

초 청 장

Invitation



바이오공학부문 BioEng. Division



존경하는 바이오공학부학회원 여러분!

저희 부문이 시작된 2008년 이후 어언 11년째가 되고 부문학술대회가 12회가 됩니다. 고령사회와 스마트산업사회환경에서 단순한 생명유지가 아닌 양질의 삶을 유지하기 위해 건강한 삶을 살 수 있도록 바이오 의료공학 기술이 필수적으로 발전되어야 한다는 것은 자명합니다.

노령인구가 건강한 활동을 하기 위해서는 안 아프거나 덜 아픈 게 아니라 젊은이처럼 힘을 발휘해 일할 수 있게 하는 기술, 일반 사람이 보통보다 더 높은 작업 강도를 가능케 하는 수퍼맨 기술 즉 Human+ 기술은 시대적으로 요구되는 기술입니다. 이런 측면에서 수퍼휴먼을 가능케 하는 데 있어 역학적 어드밴티지 (Mechanical advantage) 기법을 잘 활용하는 기계기반 의공학자의 역할이 기대된다 할 것입니다. 이번 학회에 이런 시대적 요구에 부응하는 바이오공학기술을 토의하고 방향을 모색하는 기회가 되도록 학술위원회와 춘계학술대회조직위원회가 Human+ 연구사업과 인공지능 특별강좌를 준비도 하였습니다.

이번 학술대회에서 우리 부문이 이뤄온 학술적인 성취를 이어가고, 새로운 연구 패러다임을 실현할 수 있는 기술을 도모하여 같이 실질적인 공동연구와 실용화로 결실을 맺는 있는 아이디어 창출의 계기로 같이 만들었으면 합니다.

대한기계학회 바이오공학부문 회장 이연수

Dear KSME BED and JSME BED & SHDD members !

This meeting is the 12th KSME BED conference and the 10th anniversary of KSME-JSME joint symposium (the 11th joint symposium). I wish this meeting be a chance to fertilize our research and mine new visions. And I believe this year's KSME and JSME BED & SHDD joint symposium will be a monumental event to concrete our realistic collaboration. I wish that all participants from Korea and Japan enjoy presentations and find good fellows.

President of KSME BED

Ph.D. Yeon Soo Lee

2019 춘계학술대회
2019 KSME BioEngineering
Division Spring Conference

&

2019 KSME-JSME BioEng Joint
Symposium



2019 KSME BioEngineering Spring Conference Organizing
Committee

Conference Chair: Seung-Yop Lee (Sogang University)

Program Editors:

Kwon Su Chon (Daegu Catholic University)

Jang-Hwan Choi (Ewha Womans University)

General Secretaries: Yun Seok Heo (Keimyong University)

Choongsoo Shin (Sogang University)

Academic Session Committee:

Chair: Yun Hyuck Kim (KyungHee University)

Vice-chairs: Yun Seok Heo (Keimyong University)

Choongsoo Shin (Sogang University)

WonHyong Ryu (Yonsei University)

Dai-Soon Kwak (Catholic University)

Junhee Lee (Korea Institute of Machinery and Materials)

Sungwook Yang (Korea Institute of Science and Technology)

2019 KSME BED & JSME BED & SHDD Joint Symposium

Honorary Chairs:

Yeon Soo Lee (Daegu Catholic University, Korea)

Masaaki Tamagawa (Kyushu Institute of Technology, Japan)

Program Chair: Hyuneui Lim (KIMM, Korea)

Program Co-chair: Shinji Deguchi (Osaka University, Japan)

