



논문개요집

ISSN 2233-9485(Print)
ISSN 2233-9574(Online)

2023년 한국자기학회 하계학술대회

2023 KMS Summer Conference

프로그램북



일시 2023. 5. 24(수) ~ 26(금)

장소 제주 신화월드

주최 한국자기학회

후원

KO-FST
한국과학기술단체총연합회

JEJU CVB
제주컨벤션뷰로

KIMS 한국재료연구원

epu 파워유닛스마트제조센터

Digests of the 2023 KMS Summer Conference
The Korean Magnetics Society

연세대학교 '초임계 소재 산업기술거점센터'



센터장 이우영 교수

소재-부품 선도기술 개발을 위한 현장형 연구지원센터

연세대학교 '초임계 소재 산업기술거점센터(센터장 이우영 교수)'는 산업통상자원부에서 주관하는 사업으로 대학 연구소를 통한 미래 산업의 원천핵심기술 개발, 축적 및 산업계 기술 공급 체계를 마련하는 사업이다. 본 센터는 30여개의 기업체가 협력하여 소재합성과 공정개발, 소재설계, 부품화를 통한 응용 물성까지 확보 하는 완성형 연구를 추진하고 있다. '산업기술거점센터'는 글로벌 소재-부품 First Mover 도약을 비전으로 설정하였으며, 대학 연 계 소재-부품 R&D전략 다변화, 성과 창출을 위한 R&D기반 강화, 협력-축적-공유 기반 R&D생태계 구축의 3대 추진전략을 수립하였다.



산학협력 All-in-one 기능 제공

01

특화센터

기업체 필요기술연구
개발 요소 비용-시간 단축
상용화 공백 요소 최소화

02

지원센터

합성-분석-측정 기술 내제화
특허-표준화-인증 전담팀
중소기업 내

03

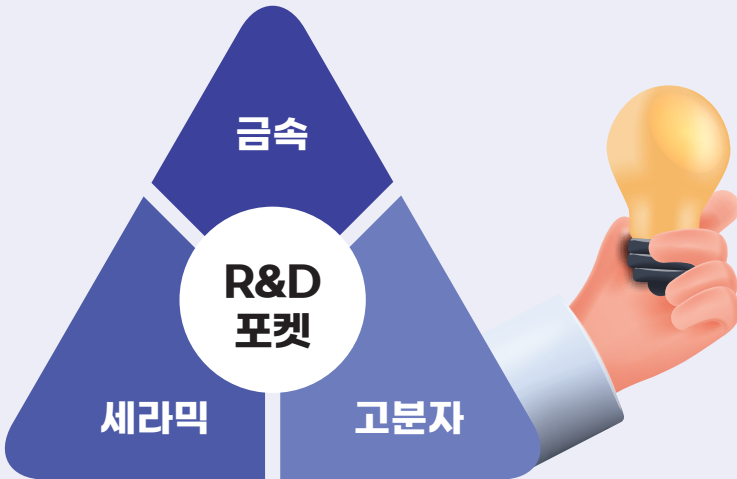
교육센터

전문인력양성
대학-기업 기술 격차 최소화
산업체 인력 기술 교육

04

중계센터

기술 Tree 확립
정보 Database 구축
기술 수요 매칭



난제 해결형 Task Force

- 연구개발 기술공유
- 해결 및 협력연구 추진

기업별 타켓형 산학연구 지원

- 기획 · 운영 전주기적 점검
- 지속적인 수요변화 대응
- AI 기반 맞춤형 솔루션 제공

기술이전



참여기업 우대

- 참여기업 우수기술 확보 권리 부여
- 공동위탁과제 산업체 선용 실시권 제공
- 양산을 위한 공정설비 공동개발



기술이전 안심 보장제도

- 기업의 기술도입비용 부담 최소화
- 상용화 시 기술료로 보상체제 전환
- 지속적인 기술보완 A/S 제공
- 추가 위탁과제 수행 통한 공동 개발

민간 R&D 수탁



상용화 기획

- 수요기업 섭외
- 운영 및 개발 경비 확보
- 중소 · 벤처기업 대상 지원 사업 추진
- 벤처캐피탈 통한 외부 투자 유치



브릿지기술 개발

- 기술 보완 단기 연구 활성화
- 임무 완수형 연구과제 개발
- 선연구 후지급 연구위탁 시스템 구축

지원 가능 분야 : 금속, 고분자, 세라믹 등 소재관련 | 연락처 : 02-2123-7872(거점센터 행정실)

사단법인 한국자기학회

2023년 한국자기학회 하계학술대회

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장소 제주 신화월드

주최 한국자기학회

후원 **KCFST** 한국과학기술단체총연합회 **JEJU CVB** 제주컨벤션뷰로 **KIMS** 한국재료연구원 **epu** 파워유닛스마트제조센터

“본 사업은 기획재정부의 복권기금 및 과학기술정보통신부의 과학기술진흥기금으로 추진되어 사회적 가치 실현과 국가 과학기술 발전에 기여합니다”



