation Protective Device for Cephalometric Radiography System by Using Monte Carlo Simulation (MCNPX Code)**  
JaeWon Shin, Yoonjin OH, and Samyol Lee(DSU)
- 53 **Radioprotective Effects of Aronia of Radiation Irradiated Rats**  
HwanSik Mun and Junhaeng Lee(NBU)
- 54 **A Study on the Patient Exposed Dose by Additional Filter in Chest AP Examination**  
MinTae Kang, Kim Han-Sol, and Park Ji-Koon(IUK)
- 55 **Fast Ion Confinement and Slowing Down Model Considering Plasma Rotation**  
JeMin Seo, SangKyeun Kim, YoungHo Lee, DongHyeon Na, and Y.S. Na(SNU)
- 56 **Development of Image Processing Algorithm for Non-Destructive Testing of Radiation**  
JeongWon Yoon and Sangbock Lee(NBU)
- 57 **CFD Simulation for Heat Transfer Performance of Molten Salt Coolant in Various Core Geometries**  
ByeongKwan Kim and In Cheol Bang(UNIST)
- 58 **Evaluation of Transmutation Performance in ADSR for Different Reactor Size and Fuel Choice**  
MinJae Lee and Myung Hyun KIM(KHU)
- 59 **Experimental Study of Oxidation Effect on Dynamic Wetting Phenomena**  
TaeSeok Kim, Hong Hyun Son, and Sung Joong Kim(HYU)
- 60 **Thermodynamic Study of the Impurities in Molten LiCl-KCl Eutectic**  
JiHyoun Song, Jeonghyeon Lee, and Ji Hyun Kim(UNIST)
- 61 **Numerical Evaluation of Effect of SIT Injection Rate on Severe Accident Mitigation Using MELCOR Code**  
SungGil Shin, Wonjun Choi, Sung Joong Kim, and Gyoodong Jeun(HYU)
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- 62     **Heat Transfer and Temperature Field Measurement in Natural Convection of Water and Liquid Metal**  
SeongJi Lee and HyungdaeKim(KHU)
- 63     **Research for Experiment That Collecting Particulates Through Charging with Atmospheric Pressure Dielectric Barrier Discharge Plasmas**  
ChoHwan Oh and Gon-Ho Kim(SNU)
- 64     **Establishment of a Dosimetry Method Using Radiation Transport Computer Simulation and Considering Radiological Characteristics of CT Scanner**  
JiYoung Song, Il Park, O Hyun Kwon, and Kwang Pyo Kim(KHU)
- 65     **Analyzing Electric Field at Dielectric Barrier Discharge by Using He Intensity Ratio Method**  
JiSu Ha and Gon-Ho Kim(SNU)
- 66     **Effective Dose Scaling Factors to Consider Airborne Particulate Size Distribution for Inhalation Dose Assessment in NORM Industries**  
SeungWoo Ji, Cheol Kyu Choi, Yong Geon Kim, Tae Gwan Do, and Kwang Pyo Kim(KHU)
- 67     **Investigation on Theoretical Background and Detailed Analysis on Basic Approximations in Nuclear Engineering**  
YoungHo Chae(CAU)
- 68     **Sensitivity Test of Atomic Data Utilized in Li-BES Data Analysis Using Bayesian Inference**  
ChungSun Jeong(KAIST)
- 69     **A Study on Monitoring Radiation Zone (Nuclear Medicine Dept.) by Using Diacetylene Polymerization Dosimeters**  
YeoJin Yu and Dong-Gyoon Han(EJU)
- 70     **Analysis of the Domestic Specific Socio-Environment and Life Characteristic Factor for Improving Dosimetry System**  
SungMin Kim and Moosung Jae(HYU)
- 71     **CT Image Denoising by Use of Artificial Intelligence**  
HyunJu Lee and Seung Ryong Cho(KAIST)
- 72     **An Investigation on Eigenvalue Evolutions in Small Ultra-Long-Life Fast Reactors Having Heterogeneous Fuel Assemblies**  
GunHee Jung, WuSeung You, and Ser Gi Hong(KHU)
- 73     **Study of the Model for Swirl-vane Type Separators**  
MinGi Kim(PNU)
- 74     **Development of the on the Fly Doppler Broadening Module for Monte Carlo Code Simulation**  
Azamat Khassenov, Sooyoung Choi, Hyunsuk Lee, Zhang Peng, Zheng Youqi, and Deokjung Lee(UNIST)
- 75     **Validation of UNIST Monte Carlo Code MCS for Criticality Safety Analysis**  
JaeRim Jang, Jinsu Park, Wonkyeong Kim, Sanggeol Jeong, Deokjung Lee, and Kyoan-Ho Cha(UNIST)
- 76     **The Development of Phantom Used to Evaluate the Quality of CT Images With 3D Printing Technology**  
GunHee Lee, Ho-Young You, Hye-Jin Kim, and Youl-Hun Seung(CJU)
- 77     **Dosimetry in Proton Radiotherapy Using CR-39 SSNTD**  
MinKyung Lee, Jin-Ho Jung, and Sung-Hwan Kim(CJU)
- 78     **Design of a Neuro-fuzzy Controller for Axial Power Distribution in Nuclear Reactor**  
HanKyu Jo(CSU)
- 79     **Development of Signal Readout System of Shifted-type Multi-slit Camera for Proton Beam Range Verification**  
YoungMo Ku, Jong Hoon Park, Han Rim Lee, Sung Hun Kim, and Chan Hyeong Kim(HYU)
- 80     **Code Verification Study with Method of Manufactured Solution in 1D Heat Conduction**  
YongJu Jeong(PNU)
-