2019 대한기계학회 바이오공학부문 임원 명단

고문	김완두 (KIMM)	정경렬 (생기연)	이두용 (KAIST)
	김성균 (건국대)	윤의성 (KIST)	심은보 (강원대)
	조동우 (포항공대)	박훈철 (건국대)	양석조 (충남대)
회장	이연수 (대구가톨릭대)		
감사	전인수 (전남대)	윤원수 (산업기술대)	
수석부회장	이승엽 (서강대)		
부회장	임현의(대외) (KIMM)	김윤희(학술) (경희대)	
산학협력이사	김철웅 (트리플씨메디칼)	이용근 (오스템임플란트)	정화철 (유엔아이)
	서영대 (로임시스템)	김정성 (코렌텍)	
총무이사	허윤석 (계명대)	신충수 (서강대)	
재무이사	정영도 (KIMM)	김홍남 (KIST)	
대외협력이사	허윤정 (경희대)	송성혁 (KIMM)	
대외협력이사(자문)	신세현 (고려대)	김현철 (한국연구재단)	
편집이사	조영삼 (원광대)	류원형 (연세대)	김성진 (건국대)
	구승범 (KAIST)		
학술이사	김선민 (인하대)	이형석 (연세대)	조규진 (서울대)
	송시몬 (한양대)	신현정 (KAIST)	박형순 (KAIST)
	김동성 (포항공대)	김원정 (서강대)	김태성 (울산과기원)
	곽대순 (가톨릭대)	박수경 (KAIST)	이준희 (KIMM)
	전호정 (KIST)	김소희 (DGIST)	이해동 (연세대)
	이승재 (원광대)	이진기 (성균관대)	양성욱 (KIST)
	도준상 (서울대)	전성윤 (KAIST)	서경덕 (원광대)
	천권수 (대구가톨릭대)	김선철 (계명대)	배지용 (KBSI)
	최장환 (이화여대)	김종현 (DGIST)	박승철 (KIMM)
	강상훈 (UNIST)		

2019 대한기계학회 바이오공학부문 학술위원회 명단

학술위원장	김윤희 (경희대)		
학술부위원장	신충수 (서강대)	허윤석 (계명대)	류원형 (연세대)
	곽대순 (가톨릭대)	이준희 (KIMM)	양성욱 (KIST)
학술위원	김경훈 (성균관대)	정현준 (KIRO)	정회룡 (건국대)
	강대식 (아주대)	김건호 (UNIST)	강성민 (충남대)
	장진아 (POSTECH)	신용대 (서울대)	김상문 (인천대)
	심주용 (ETRI)	김정실 (연세대)	임도형 (세종대)
	박원만 (주엘솔텍)		

2019년도 대한기계학회 바이오공학부문 춘계학술대회 및 한일공동심포지엄

▶ DAY 1 (April 24th Wednesday)

Time	Session
16:00-18:00	Registration (Haeundae Hanwha Resort Tivoli, 3rd floor) BioEngineering Industry-Academy Collaboration Seminar

▶ DAY 2 (April 25th Thursday)

Time	Session					
08:00-09:30	Registration (Haeundae Hanwha Resort Tivoli, 3rd floor, Hall ManaRola)					
09:30-10:30	Session A1: Bioengineering 1발표장 (마나롤라 홀) Main Room (Hall ManaRola)			Session B1: Human Modeling & Simulation 2발표장 (리오마조레 홀) Second room (Hall Riomaggiore)		
	좌장: 강상훈 (UNIST)			좌장: 임기무 (금오공대)		
	No	Name	Affiliation	No	Name	Affiliation
	Th01A001	임도형	세종대학교	Th01B001	구영준	중앙대학교
	Th01A002	MREDHA MD TARIFUL ISLAM	전남대학교	Th01B002	한찬규	KAIST
	Th01A003	임현섭	계명대학교	Th01B003	김정원	중앙대학교
	Th01A004	김석주	세종대학교	Th01B004	이명현	KAIST
10:30-10:40	Break					
10:40-11:55	Session A2: Bio-MEMS/Sensor/Device 1발표장 (마나롤라 홀)			Session B2: Biomimetics & Nature-Inspired Technology 2발표장 (리오마조레 홀)		
	좌장: 김홍남 (KIST)			좌장: 정영도 (KIMM)		
	No	Name	Affiliation	No	Name	Affiliation
	Th02A001	이경섭	KAIST	Th02B001	김동규	KAIST
	Th02A002	김용재	연세대학교	Th02B002	송성혁	한국기계연구원
	Th02A003	Thapa Mukesh	계명대학교	Th02B003	채수훈	포항공과대학교
	Th02A004	김태위	아주대	Th02B004	이새봄	성균관대학교
	Th02A005	김지수	포항공과대학교	Th02B005	김재욱	포항공과대학교
11:55-13:00	Lunch (2nd Floor)			학술위원회 전략 특강 (리오마조레홀, 11:55-12:30) : 좌장 김윤혁 (경희대) 김현철 (한국연구재단) : NRF 연구과제 및 획득 전략 (Human + 과제 중심)		