2023년 한국자기학회 하계학술대회 종합프로그램

5/24(수)	랜딩볼룸B	랜딩볼룸C			올레룸	우도룸
	참가자 등록 (13:00~)					
오후	Poster Session (14:00~17:00)	Tutorial Session1 모터 (15:00~16:00)			양자자성 심포지엄 (15:00~17:00)	구두발표1 KIURI 연구단 (14:00~16:50)
		Tutorial Session2 인공지능 (16:00~17:00)				구두발표2 연세대 거점센터 (17:00~18:00)
	Poster Discussion (17:00~18:00)					
5/25(목)	랜딩볼룸B	랜딩볼룸C	백록룸	영주룸	올레룸	우도룸
	참가자 등록 (08:30~)					
오전	스핀트로닉스 심포지엄 (09:00~11:30)	모터 심포지엄 경자성 & 연자성 & 전자기 에너지변환 (09:00~11:10)	구두발표3 'Low Dimensional Magnetics' (09:00~11:10)	콜로키움 (09:00~10:30)	양자자성 심포지엄 (09:00~11:30)	구두발표5 'Soft Magnetics' & 'Permanent Magnetics' (09:00~11:25)
				구두발표4 'Electro-Magnetic Energy Conversion' (10:40~11:25)		
키노트	Keynote 1,2(11:30~12:50) (랜딩볼룸C)					
점심	점심식사 (12:50~14:00)					
오후	자화동역학 심포지엄 (14:00~16:30)	모터 심포지엄 경자성 & 연자성 & 전자기 에너지변환 (14:00~16:50)	바이오&센서 심포지엄 (14:00~16:55)	저차원자성 심포지엄 (14:00~16:10)	자기이론 심포지엄 (14:00~16:50)	구두발표6 'Spintronics' & 'Magnetization Dynamics' (14:00~16:40)
총회강연	총회강연 1,2(17:00~18:00) (랜딩볼룸C)					
임시총회	임시총회 및 시상식(18:00~18:30) (랜딩볼룸C)					
만찬	만찬(18:30~) (랜딩볼룸A+B)					
5/26(금)	랜딩볼룸B	랜딩볼룸C	백록룸	영주룸	올레룸	우도룸
	참가자 등록 (08:30~)					
오전	자화동역학 심포지엄 (09:00~12:00)	모터 심포지엄 경자성 & 연자성 & 전자기 에너지변환 (09:00~11:10)	의과학자기 심포지엄 (09:00~12:10)	되스바우어 심포지엄 (09:00~11:10)	양자자성 심포지엄 (09:00~11:30)	구두발표7 'Theory and Computational Magnetics' & 'Others' (09:00~10:00)

■ 랜딩볼룸A,B,C / LGF
■ 백록,영주,올레,우도룸 / GF

2023년 한국자기학회 하계학술대회 일정표

5월 24일[수]

시간	프로그램				
13:00 ~	참가자 등록				
14:00 ~ 17:00	Poster Session [1] Electro-Magnetic Energy Conversion [2] Bio-Convergence Magnetics [3] Magnetics in Medical Science [4] Mössbauer Magnetics [5] Spintronics [6] Magnetization Dynamics [7] Permanent Magnetics [8] Soft Magnetics [9] Theory and Computational Magnetics [10] Quantum Magnetism (Oxide Magnetics) [11] Low Dimensional Magnetics [12] Magnetic Sensors and Magnetic Micro-Devices [13] Others (랜딩볼룸B)				
Tutorial Session '대학원생 진행세션' (랜딩볼룸C)					
15:00 ~ 15:50	T-1. 고성능 자성재료 기반의 미래 모빌리티와 산업용 전동기 기술동향 서정무(한국전자기술연구원)	15:50 ~ 16:00	Break Time	16:00 ~ 16:50	T-2. Neuromorphic Computing with Spintronics: A Tutorial on Deep Learning Neural Networks (DNNs) and Spiking Neural Networks (SNNs) 양승모(KRISS)
양자자성 심포지엄 '양자자성체의 최신연구' (올레룸) 좌장: 김재훈(연세대)		구두발표 I '극한물성소재 초고부가부품 KIURI 연구단' (우도룸) 좌장: 이승용(연세대)		구두발표 II '초임계 소재 산업기술거점센터' (우도룸) 좌장: 김대우(연세대)	
15:00 ~ 15:30	초S-1-1. 김범준(POSTECH)	14:00	S-1-1. 강세황(KIURI 연구단)	17:00 ~ 17:20	S-2-1. 이규형(연세대)
		14:10	S-1-2. 김유진(KIURI 연구단)		
		14:20	S-1-3. 김한결(KIURI 연구단)		
		14:30	S-1-4. 김영노(KIURI 연구단)		
15:30 ~ 16:00	초S-1-2. 김중현(기초과학연구원)	14:40	S-1-5. 박재중(KIURI 연구단)	17:20 ~ 17:40	S-2-2. 김대우(연세대)
		14:50	S-1-6. 박경태(KIURI 연구단)		
		15:00	S-1-7. 이상현(KIURI 연구단)		
		15:10	S-1-8. 이승용(KIURI 연구단)		
16:00 ~ 16:30	초S-1-3. 최성균(성균관대)	15:40	S-1-9. 지윤성(KIURI 연구단)	17:40 ~ 18:00	S-2-2. 박장웅(연세대)
		15:50	S-1-10. 지상현(KIURI 연구단)		
		16:00	S-1-11. 진창현(KIURI 연구단)		
		16:10	S-1-12. 한기현(KIURI 연구단)		
16:30 ~ 17:00	초S-1-4. 김재욱(한국원자력연구원)	16:20	S-1-13. 황정윤(KIURI 연구단)		
		16:30	S-1-14. 홍연미(KIURI 연구단)		
		16:40	S-1-15. 지상현2(KIURI 연구단)		
		16:50	S-1-16. 지상현2(KIURI 연구단)		
17:00 ~ 18:00	포스터 발표 Discussion (랜딩볼룸B)				
좌장:					