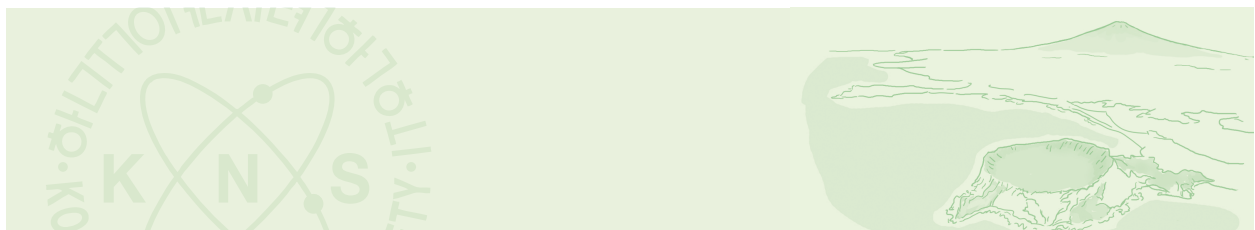


## 제2회 연구부회 / 지부 / 특별위원회 활동 및 계획 발표회

| 일시 2016년 5월 13일(금) 13:30 ~ 16:50

| 장소 300호 (3F)

시간계획	구 분	발표자
13:30 ~ 13:35	인사말	김용수 부회장(사회)
13:35 ~ 13:50	원자로물리 및 계산과학 연구부회	주한규 연구부회장
13:50 ~ 14:05	방사성폐기물관리 연구부회	김승평 연구부회장
14:05 ~ 14:20	양자공학 및 핵융합기술 연구부회	오영국 연구부회장
14:20 ~ 14:35	휴 식	
14:35 ~ 14:50	원전건설 및 운영기술 연구부회	정대울 연구부회장
14:50 ~ 15:05	원자력정책, 인력 및 협력 연구부회	김군태 연구부회장
15:05 ~ 15:20	원자력계측제어 및 자동원격 연구부회	나만균 연구부회장
15:20 ~ 15:35	휴 식	
15:35 ~ 15:50	부산/울산/경남 지부	정재준 지부장
15:50 ~ 16:05	학생지부	김성중 지도교수
16:05 ~ 16:20	여성회원 활성화 특별위원회	김은희 위원장
16:20 ~ 16:35	휴 식	
16:35 ~ 16:50	마무리	



교통편

신세계소앤서커스

중문관광로

중문관광로

중문관광로

이도도로

제주국제컨벤션센터

제주관광공사 면세점

제주부영호텔 & 리조트루비

제주부영호텔 & 리조트원양

제주부영호텔 & 리조트

제주 국제컨벤션센터

Tel. 064-735-1000

공항리무진 버스 (600번 제주공항 ↔ 중문관광단지)

운행표	공항 → 제주더호텔 → 여미지식물원입구 → 하얏트호텔 → 신라호텔 → 롯데호텔 → 한국콘도 → ICC JEJU
제주 국제공항 출발 (06:20 ~ 22:00)	1층 5번 게이트 왼쪽 리무진 버스 승차장 (삼영교통 600번)
ICC JEJU 출발	정문 국기계양대 20m지나 로터리 정류장에 정차 (600번 제주공항 ↔ 서귀포)
이용요금	공항에서 ICC JEJU까지 편도(성인) 3,900원 매 18~20분 간격 ICC JEJU까지 소요시간 50분