▶ DAY 2 (April 25th Thursday)

13:00-14:00	Session A3: Bio & Cell-Mechanics 1발표장 (마나롤라 홀) Main Room (Hall ManaRola) 좌장: 최장환 (이화여대)			Session B3: Biomedical Simulation & Devices 2발표장 (리오마조레 홀) Second room (Hall Riomaggiore) 좌장: 김선철 (계명대)		
	No	Name	Affiliation	No	Name	Affiliation
	Th03A001	조호정	가톨릭대학교	Th03B001	김희락	한국산업기술대학교
	Th03A002	윤석환	한국산업기술대학교	Th03B002	조성수	성균관대학교
	Th03A003	박세현	연세대학교	Th03B003	조성현	KAIST
	Th03A004	조영빈	KAIST	Th03B004	이한길	KAIST
14:00-14:10	Break					
14:10-15:25	Session A4: Human Modeling & Simulation 1발표장 (마나롤라 홀) 좌장: 광대순 (가톨릭대)			Session B4: Bio-Robotics 2발표장 (리오마조레 홀) 좌장: 송성혁 (KIMM)		
	No	Name	Affiliation	No	Name	Affiliation
	Th04A001	조성윤	KAIST	Th04B001	조민재	KAIST
	Th04A002	김범준	KAIST	Th04B002	하기현	건국대학교
	Th04A003	장민수	한국과학기술연구원	Th04B003	강현아	UNIST
	Th04A004	임기무	금오공과대학교	Th04B004	임윤섭	KAIST
	Th04A005	임혜림	KAIST	Th04B005	이건도	KAIST
15:25-15:40	Break					
15:40-16:50	Plenary / Young Scientist Session I (Hall ManaRola) Chair : WonHyung Ryu (Yonsei Univ.)					
	Plenary	Sung Kwon Cho (University of Pittsburgh, USA): Antibiofouling Digital Microfluidics & Bio Micro Swimming Drone				
	Young Scientist	Seongjun Park (KAIST, Korea) : Multifunctional Fiber-based Neural Interfaces				
16:50-17:00	Break					
17:00-18:15	1발표장 (마나롤라 홀)			Session B5: Bio-Manufacturing / Biomedical Simulation 2발표장 (리오마조레 홀) 좌장: 양석조 (충남대)		
	No Session (만찬준비)			No	Name	Affiliation
Th05B001				조용상	원광대학교	
Th05B002				정승만	포항공과대학교	
Th05B003				이예찬	KAIST	
Th05B004				장남선	한국과학기술연구원	
Th05B005				정화철	유엔아이(주)	
18:15-18:30	Break					
18:30-20:30	만찬 Banquet (마나롤라 홀) & 시상식 I					
20:30-21:30	전체 임원(고문, 이사, 학술위원) 회의					

▶ Day 3 (April 26th Friday)