5월 25일[목] 오전

시간		프로그램									
08:30 ~		참가자 등록									
스핀트로닉스 심포지엄 '스핀트로닉스_스핀궤도토크' (랜딩볼룸B)		모터 심포지엄 'Permanent Magnetics' & 'Electro-Magnetic Energy Conversion' & 'Soft Magnetics' 공동세션 (랜딩볼룸C)		구두발표 III 'Low Dimensional Magnetics' (백록룸)		콜로키움 '신진과학자 콜로키움' (영주룸)		양자자성 심포지엄 '양자자성체의 최신연구' (울레룸)		구두발표 V 'Soft Magnetics' & 'permanent Magnetics' (우도룸)	
좌장: 박병국(KAIST)		좌장: 유상임(서울대)		좌장: 배유정(이화여대)		좌장: 김지완(군산대)		좌장: 최성균(성균관대)		좌장: 박지훈(KIMS)	
09:00 ~ 09:20	초S-2-1. 이금원(고려대)	09:00 ~ 09:20	초S-3-1. 윤준철(현대제철)	09:00 ~ 09:15	S-3-1. 김경민 (기초과학연구원)	09:00 ~ 09:15	S-4-1. 이규섭(부경대)	09:00 ~ 09:30	초S-1-5. 김기훈(서울대)	09:00 ~ 09:15	S-6-1. 홍지상(부경대)
09:20 ~ 09:40	초S-2-2. 한동수(KIST)	09:20 ~ 09:40	초S-3-2. 장태석(선문대/엠리써치)	09:15 ~ 09:30	S-3-2. 노승현(UNIST)	09:15 ~ 09:30	S-4-2. 박병철 (성균관대)			09:15 ~ 09:30	S-6-2. Naoto Umezawa (LG이노텍)
09:40 ~ 10:00	초S-2-3. 이수길(KAIST)	09:40 ~ 10:00	초S-3-3. 양충진 (한동대, (주)린도로보틱스)	09:30 ~ 09:45	S-3-3. 김진경(이화여대)	09:30 ~ 09:45	S-4-3. 안경모(KRISS)	09:30 ~ 10:00	초S-1-6. 심지훈 (POSTECH)	09:30 ~ 09:45	S-6-3. 김종우(KIMS)
				09:45 ~ 10:00	S-3-4. Piotr Kot(Ewha Womans University)	09:45 ~ 10:00	S-4-4. 황규성(KIAS)			09:45 ~ 10:00	S-6-4. 최광덕(KIST)
10:00 ~ 10:20	초S-2-4. 양승모(KRISS)	10:00 ~ 10:10	Break Time	10:00 ~ 10:10	Break Time	10:00 ~ 10:15	S-4-5. 이인학(KIST)	10:00 ~ 10:30	초S-1-7. 김재훈(연세대)	10:00 ~ 10:15	S-6-5. 서혁진(서울대)
		10:10 ~ 10:30	좌장: 임명섭(한양대)	10:10 ~ 10:25	S-3-5. Donati Fabio(Ewha Womans University)	10:15 ~ 10:30	S-4-6. 진미진(UNIST)			10:15 ~ 10:25	Break Time
10:20 ~ 10:30	Break Time	10:30 ~ 10:50	초S-3-4. 이상훈 (대구기계 부품연구원)	10:25 ~ 10:40	S-3-6. Franklin H. Cho (Ewha Womans University)	구두발표 IV 'Electro-Magnetic Energy Conversion' (영주룸)		10:30 ~ 11:00	초S-1-8. 이수현 (기초과학 연구원)	10:25 ~ 10:40	S-6-6. 최민영(The University of Alabama)
10:30 ~ 10:50	초S-2-5. 정선재 (한국교원대)	10:30 ~ 10:50	초S-3-5. 김성재 (현대케피코)	10:40 ~ 10:55	S-3-7. Stefano Reale(Ewha Womans University)	10:40 ~ 10:55	S-5-1. 김용섭(서울대)			10:40 ~ 10:55	S-6-7. 박현규(서울대)
10:50 ~ 11:10	초S-2-6. 유정우 (UNIST)	10:50 ~ 11:10	초S-3-6. 송인수 (모아소프트)	10:55 ~ 11:10	S-3-8. 문준환(고려대)	10:55 ~ 11:10	S-5-2. 김미루 (현대자동차)	11:00 ~ 11:30	초S-1-9. 백승호(청원대)	10:55 ~ 11:10	S-6-8. 이선우(서울대)
11:10 ~ 11:30	초S-2-7. 신인섭 (POSTECH)					11:10 ~ 11:25	S-5-3. 차경수 (한국생산기술연구원)			11:10 ~ 11:25	S-6-9. 안현(서울대)
Keynote Session (랜딩볼룸C)											
좌장: 임혜인(숙명여대)											
11:30 ~ 12:10	K-1. Autonomous Electric Vehicles and Flying Cars for the Future of Mobility: Flying Car Transportation Concept and Design of Rare-Earth Free Magnetic Materials and Spoke-Type Permanent Magnet Synchronous Motor (PMSM)* 홍양기 (The University of Alabama)										
12:10 ~ 12:50	K-2. 친환경 모빌리티의 변화와 대응전략 조성환 (현대모비스(주))										
12:50 ~ 14:00	점심식사										