택시 (제주 공항 ↔ 중문)

승차지점	이용요금	소요시간
장거리 택시 승차장에서 출발	약 3만원 (거리 약 40km)	약 40~45분

승용차 (제주 공항 → ICC JEJU)

경로	소요시간	이용노선
1코스 (1135번 도로 평화로)	약 50분 소요	공항 → 신제주 → 제주경마장 → 평화로 → 중문관광단지 → ICC JEJU
2코스 (1139번 도로 1100도로)	약 45분 소요 (초행길, 눈길, 안개조심)	공항 → 신제주 → 한라수목원 → 신비의 도로 → 어리목 → 탐라대학교 → ICC JEJU
3코스 (1131번 도로 516도로)	약 1시간 10분 소요 (초행길, 눈길, 안개조심)	공항 → 삼성혈 → 제주대학교 → 성판악 → 돈내코유원지 → 16번도로 → 중문관광단지 → ICC JEJU

# NUTHOS-11

## 11<sup>th</sup> International Topical Meeting on Nuclear Thermal-Hydraulics, Operation and Safety

**October 9(Sun) - 13(Thur), 2016 HICO, Gyeongju, Korea**

### About the Symposium

In October 2016, the 11th International Topical Meeting on Nuclear Thermal Hydraulics, Operations and Safety (NUTHOS-11) will take place in Gyeongju, the millennial capital city of Sylla Dynasty of Korea (57 BC – 935 AD). Endowed with Korea's long history and traditional culture, Gyeongju boasts four UNESCO world heritages.

Thanks to the success of the previous conferences, NUTHOS now firmly stands in the international nuclear community as one of the major international nuclear conferences. The first NUTHOS was held in Taipei in 1984 followed by Tokyo (1986), Seoul(1988), Taipei (1994), Beijing (1997), Nara (2004), Seoul (2008), Shanghai (2010), Kaohsiung (2012), and Okinawa (2014).

We welcome you all to NUTHOS-11 and encourage you to bring your family and friends to sample the culture of Korea in the midst of splendor of Gyeongju.

### Preliminary Topics

1. Fundamentals of Thermal Hydraulics
2. Computational Thermal-Hydraulics
3. Experimental Thermal-Hydraulics
4. Multi-disciplinary Thermal-Hydraulics
5. Severe Accidents
6. Plant Operation and Maintenance
7. Plant Diagnostics and Monitoring
8. Advances in Measurements and Instrumentations
9. Thermal-Hydraulics and Safety of Advanced Reactors
10. Special Topic Sessions
11. Invited Panel Sessions
12. Tutorials

### Organizers

#### Honorary Chairs

- Prof. Jong H. Kim (KAIST, Korea)

#### General Chairs

- Prof. Moo Hwan Kim (POSTECH & KINS, Korea)

#### Technical Program Committee Chairs

- Dr. Chul-Hwa Song (KAERI, Korea)

#### Organizing Committee Chairs

- Prof. Hyun Sun Park (POSTECH, Korea)

### Important Dates

May 20, 2016	Submission of full-paper ( <i>Extended</i> )
July 15, 2016	Submission of final full-paper
August 31, 2016	Last day of pre-registration

### Sponsors

<b>KNS</b>	Korean Nuclear Society
<b>ANS</b>	American Nuclear Society
<b>KSFM</b>	Korean Society for Fluid Machinery
<b>AESJ</b>	Atomic Energy Society of Japan
<b>CNS</b>	Chinese Nuclear Society
<b>CNS</b>	Canadian Nuclear Society
<b>SNE</b>	Spanish Nuclear Society

*To be added*

### Website and further information

<http://www.nuthos-11.org/>  
(E-mail: [info@nuthos-11.org](mailto:info@nuthos-11.org))



# PSAM 13

## 제13차 국제 확률론적안전성평가 및 관리 학술회

2016년 10월 2일(일) - 7일(금) / 서울 쉼라톤그랜드 워커히

### 한국원자력학회 회원 여러분!

PSAM 학술회 (International Conferences on Probabilistic Safety Assessment and Management)는 확률론적안전성평가 (PSA) 분야에서 국제적으로 가장 권위를 인정받고 있는 학술회로 매 2년 마다, Home & Away 방식으로 미국 및 미국 이외의 국가에서 번갈아 개최됩니다. 이번 “제13차 국제 확률론적안전성평가 및 관리 학술회 (PSAM 13)”는 우리 학회 주관으로 2016년 10월 2일부터 7일 기간 중, 쉼라톤 그랜드 워커히에서 개최 될 예정입니다. 3월 31일자로 초록을 마감한 결과 40개국에서 500 여 편의 초록이 제출 완료되어, 확률론적안전성평가 (PSA) 전 분야에 걸친 다양한 발표와 토론이 예상 됩니다.