Time	Session					
08:00-09:00	포스터 부착					
09:00-09:40	Plenary Session II (Hall ManaRola) Chair: Hyuneui Lim (KIMM)					
	Masaaki Tamagawa (Kyushu Institute of Technology, Japan): Medical Application of Shock Waves, Bubbles and Micro Capsules					
09:40-09:45	Break					
09:45-11:00	Session A6: Korea-Japan Joint Session I Main Room (Hall ManaRola)			Session B6: Korea-Japan Joint Session II Second Room (Hall Riomaggiore)		
	Chair: Yun Jung Heo, Shinji Deguchi			Chair: Sukyung Park, Jiro Sakamoto		
	No	Name	Affiliation	No	Name	Affiliation
	Fr01A001	Jung-Woog Shin	Inje University	Fr01B001	Kazuya Seo	Yamagata University
	Fr01A002	Noriyuki Kataoka	Nihon University	Fr01B002	Yoon Hyuk Kim	KyungHee University
	Fr01A003	Jinah Jang	POSTECH	Fr01B003	Katsumasa Tanaka	Kogakuin University
11:00-11:10	Break					
11:10-12:00	Fr01A004	Shinji Deguchi	Osaka University	Fr01B004	Sukyung Park	KAIST
	Fr01A005	Yun Jung Heo	Kyung Hee University	Fr01B005	Jiro Sakamoto	Kanazawa University
12:00-13:00	Lunch (2nd Floor) & Poster Browsing					
12:40-13:40	Poster Session 좌장: 천권수, 구승범, 조영삼					
	모든 포스터 (All Posters)					
13:40-14:40	Session A7: Bio-Manufacturing 1발표장 (마나롤라 홀)			Session B7: Bio & Cell-Mechanics / Sports Mechanics 2발표장 (리오마조레 홀)		
	좌장: 조영삼 (원광대)			좌장: 장진아 (POSTECH)		
	No	Name	Affiliation	No	Name	Affiliation
	Fr02A001	고정혁	한국해양대학교	Fr02B001	강민우	KAIST
	Fr02A002	정세진	성균관대학교	Fr02B002	박원만	(주)엘셀텍
	Fr02A003	TRAN VAN TRON	전남대학교	Fr02B003	정지영	서강대학교
	Fr02A004	LE HONG HIEU	전남대학교	Fr02B004	최협	KAIST
14:40-14:50	Break					

▶ Day 3 (April 26th Friday)

14:50-15:50	Session A8: Bioengineering 1발표장 (마나롤라 홀) Main Room (Hall ManaRola)			Session B8: Biomedical Simulation & Devices 2발표장 (리오마조레 홀) Second room (Hall Riomaggiore)		
	좌장: 양성욱 (KIST)			좌장: 허윤석 (계명대)		
	No	Name	Affiliation	No	Name	Affiliation
	Fr03A001	주윤하	서울대학교	Fr03B001	김선철	계명대학교
	Fr03A002	심희동	충남대학교	Fr03B002	천권수	대구가톨릭대학교
	Fr03A003	김종만	연세대학교	Fr03B003	신정훈	동원엔텍
	Fr03A004	정진영	KAIST	Fr03B004	하동헌	포항공과대학교
15:50-16:00	Break					
16:00-17:00	학술위원회 특강 (마나롤라 홀) 좌장: 신충수 (서강대학교)					
	박수경 (KAIST): 1 시간 만에 머신러닝 훑어보기					
17:00-17:05	Break					
17:05-17:25	시상식 II & 폐막 (마나롤라 홀)					
포스터 발표(53개)	박원만, 김지원, 심주용, 정하늘, 곽대순, 신건희, 전용태, 정현호, 임기무, 이진규, 김윤혁, 정지영, 김정현, 김명섭, 최협, 박은애, 김태윤, 이형석, 김정주, 박승철, 남윤한, 윤의성, 설창욱, 최지성, Ana I. Ferrer R., 이종민, 이경진, 지현슬, 백승민, 백준기, 정영도, 강규민, 박준하, 이연수, 구범모, 김태희, 임현정, 김종범, 이희수, 임다혜, 조우상, 서수영, 홍지은, 김판권, 안중호, 김재윤, 권대규, 김석주, 신동아, 배지용, 유수환, 임도형, 임호섭					

2019 KSME BioEngineering Division Spring Conference Schedule & Korea-Japan Joint Symposium

▶ DAY 1 (April 24th Wednesday)

Time	Session
16:00-18:00	Registration (Haeundae Hanwha Resort Tivoli, 3rd floor) BioEngineering Industry-Academy Collaboration Seminar

▶ DAY 2 (April 25th Thursday)