5월 25일[목] 오후

시간		프로그램									
자화동역학 심포지엄 'Magnetization Dynamics' (랜딩볼룸B)		모터 심포지엄 'Permanent Magnetics' & 'Electro-Magnetic Energy Conversion' & 'Soft Magnetics' 공동세션 (랜딩볼룸C)		바이오 및 센서 심포지엄 'Bio-Convergence Magnetics' & 'Magnetic Sensors and Micro-Devices' (백록룸)		저차원자성 심포지엄 'Low Dimensional Magnetics' (영주룸)		자기이론 심포지엄 '자기이론 신진연구자 심포지엄' (올레룸)		구두발표VI 'Spintronics' & 'Magnetization Dynamics' (우도룸)	
좌장: 제송근(전남대)		좌장: 권영태(KIMS)		좌장: 윤석수(안동대)		좌장: 최준우(KIST)		좌장: 홍지상(부경대)		좌장: 이수길(KAIST)	
14:00	초S-4-1. 김상국(서울대)	14:00	초S-3-7. 김재겸(포스코)	14:00	초S-5-1. 신규식(연세대)	14:00	초S-6-1. 정수용(KRIS)	14:00	초S-7-1. 신동빈(GIST)	14:00	S-7-1. 고경춘(KAIST)
14:30		14:20		14:15	초S-5-2. 김동영(안동대)	14:20		14:20		14:15	S-7-2. 정현정(UNIST)
14:30	초S-4-2. 김준영(서울대)	14:20	초S-3-8. 권오열(포스코)	14:30	초S-5-3. 손대락 (주)센서피아)	14:20	초S-6-2. 이지은(서울대)	14:20	초S-7-2. 김범현(PCS-IBS)	14:30	S-7-3. 최종현(UNIST)
14:50		14:40		14:45	초S-5-4. 정현주(ADD)	14:40	초S-6-3. 양희준(KAIST)	14:40	초S-7-3. 박세영(숭실대)	14:45	S-7-4. 김영훈(한양대)
14:50	초S-4-3. 김보종(서울대)	15:00	초S-3-9. 이성구(동아대)	15:00	초S-5-5. 이상규(ADD)	15:00	Break Time	15:00	초S-7-4. 김민재(KIAS)	15:00	S-7-5. 김준석 (POSTECH)
15:10		15:10	Break Time	15:15	초S-5-6. 최성민(주)해치텍)	15:10	초S-6-4. 박정민(KAIST)	15:20	Break Time	15:15	Break Time
15:30	Break Time	15:30	초S-3-10. 이상원(LG이노텍)	15:25	초S-5-7. 김우진(주)에프에스)	15:30		15:30		15:25	
15:30	초S-4-4. 김민환(KIST/서울대)	15:30	초S-3-11. 권순재 (그린첨단소재)	15:40	초S-5-8. 박종민(주)티앤씨)	15:30	초S-6-5. 진호섭(UNIST)	15:30	초S-7-5. 김도훈(KAIST)	15:25	S-7-6. 이정규(고려대)
15:50		15:50		15:55	초S-5-9. 이상석(상지대)	15:50	초S-6-6. 백승현(KIST)	15:50	초S-7-6. 김흥식(강원대)	15:40	S-7-7. 이년종(울산대)
15:50	초S-4-5. 유지성(서울대)	15:50	초S-3-12. 차희령(KIMS)	16:10	초S-5-10. 홍성민 (한국전자기술연구원)	16:10		16:10	초S-7-7. 김정우(인천대)	15:55	S-7-8. 오정민(이화여대)
16:10		16:10	초S-3-13. 이태경(창성)	16:25	초S-5-11. 전태형(DGIST)	16:30		16:30	초S-7-8. 강창종(충남대)	16:10	S-7-9. 박규영(서울대)
16:30	초S-4-6. 이성협(서울대)	16:30	초S-3-14. 유상임(서울대)	16:40		16:30		16:30		16:25	S-7-10. 김호석(GIST)
총회강연 (랜딩볼룸C)											
좌장: 최석봉(서울대)											
17:00	P-1. 21C 기술패권시대, 국가과학기술전략										신성철(KAIST)
17:30	P-2. 교수에서 벤처회사 CEO										손대락(주)센서피아)
18:00	한국자기학회 임시총회 및 시상식										
18:30	만찬										



5월 26일[금]

시간	프로그램										
08:30 ~	참가자 등록										
자화동역학 심포지엄 'Magnetization Dynamics' (랜딩볼룸B)	모터 심포지엄 'Permanent Magnetics' & 'Electro-Magnetic Energy Conversion' & 'Soft Magnetics' 공동세션 (랜딩볼룸C)	의과학자기 심포지엄 'Magnetics in Medical Science' (백록룸)	뫼스바우어 심포지엄 '뫼스바우어 자성' (영주룸)	양자자성 심포지엄 '양자자성체의 최신연구' (올레룸)	구두발표VII 'Theory and Computational Magnetics' & 'Others' (우도룸)						
좌장: 김덕호(KIST)	좌장: 강영민(한국교통대)	좌장: 정영진(전남대)	좌장: 엄영량(한국원자력연구원)	좌장: 손창희(UNIST)	좌장: 김상훈(울산대)						
09:00 ~ 09:30	초S-4-7. 배우정 (이화여대)	09:00 ~ 09:20	초S-3-15. 권영태(KIMS)	09:00 ~ 09:20	초S-8-1. 서나연(전남대)	09:00 ~ 09:20	초S-9-1. 최현경 (한국원자력연구원)	09:00 ~ 09:30	초S-1-10. 김준성 (POSTECH)	09:00 ~ 09:15	S-8-1. 조근기 (GIST)
09:30 ~ 09:50	초S-4-8. 안수혁(DGIST)	09:20 ~ 09:40	초S-3-16. 최판규(연세대)	09:20 ~ 09:40	초S-8-2. 김태규(전남대)	09:20 ~ 09:40	초S-9-2. 천동현 (한국에너지기술연구원)			09:15 ~ 09:30	S-8-2. 배재한 (GIST)
09:50 ~ 10:10	초S-4-9. 김동률(DGIST)	09:40 ~ 10:00	초S-3-17. 권기혁 (포항산업과학연구원)	09:40 ~ 10:00	초S-8-3. 강지훈(전남대)	09:40 ~ 10:00	초S-9-3. 임성대 (한국에너지기술연구원)	09:30 ~ 10:00	초S-1-11. 박제근 (서울대)	09:30 ~ 09:45	S-8-3. 김준우 (DGIST)
10:10 ~ 10:30	초S-4-10. 김강휘(UNIST)	10:00 ~ 10:10	좌장: 권기혁(포항산업연구원)	10:00 ~ 10:20	초S-8-4. 이보우(김천대)	10:00 ~ 10:10	Break Time	10:00 ~ 10:30	초S-1-12. 이창민 (한양대)	09:45 ~ 10:00	S-8-4. 최민영(The University of Alabama)
10:30 ~ 10:50	Break Time	10:10 ~ 10:30	초S-3-18. 박언병 (포항산업과학연구원)	10:20 ~ 10:40	초S-8-5. 정중우 (보바스기념병원)	10:10 ~ 10:30	초S-9-4. 김수경(부산대)				
10:50 ~ 11:20	초S-4-11. 김갑진(KAIST)	10:30 ~ 10:50	초S-3-19. 강영민 (한국교통대)	10:40 ~ 10:50	Break Time	10:30 ~ 10:50	초S-9-5. 이현석(서울대)	10:30 ~ 11:00	초S-1-13. 박문집 (한양대)		
11:20 ~ 11:40	초S-4-12. 양지석(KAIST)	10:50 ~ 11:10	초S-3-20. 윤승하 (한국생산기술연구원)	10:50 ~ 11:10	초S-8-6. 한기택 (한국방사선진흥협회)	10:50 ~ 11:10	초S-9-6. 홍양기 (The University of Alabama)	11:00 ~ 11:30	초S-1-14. 문은국 (KAIST)		
11:40 ~ 12:00	초S-4-13. 자유빈(KAIST)	11:10 ~ 11:30	초S-3-21. 김태훈(전남대)	11:10 ~ 11:30	초S-8-7. 김경남(가천대)						
				11:30 ~ 11:50	초S-8-8. 오석훈 (한국기초과학지원연구원)						
				11:50 ~ 12:10	초S-8-9. 황도근(상지대)						