국내에서 처음 개최되는 확률론적안전성평가 (PSA) 분야 학술회인 만큼 한국원자력학회 회원님들의 많은 참여와 관심 부탁드립니다.

### 조직위원회

- 명예회장 정근모 (한국전력공사)
- 대회장 박창규 (포항공과대학교)
- 자문위원회 위원장 장순홍 (한동대학교)
- 기술위원회 위원장 제무성 (한양대학교)
- 조직위원회 위원장 양준언 (한국원자력연구원)

### 등록 안내

PSAM 13의 참여를 원하시는 회원님들께서는 선 등록 기간인 6월 30일 까지 대회 홈페이지 [www.psam13.org](http://www.psam13.org) 내 Registration 페이지를 통해 등록 및 등록비 납부를 완료하여 주시기 바랍니다. 등록 관련 문의 사항은 [reg@psam13.org](mailto:reg@psam13.org) 계정으로 연락하여 주시기 바랍니다.

등록 구분	선 등록 (~ 6월 30일)	일반 등록 (7월 1일 ~ 9월 15일)	현장 등록 (10월 2일 ~ 7일)
Full Registration	USD 945	USD 1,050	USD 1,250
Accompanying Person *		USD 450	
Student	USD 300	USD 400	USD 550
Single Day Pass	USD 300/day	USD 400/day	USD 500/day
Welcome Reception **	USD 50	USD 70	현장 판매 불가
Conference Dinner **	USD 100	USD 150	

\* Accompanying Person 등록비: 10월 3일 반일 & 10월 6일 전일 코스 관광 프로그램 포함

\*\* Welcome Reception & Conference Dinner 티켓 구매: Student & Day Pass 등록자에 한해 구매 가능하며, Full Registration & Accompanying Person 등록자는 등록비 포함 내역으로 별도 구매 필요 없음

주최



주관



사단법인 한국원자력학회  
KOREAN NUCLEAR SOCIETY



# APSORC 17

## 6<sup>th</sup> Asia-Pacific Symposium on Radiochemistry

September 17 ~ 22, 2017  
ICC Jeju, Jeju Island, Korea

**Abstract Submission Due: December 1, 2016**

### Welcome to *Jeju, Korea*

In September 2017, the 6<sup>th</sup> Asian-Pacific Symposium on Radiochemistry will take place in Jeju where is the largest volcanic island in Korea and a premier tourist destination boasting mild weather, as well as scenic beauties of Hallasan National Park. I hope that this sixth edition of conference will be the most successful APSORC yet and attendees enjoy both the scientific discussion on their achievement and the breathtaking views of Jeju including some registered as a UNESCO World Natural Heritage.

**Dr. Kwang Yong JEE**

Korea Atomic Energy Research Institute  
APSORC17 Organizing Committee Chair

Hosted by  **한국원자력학회**  
KOREAN NUCLEAR SOCIETY

Organized by

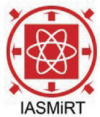
 **한국원자력연구원**  
KAERI Korea Atomic Energy Research Institute



**Contact for  
Secretariat Office**

**c/o The Plan Co.** 3F, JUNG E&C Bldg., 31-5 Seocho-daero 58-gil, Seocho-gu, Seoul, Korea  
T. +82-2-538-2042~3 F. +82-2-538-1540 E. info@apsorc2017.org [www.apsorc2017.org](http://www.apsorc2017.org)





# CALL FOR PAPERS

# SMiRT24

(Structural Mechanics in Reactor Technology)

**August 20~25, 2017 BEXCO/Centum Hotel, Busan, Korea**

**Hosted by KNS and KPVP**

(KNS : Korean Nuclear Society)

(KPVP : Korean Society of Pressure Vessels and Piping)



## Participation in SMiRT24

On behalf of SMiRT24 Conference (2017) Organizing Committee, we are pleased to invite you to participate in the program for SMiRT24.