Time	Session					
08:00-09:30	Registration (Haeundae Hanwha Resort Tivoli, 3rd floor, Hall ManaRola)					
09:30-10:30	Session A1: Bioengineering Main Room (Hall ManaRola)			Session B1: Human Modeling & Simulation Second room (Hall Riomaggiore)		
	Chair: Sang Hoon Kang (UNIST)			Chair: GeeMoo Lim (Kumoh National Institute of Technology)		
	No	Name	Affiliation	No	Name	Affiliation
	Th01A001	Dohyung Lim	Sejong University	Th01B001	Young-jun Koo	Chung-ang University
	Th01A002	MREDHA MD TARIFUL ISLAM	Chonnam National University	Th01B002	Chankyu Han	KAIST
	Th01A003	Lim Hyun Sub	Keimyung University	Th01B003	Jeongwon Kim	Chung-ang University
	Th01A004	Seok Ju Kim	Sejong University	Th01B004	Myunghyun Lee	KAIST
10:30-10:40	Break					
10:40-11:55	Session A2: Bio-MEMS/Sensor/Device Main Room (Hall ManaRola)			Session B2: Biomimetics & Nature-Inspired Technology Second room (Hall Riomaggiore)		
	Chair: Hong Nam Kim (KIST)			Chair: Youngdo Jung (KIMM)		
	No	Name	Affiliation	No	Name	Affiliation
	Th02A001	Kyoung-Soub Lee	KAIST	Th02B001	Donggyu Kim	KAIST
	Th02A002	Yong Jae Kim	Yonsei University	Th02B002	Sung Hyuk Song	KIST
	Th02A003	Thapa Mukesh	Keimyung University	Th02B003	Suhun Chae	POSTECH
	Th02A004	Taewi Kim	Ajou University	Th02B004	Saebom Lee	Sungkyunkwan University
	Th02A005	Jisoo Kim	POSTECH	Th02B005	Jaewook Kim	POSTECH
11:55-13:00	Lunch (2nd Floor)			Strategic NRF Grant meeting (Hall Riomaggiore, 11:55-12:30) Chair: Yoon Hyuck Kim (Kyounghee Univ) Dr. Hun Cheol Kim (NRF) : NRF Res. Funds and Winning Strategy (focusing at Human+ grant)		

13:00-14:00	Session A3: Bio & Cell-Mechanics Main Room (Hall ManaRola)			Session B3: Biomedical Simulation & Devices Second room (Hall Riomaggiore)		
	Chair: Jang-Hwan Choi (Ewha Womans University)			Chair: Seon Chil Kim (Keimyung University)		
	No	Name	Affiliation	No	Name	Affiliation
	Th03A001	Ho-Jung Cho	Catholic University	Th03B001	Hee Rak Kim	Korea Polytechnic University
	Th03A002	Suk Hwan Yoon	Korea Polytechnic University	Th03B002	Seongsu Cho	Sungkyunkwan University
	Th03A003	Sehyun Park	Yonsei University	Th03B003	Seong Hyeon Jo	KAIST
	Th03A004	Youngbin Cho	KAIST	Th03B004	Hangil Lee	KAIST
14:00-14:10	Break					
14:10-15:25	Session A4: Human Modeling & Simulation Main Room (Hall ManaRola)			Session B4: Bio-Robotics Second room (Hall Riomaggiore)		
	Chair: Dai-Soon Kwak (Catholic University)			Chair: Sung-Hyuk Song (KIMM)		
	No	Name	Affiliation	No	Name	Affiliation
	Th04A001	Seongyun Cho	KAIST	Th04B001	Min Jae Jo	KAIST
	Th04A002	Bum Joon Kim	KAIST	Th04B002	Gi Heon Ha	Konkuk University
	Th04A003	Minsu Jang	KIST	Th04B003	Hyunah Kang	UNIST
	Th04A004	Ki Moo Lim	Kumoh National Institute of Technology	Th04B004	Yoon-Seop Lim	KAIST
	Th04A005	Hyerim Lim	KAIST	Th04B005	Kun-Do Lee	KAIST
15:25-15:40	Break					
15:40-16:50	Plenary / Young Scientist Session I (Hall ManaRola) Chair : WonHyung Ryu (Yonsei Univ.)					
	Plenary	Sung Kwon Cho (University of Pittsburgh, USA): Antibiofouling Digital Microfluidics & Bio Micro Swimming Drone				
	Young Scientist	Seongjun Park (KAIST, Korea) : Multifunctional Fiber-based Neural Interfaces				
16:50-17:00	Break					
17:00-18:15	Main Room (Hall ManaRola)			Session B5: Bio-Manufacturing / Biomedical Simulation Second room (Hall Riomaggiore)		
				Chair: Seok-Jo Yang (Chungnam national University)		
	No Session (Preparing the Banquet)			No	Name	Affiliation
				Th05B001	Yong Sang Cho	Wonkwang University
				Th05B002	Seungman Jung	POSTECH