행사장 배치도



5월 24일(수) 14:00~18:00

Poster Session

랜딩볼륨B

✿ 좌 장 : 한만석(강원대) / 박지훈(KIMS) / 강영민(한국교통대) / 김준서(DGIST) / 김상훈(울산대)

○ Session EM [Electro-Magnetic Energy Conversion]

EM01	Poster	Evaluation of Magnetic Geared Machine Characteristics for Low-Speed High-Torque Generators Using Analytical Method 3 Manh-Dung Nguyen*, Woo-Sung Jung, Jang-Young Choi [†]
EM02	Poster	고정자 치 형상을 고려한 철손 시험 방법에 대한 특성 분석 5 강재범*, 이지영, 안호진
EM03	Poster	Characteristic Analysis and Comparative Study according to Rotor Structure of Permanent Magnet Synchronous Machine for Electric Propulsion Ship 7 Ju-Hyung Lee*, Jung-Hyung Park, Soyoung Sung, Han-Wook Cho, Jang-Young Choi, Kyung-Hun Shin [†]
EM04	Poster	Comparative Study and Electromagnetic Design for High Performance in Axial Flux Permanent Magnet Machine for Electric Propulsion Ship 8 Seong-Won Kim*, Eun-Gi Hong, Jun-Beom Park, Gi-Won Park, Seong-Bin Lee, Ju-Hyeong Lee, Jung-Hyung Park, Soyoung Sung, Jang-Young Choi, Kyung-Hun Shin [†]
EM05	Poster	Design process for reducing irreversible demagnetization of Dy-free magnets in motors for hybrid traction 9 Si-Woo Song*, Seung-Heon Lee, Hyo-gu Kim, jun heo, Won-Ho Kim
EM06	Poster	A Novel Sleeve Design by Reducing Eddy Current Loss of High-speed Electrical Machines 11 Seung-Heon Lee*, Si-Woo Song, Jun Heo, Hyo-gu Kim, Won-Ho Kim
EM07	Poster	Design for Torque Ripple and Eddy Current Loss Reduction in 3kW Dry Vacuum Pump Motor for ETCH Process using Separated Rotating Tapering 12 Do-Hyeon Choi*, In-Jun Yang, Dong-Woo Nam, Dong-Hoon Jung, Won-Ho Kim [†]
EM08	Poster	전자기적 해석 및 기계적 해석을 고려한 마그네틱 기어 설계 14 Woo-Sung Jung*, Hoon-Ki Lee, Su-min Kim, Manh-Dung Nguyen, Kyung-Hun Shin, Jang-Young Choi
EM09	Poster	Linear Oscillating Actuator의 분할구조를 고려한 철손 해석 방법 16 이지현*, 박수환, 박두하, 배예나, 황윤재, 임명섭 [†]
EM10	Poster	IPMSM의 영구자석 불가역 감자 해석 방법 18 원윤재*, 이지현, 성무현, 황윤재, 김재현, 임명섭 [†]

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EM14	Poster	고전압으로 충전된 대용량 커패시터를 이용한 임펄스 방전 전류 생성에 관한 특성 연구	25
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○ Session MM [Mössbauer Magnetism]

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SS09	Poster	Spin-Orbit Torque study in a Pt-Ta alloy with Opposite Spin Hall Angles 58 Hyun-jun Lee*, Ji-won Yoon, Ji-hyeon Yun, B.K. Ju, Seung-heon Chris Baek
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* 좌 장 : 박병국(KAIST)

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✿ 좌 장 : 유상임(서울대) / 임명섭(한양대)

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5월 25일(목) 09:00~10:30

콜로키움 '신진과학자 콜로키움'

영주룸

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5월 25일(목) 10:40~11:25 구두발표Ⅳ ‘Electro-Magnetic Energy Conversion’	영주름
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* 좌 장 : 신경훈(전남대)

S-5-1	10:40	Exceptionally High Heat-generation Power in MnFe ₂ O ₄ Nanoparticles and Quantitative Analysis of Temporal Temperature Variation 251 Yongsub Kim*, Jae-Hyeok Lee and Sang-Koog Kim*
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5월 25일(목) 09:40~12:15 양자자성 심포지엄 ‘양자자성체의 최신연구’	올레름
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* 좌 장 : 최성균(성균관대)

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❁ 좌 장 : 박지훈(KIMS)

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		Naoto Umezawa*, Yuto Morishita, Yosuke Harashima, Masafuyu Matsui, Yasuteru Shigeta, Rie Umetsu, Lim Hyun Seok, Bae Seok	
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		Jong-Woo Kim*, Ki Hoon Kang, A-Young Lee	
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✿ 좌 장 : 임혜인(숙명여대)

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5월 25일(목) 14:00~16:30

자화동역학 심포지엄 'Magnetization Dynamics'

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모터 심포지엄 'Permanent Magnetics' & 'Electro-Magnetic Energy Conversion' & 'Soft Magnetics' 공동세션

랜딩볼륨C

✿ 좌 장 : 권영태(KIMS) / 김태훈(KIMS)

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5월 25일(목) 14:00~16:55

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백록룸

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5월 25일(목) 14:00~16:10

저차원자성 심포지엄 'Low Dimensional Magnetics'

영주룸

* 좌 장 : 최준우(KIST)