Participation in SMiRT24 is open to all individuals or organizations interested in applying technology to structural mechanics goals and in learning about the application of technology to structural mechanics in reactor technology.

SMiRT24 Chairman, Goon-Cherl Park

## Abstract Submission

- ▶ **Abstract Submission Deadline : September 2, 2016**
- ▶ All abstracts must be submitted online. For instructions and submissions : [www.smirt24.org](http://www.smirt24.org)
- ▶ All abstracts must be written in English. Submissions must not be longer than 1 page ; minimum font is 10point, single-spaced, and abstracts may include figures, illustrations, and graphs.
- ▶ Acceptance (or rejection) will be sent via email only, and the accepted authors will be posted on the website by December 31, 2016
- ▶ Contact point : [kpvp@kpvp.org](mailto:kpvp@kpvp.org)

(Korea Tourism Organization supports this program.)



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BUSAN City Hall ([www.busan.go.kr](http://www.busan.go.kr))

## TOPIC

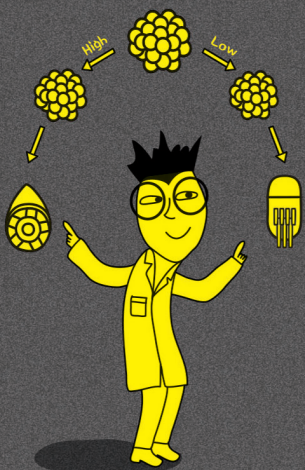
Following the Conference topics include but are not limited to :

1. Mechanics of Materials
2. Fracture Mechanics and Structural Integrity
3. Applied Computation, Simulation and Animation
4. Characterization of Loads
5. Modelling, Testing and Response Analysis of Structures, Systems and Components
6. Design and Construction Issues
7. Safety, Reliability, Risk and Margins
8. Issues Related to Operations, Inspection and Maintenance
9. Fuel Cycle Facilities, Waste management and Decommissioning
10. Challenges of New Reactors



# 우리는 원자력에 얼마나 알고 있을까?

그 해답을  
알기 쉽게 풀어준  
원자력에 대한  
모든 것!



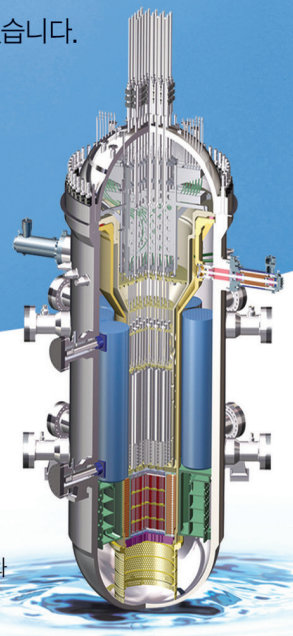
원자력상식사전 편찬위원회 저 | 한국원자력학회 감수 | 정가 16,000원





## SMART, 세계 소형 원전 시장을 선도하다

우리나라 토종 원자로 SMART가 사우디아라비아에 첫 발을 내디뎠습니다.  
이제 깜깜한 밤에도 환한 불빛을 밝히고 메마른 사막에서 맑은 물을 마실 수 있습니다.  
세계로 나아가는 SMART, 우리의 국가대표 소형 원자로입니다.



한국원자력연구원이 순수 국내 기술로 개발한 소형 원자로 SMART는 전기 생산과 해수담수화가 동시에 가능한 다목적 원자로이자, 주요 기기를 하나의 압력용기 안에 배치해 안전성을 획기적으로 높인 일체형 원자로입니다. 2015년 3월 우리나라는 사우디아라비아와 'SMART 파트너십을 위한 MOU'를 체결함으로써 SMART 원자로 수출길을 열었습니다.