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		Seung-heon Chris Baek*	

5월 25일(목) 14:00~16:50 자기이론 심포지엄 '자기이론 신진연구자 심포지엄'	올레룸
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		Chang-Jong Kang*, Dong-Choon Ryu, Bongjae Kim and B. I. Min	

5월 25일(목) 14:00~16:40 구두발표 VI 'Spintronics' & 'Magnetization Dynamics'	우도룸
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❁ 좌 장 : 이수길(KAIST)

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		Gyungchoon Go*, Daehyeon An, Hyun-Woo Lee and Se Kwon Kim [†]	

S-7-2	14:15	Spin-thermoelectric energy conversion 348 HyeonJung Jung*, Inseon Oh* and Jung-Woo Yoo [†]
S-7-3	14:30	Non-volatile control of spin-charge conversion in graphene-based heterostructure 349 Jonghyeon Choi*, Jungmin Pack [†] , Jung-woo Yoo [†]
S-7-4	14:45	Spin selection and magnetization in Pb-free chiral metal halide semiconductors 350 Sang Hyun Nam, Young-Hoon Kim*
S-7-5	15:00	Manipulating inverted hysteresis loops and exchange bias in Y₃Fe₅O₁₂/CoFe₂O₄ bulk composites at room temperature 351 Junseok Kim*, Sang J. Park, Phuoc Cao Van, Jong-Ryul Jeong, Hyungyu Jin [†]
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5월 25일(목) 17:00~18:00

총회강연

랜딩볼룸C

✿ 좌 장 : 최석봉(서울대)

P-1	17:00	21C 기술패권시대, 국가과학기술전략 361 신성철*
P-2	17:30	교수에서 벤처회사 CEO 362 손대락*

5월 26일(금) 09:00~12:00

자화동역학 심포지엄 'Magnetization Dynamics'

랜딩볼룸B

✿ 좌 장 : 김덕호(KIST)

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		Yujeong Bae*	
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		Suhyeok An*, Hyeong-Joo Seo, Eunchong Baek, Soobeom Lee, Chun-Yeol You*	
초S-4-9	09:50	Evaluation of single spin torque majority gate operation with the current induced domain wall motion	367
		Dongryul Kim*, Seong Bok Kim, Woo Ri Ju, Jae Yong Cho, Jun-Su Kim, Soobeom Lee, June-Seo Kim and Chun-Yeol You†	
초S-4-10	10:10	Dynamics and Resonance of Magnetic Domain Wall Under Applied Field	368
		Ganghwi Kim*, Suyeong Jeong, Dae-Han Jung and Ki-Suk Lee	
초S-4-11	10:50	Real-Time Measurement of Coherent Dynamics in Remotely Coupled Magnonic Resonators	369
		Moojune Song, Tomas Polakovic, Thomas W. Cecil, John E. Pearson, Ralu Divan, Wolfgang Pfaff, Wai-Kwong Kwok, Ulrich Welp, Axel Hoffmann, Valentine Novosad, Yi Li and Kab-Jin Kim*	
초S-4-12	11:20	Observation of Current-Driven Bloch Line Motion	370
		Jiseok Yang*, Taekhyeon Lee, Kyoung-Woong Moon, Albert Min Gyu Park, Soogil Lee, Mincheol Shin, Sanghoon Kim and Kab-Jin Kim	
초S-4-13	11:40	Observation of magnetic skyrmion motion in van der Waals ferromagnetic material at room temperature	371
		Yubin Ji*, Seungmo Yang, Hyo-Bin Ahn, Tae-Seong Ju, Mi-Young Im, Hee-Sung Han, Changgu Lee, Chanyong Hwang and Kab-Jin Kim	

5월 25일(목) 09:00~11:30

모터 심포지엄 'Permanent Magnetics' & 'Electro-Magnetic Energy Conversion' & 'Soft Magnetics' 공동세션

랜딩볼룸C

✿ 좌 장 : 강영민(한국교통대) / 권기혁(포항산업연구원)

초S-3-15	09:00	Shape-controlled FeCo particles by ultrasonic-atomized reaction and their electromagnetic wave absorbing behavior	375
		Young-Tae Kwon*, Mi Se Chang, Jae Won Jeong, Byeongjin Park and Sang-Sun Yang	
초S-3-16	09:20	Introduction of small AFPM type Wind Generator using Nd-Fe-B magnets	376
		Pankyu Choi* and Wooyoung Lee	
초S-3-17	09:40	고효율 축방향 모터용 소재 및 부품화 기술 개발 현황	377
		권기혁*, 박언병, 이도원, 김은성, 김형섭, 정재원, 강동우	

초S-3-18	10:10	열처리 조건에 따른 FeCo계 합금의 자기특성 향상	378
		Eonbyeong Park*, Yongchan Kim	
초S-3-19	10:30	Electromagnetic wave absorbing properties of W-type hexaferrite-epoxy composites in 1-40 GHz	379
		Tae-Woo Lee, Young-Min Kang*	
초S-3-20	10:50	Bending effect of magnetic thin films	380
		Seungha Yoon*	
초S-3-21	11:10	Texture Memory Mechanism in HDDR processed Nd-Fe-B magnets	381
		Tae-Hoon Kim*	

5월 26일(금) 09:00~12:10

의과학자기 심포지엄 'Magnetics in Medical Science'

백록룸

❁ 좌 장 : 정영진(전남대)

초S-8-1	09:00	A Brief Review of Transcranial Direct Current Stimulation For Stroke Patients	385
		Na-Yun Seo*, Hyun-Seo An, Hae-Yean Park [†] , Young-Jin Jung [†]	
초S-8-2	09:20	Development of Image-guided Software for Electromagnetic Brain Stimulation	386
		Tae-Gue Kim*, Chany Lee, Young-Jin Jung [†]	
초S-8-3	09:40	A Simulation Study of a Depth-Encoding 3-Layer PET Detector Inserting Striped Glass Plates	387
		Danbi Gwon, Jeongmin Kang, Tae Woo Kim, Jihoon Kang*	
초S-8-4	10:00	Evaluation of the Utility of Self Production MRI Radiofrequency Shielding Material	388
		Jin-Hoe Lee, Bo-Woo Lee*	
초S-8-5	10:20	A Review of the Application of Repetitive Transcranial Magnetic Stimulation Treatment and Current Issue	389
		Jung-Woo Jeong*, Mi-Yeong Gang, Bo-Kyoung Song [†]	
초S-8-6	10:50	Comparative Analysis of Therapeutic Radiation by CLINAC using Alanine/ESR	390
		Ki-Taek Han*, Chul Hee Min, Hyojun Park, Woo Sang Ahn, Sung Jin Noh	
초S-8-7	11:10	Optimizing Radio-Frequency Coils for Ultra-High Field MRI: Importance of Electromagnetic Simulations using Biological Virtual Models	391
		Daniel Hernandez, Donghyuk Kim, Taewoo Nam, Yonghwa Jeong, Minyeong Seo, Eunwoo Lee, Kyoung-Nam Kim*	
초S-8-8	11:30	자기공명영상시스템의 인체 전자파 노출 및 온도변화 상관관계 분석	393
		오석훈*, 홍선의, 최형도	
초S-8-9	11:50	Effect of Electromagnetic Field Exposed on Human Body	395
		Do Guwn Hwang*	

5월 26일(금) 09:00~11:10

뫼스바우어 심포지엄 '뫼스바우어 자성'

영주룸

✿ 좌 장 : 엄영랑(한국원자력연구원)

초S-9-1	09:00	Unique role of Mössbauer spectroscopy in catalysts 399 Hyunkyung Choi*, Gwang-Min Sun, Chul Sung Kim and Young Rang Uhm
초S-9-2	09:20	Mössbauer Spectroscopy for Structure-Selectivity Study of Iron-Based Catalysts for Production of Synthetic Waxes from Syngas 400 Dong Hyun Chun*, Min Hye Youn, Geun Bae Rhim, Kwang Young Kim, Byung-Hyun Kim
초S-9-3	09:40	Magnetic Field Control of Catalyst Layer Structure for Improved Oxygen Transport in PEMFCs 401 Sung-Dae Yim*, Yunseong Ji, Sungmin Kim, SeongHyeon Woo, Jae Il Lee, Seungmin Lee, Seunghee Woo, Yun Sik Kang, Seok-Hee Park
초S-9-4	10:10	Oxidation state and Distribution of Fe in (ultra)mafic rocks 402 Sookyung Kim*, Young Rang Uhm, Chaewon Lee, Sunhwa Hong and Hoon Young Jeong
초S-9-5	10:30	Characterization of Single Atom Fe-N-C Fuel-Cell Cathodes Using X-ray and γ -ray Absorption Spectroscopy 403 Hyeon Seok Lee*, Heejong Shin*, Wonchan Hwang*, Yung-Eun Sung [†] and Taeghwan Hyeon [†]
초S-9-6	10:50	Mossbauer Spectroscopic Characterization of Magnetic Materials: Fe-Pt Hard Magnet, Nanocrystalline and Amorphous Soft Magnets, and Ferrimagnetic Fe ₃ Se ₄ 404 Yang-Ki Hong*, Minyeong Choi and Jinhoon Park

5월 26일(금) 09:00~11:30

양자자성 심포지엄 '양자자성체의 최신연구'

올레룸

✿ 좌 장 : 손창희(UNIST)

초S-1-10	09:00	Large and tunable magnetic and magnetotransport properties in topological magnets 409 Jun Sung Kim*
초S-1-11	09:30	자성 반데르발스 물질과 위상물리 410 박제근*
초S-1-12	10:00	Spin wavepackets in the Kagome ferromagnet Fe ₃ Sn ₂ : propagation and precursors 411 Changmin Lee*, Yue Sun, Linda Ye, Sumedh Rathi, Kevin Wang, Yuan-Ming Lu, Joel Moore, Joseph G. Checkelsky and Joseph Orenstein*
초S-1-13	10:30	Skyrmion and Meron in twisted bilayer magnet CrI ₃ , CrCl ₃ 412 Moon Jip Park*, Kyoung-Min Kim, Se Kwon Kim, Gyungchoon Go

초S-1-14 11:00 Manipulating Topological Phase Transitions in Kitaev Quantum spin liquids .. 413
Eun-Gook Moon*

5월 26일(금) 09:00~10:00

구두발표Ⅶ 'Theory and Computational Magnetism' & 'Others'

우도룸

* 좌 장 : 김상훈(울산대)

S-7-1	09:00	Anisotropic metamagnetic transition and intrinsic Berry curvature in magnetic Weyl semimetal NdAlGe	417
		Keunki Cho*, Won Hyuk Shon, Seungha Yoon, Beongki Cho†, Jong-Soo Rhyee†	
S-7-2	09:15	TmGa textured polycrystal의 rotating magnetocaloric effect (RMCE)	422
		Jaehan Bae*, Seungha Yoon, Dongpyo Seo, Beonki Cho	
S-7-3	09:30	Next-generation magnetron sputtering ion source development via an ultra-low cooling system	424
		Joonwoo Kim*, Si Ho Oh, Woo Ri Ju, Da Hyeon Kim, June-Seo Kim†	
S-7-4	09:45	Methodology for Calculation of Magnetic Properties of Nanocrystalline and Amorphous Soft Magnetic Materials*	425
		Minyeong Choi*, Yang-Ki Hong, Jinhoon Park, Jihye Park and Haein Yim-Choi	











Digests of the KMS 2023 Summer Conference
The Korean Magnetics Society
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2023년 하계학술대회 논문개요집