# 2016년 춘계학술발표회 전체행사 일정표

5월 11일(수)										5월 12일(목)										5월 13일(금)									
등록 (12:30 ~ 17:30)										등록 (08:00 ~ 17:30)										등록 (08:00 ~ 16:30)									
09:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	09:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00		09:00 - 10:00	10:00 - 11:00	11:00 - 12:00	12:00 - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	
201A 2F	왕자토물리 연구회모임	[F] 평가 학자로 처리 및 이용 현황								[5A] 원자력영수책 및 안전 구두발표										[5F] 원자력영수책 및 안전 구두발표									201A 2F
201B 2F		[G] 원자력 소통의 진정성과 신뢰성 향상 방안								[5B] 원자력영수책 및 안전 구두발표										[5H] 원자력영수책 및 안전 구두발표									201B 2F
202A 2F		[D] APR1400원전 HCP 국산화 및 성능시험 기술개발 현황								[5C] 원자력영수책 및 안전 구두발표										[5I] 원자력영수책 및 안전 구두발표									202A 2F
202B 2F										[5D] 원자력영수책 및 안전 구두발표										[5J] 원자력영수책 및 안전 구두발표									202B 2F
203 2F		[A] 원전 사고관리 계획서 개발 워크숍								[1A] 원자로시스템기술 구두발표										[1C] 원자로시스템기술 구두발표									203 2F
산디홀A 3F		[J] 제5차 원자력수소 워크숍) 수소 경제/ 원자력수소 현황 및 전망								[6A] 방사선이용 및 방호 구두발표										[2C] 원자로물리 및 계산과학 구두발표									산디홀A 3F
산디홀B 3F		[K] PQSG(Printed Circuit Steam Generator)의 SFR 적용 연구								[2A] 원자로물리 및 계산과학 구두발표										[2B] 원자로물리 및 계산과학 구두발표									산디홀B 3F
한리홀A 3F		제5차 원자력진흥중앙계획수립 공청회 및 토론회																											한리홀A 3F
한리홀B 3F																													한리홀B 3F
3층 로비																													3층 로비
300 3F										[3A] 방사선배기물관리 구두발표										[38] 방사선배기물관리 구두발표									300 3F
301 3F		[I] 사후 방사선평판기(Retrospective Dosimetry) 기술 현황 및 활용								[4A] 핵연료 및 원자력재료 구두발표										[4C] 핵연료 및 원자력재료 구두발표									301 3F
302 3F		[L] 방사화학의 오늘과 내일								[4B] 핵연료 및 원자력재료 구두발표										[4D] 핵연료 및 원자력재료 구두발표									302 3F
303A 3F										[7A] 방사선화학 및 핵융합기술 구두발표										[6B] 방사선이용 및 방호 구두발표									303A 3F
303B 3F										[9A] 원전건설 및 운영기술 구두발표																			303B 3F
304 3F	방사선배기물 연구회모임																												304 3F
400 4F		[M] 원자력과 에너지 정책 그리고 여성								[8B] 원전건설 및 운영기술 구두발표										[8C] 원전건설 및 운영기술 구두발표									400 4F
401A 4F		[H] 중대사고 발생규명 및 대처체계 구축 로드맵 특별위원회 보고회								[5E] 원자력영수책 및 안전 구두발표										[5G] 원자력영수책 및 안전 구두발표									401A 4F
401B 4F										[1B] 원자로시스템기술 구두발표										[1D] 원자로시스템기술 구두발표									401B 4F
402A 4F		[C] 중이온가속기 개발 현황 및 기술 교류 워크숍								[9A] 원자력정책, 인력 및 협력 구두발표										[9B] 원자력정책, 인력 및 협력 구두발표									402A 4F
402B 4F	계측자 연구회모임	[E] 원자력 사이버보안기술 개발 및 적용현황								[10A] 원자력계측제어 및 자동화기술 구두발표										[10B] 원자력계측제어 및 자동화기술 구두발표									402B 4F
탈라홀B+C 5F																													탈라홀B+C 5F
오산부 5F										참가자 중식																			오산부 5F

개회  
행사

개회식 및 특별강연

포스터논문 게시 및 발표  
[저자 발표시간: 13:00 ~ 15:00]

제2회 연구박회/자비/특별위원회  
활동 및 계획 발표회

[SC] 학생/장년  
Competition Session

[SA] 학생/장년  
Competition Session

[SB] 학생/장년  
Competition Session

전국 원자력진흥포럼(부장  
협의회)

[8D] 원전건설 및 운영기술  
구두발표

[6C] 방사선이용 및 방호  
구두발표

[9C] 원자력정책  
인력 및 협력 구두발표

[10C] 방사선계측제어  
및 자동화기술 구두발표

참가자  
중식

인전  
특별강연

제4차  
왕의원회



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## KNS 2016 Spring 춘계학술발표회

| 발행인 | 성풍현

| 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](mailto:kns@kns.org)

| 인쇄처 | 신진기획인쇄사 Tel: (042) 638-7887

[www.kns.org](http://www.kns.org)



사단  
법인

**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](mailto:kns@kns.org)