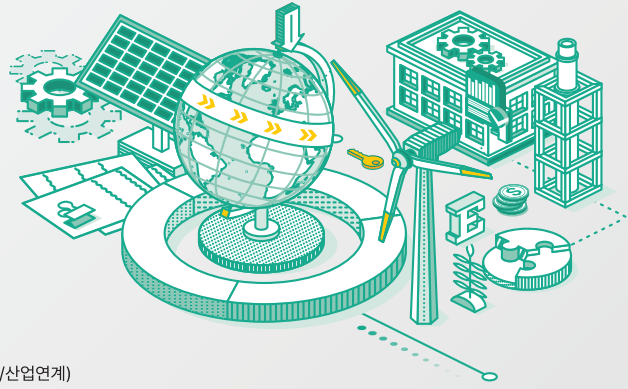
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연세대학교 극한물성 소재-초고부가 부품 KIURI 연구단



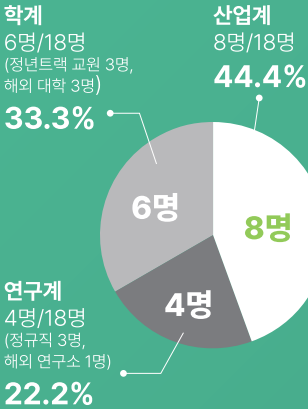
연세대 KIURI 연구단장

KIURI 연구단 - 혁신성장 선도 고급인재(박사 후 연구원, 신진연구인재) 성장 지원
 1단계 사업 운영 기간: 2020년 5월 ~ 2024년 2월
 연구단 구성: 단장(이우영 교수), 멘토교수 12명, 참여연구원 17명, 참여대학원생 30여명
 신진연구인재 육성 목표: 생애전주기 연구자 완성 플랫폼 개발(멘토링/연구비/인프라/행정/산업연계)
 신진연구인재 육성 비전: 글로벌 경쟁력을 갖춘 학문후속세대 혁신인재 양성
 중점 연구 분야 및 협업기업: 미래 자동차용 핵심 소재-부품 기술 개발(현대자동차)

차량 구조용 소재 기술	동국제강, 심팩, 애니캐스팅	차량 제어 소재 -부품 기술	디에스세미콘, 길온	기능성 소재 -부품 기술	엘엠에스, 아이센랩, 알디솔루션, 태명과학, 인터로조	에너지 소재 -부품 기술	엘엔에프, 케이텍, 열전토탈솔루션
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인력양성 성과

취업 현황



참여기업 교류 방식



- ☑ 협력 활성화 및 실효성 극대화를 위한 프로토콜 구축
 - Open Innovation팀 운영에 따른 기술-정보 공유 기반 초연결 협력 프로세스
- ☑ 기업 특성-요구별 협력 모델 개발 및 운영
 - 참여연구원 보유 완성형 기술 기업제 활용-이전
 - 참여연구원 보유 요소기술 제공
 - 차세대 제품 기술 개발 전담/공동 개발
 - 차세대 제품 Seed 기술 전담 개발
 - 연구-개발 및 업무 지원

산학협력 성과

참여기업 교류 실적



- [엘엠에스]** 고신뢰성 투명 과학적 소재 개발
 - 인력-기술 교류 및 인프라 공유형 공동연구
 - 소재 및 공정기술 Know-How 확보
 - 용역과제 수행 및 정부과제 수주
- [케이랜드]** 자외선 차단 화장품용 산화물 분말 개발
 - 보유기술 개량 및 기술이전 기반 공동연구
 - 소재/공정 기술 최적화
 - 기술이전, 용역과제 수행 및 정부과제 수주
- [센서테크]** 유해가스 탐지 전기저항 기반 초소형 가스센서 개발
 - 보유기술 융합형 공동연구
 - 소재/센서 기술 개발
 - 용역과제 수행

산학협력을 통한 연구단 및 기업의 실적



- [연구단]**
 - 산업 Needs를 반영한 기술-인력 집중형 운영 설계 및 우수 멘토진 구성에 따른 최우수 연구원 확보
 - 참여연구원의 높은 기술 경쟁력 및 인프라-인력 교류 기반 집단 연구에 의한 기업 Needs 대응 수월성
- [기업]**
 - 인력-기술-인프라 공유 기반의 공동 연구 수행으로 핵심 요소 기술 내재화
 - 정부과제 공동 수주를 통한 차세대 제품 개발 수월성

신진연구인재지원성과

연구역진

내용	이전 상황	개선 결과
연구 독립성	개별 지도교수 관리	최우수교수진 멘토링
연구비 규모	인건비	인건비+직접 연구비
연구비 집행	지도교수 승인요	자율 집행
인프라	지도교수 인프라	연구단 관리 인프라
행정지원	본인 수행	전담행정인력 지원
경로개발	개별 진행	연구단 지원

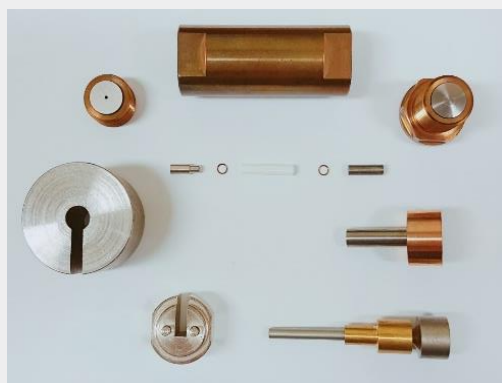
치우강화

내용	이전 상황	개선 결과
지위 보장	1년 단위 계약직	학술연구교수
연봉	평균 4,000만원	최대 7,142만원 (본 사업 5,100만원)
교내 논문 인센티브	미지급	지급 (2021년 14,225,000원)
특허/기술이전 기여율	지도교수 전권	연구단 위원회 결정



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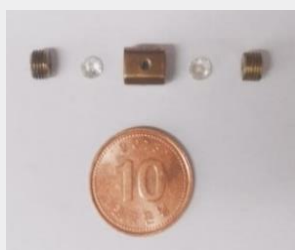
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Material	CuBe
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Target <i>P</i>	60 GPa (300 μm culet diamond)



Product	Diamond Anvil Magnetization Cell (for MPMS™)
Material	CuBe
Target <i>P</i>	10 GPa (800 μm culet diamond) 15 GPa (600 μm culet diamond)



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