		Th05B003	Ye Chan Lee	KAIST
		Th05B004	Namseon Jang	Korea Institute of Science and Technology
		Th05B005	Hwa Chul Jung	U&i Corporation
18:15-18:30	Break			
18:30-20:30	Banquet (Hall ManaRola) & Award I			
20:30-21:30	KSME BED Executive meeting (Hall ManaRola)			

▶ Day 3 (April 26th Friday)

Time	Session					
08:00-09:00	Poster Attachment					
09:00-09:40	Plenary Session II (Hall ManaRola) Chair: Hyuneui Lim (KIMM)					
	Masaaki Tamagawa (Kyushu Institute of Technology, Japan): Medical Application of Shock Waves, Bubbles and Micro Capsules					
09:40-09:45	Break					
09:45-11:00	Session A6: Korea-Japan Joint Session I Main Room (Hall ManaRola)			Session B6: Korea-Japan Joint Session II Second Room (Hall Riomaggiore)		
	Chair: Yun Jung Heo, Shinji Deguchi			Chair: Sukyung Park, Jiro Sakamoto		
	No	Name	Affiliation	No	Name	Affiliation
	Fr01A001	Jung-Woog Shin	Inje University	Fr01B001	Kazuya Seo	Yamagata University
	Fr01A002	Noriyuki Kataoka	Nihon University	Fr01B002	Yoon Hyuk Kim	KyungHee University
	Fr01A003	Jinah Jang	POSTECH	Fr01B003	Katsumasa Tanaka	Kogakuin University
11:00-11:10	Break					
11:10-12:00	Fr01A004	Shinji Deguchi	Osaka University	Fr01B004	Sukyung Park	KAIST
	Fr01A005	Yun Jung Heo	Kyung Hee University	Fr01B005	Jiro Sakamoto	Kanazawa University
12:00-13:00	Lunch (2nd Floor) & Poster Browsing					
12:40-13:40	Poster Session Chair: Kwon Su Chon, Seungbum Koo, Young-Sam Cho					
	All Posters					
13:40-14:40	Session A7: Bio-Manufacturing Main Room (Hall ManaRola)			Session B7: Bio & Cell-Mechanics / Sports Mechanics Second Room (Hall Riomaggiore)		
	Chair: Young-Sam Cho (Wonkwang University)			Chair: Jinah Jang (POSTECH)		
	No	Name	Affiliation	No	Name	Affiliation
	Fr02A001	고정혁	Korea Maritime and Ocean University	Fr02B001	M Kang	KAIST

	Fr02A002	Sejin Jung	Sungkyunkwan University	Fr02B002	Won Man Park	Elsoltec
	Fr02A003	TRAN VAN TRON	Chonnam National University	Fr02B003	Jiyoung Jeong	Sogang University
	Fr02A004	LE HONG HIEU	Chonnam National University	Fr02B004	Hyeob Choi	KAIST
14:40-14:50	Break					

► Day 3 (April 26th Friday)

14:50-15:50	Session A8: Bioengineering Main Room (Hall ManaRola)			Session B8: Biomedical Simulation & Devices Second room (Hall Riomaggiore)		
	Chair: Sungwook Yang (KIST)			Chair: Yun Seok Heo (Keymyung University)		
	No	Name	Affiliation	No	Name	Affiliation
	Fr03A001	Yoon Ha Joo	Seoul National University	Fr03B001	Kim Seon Chil	Keymyung University
	Fr03A002	Hee-Dong Sim	Chungnam National University	Fr03B002	Kwon Su Chon	Daegu Catholic University
	Fr03A003	Jongman Kim	Yonsei University	Fr03B003	Junghoon Shin	Dongwon EN-Tec
	Fr03A004	Jinyoung Jeong	KAIST	Fr03B004	Dong-Heon Ha	POSTECTH
15:50-16:00	Break					
16:00-17:00	Strategic Academic Knowledge Acquisition (Hall ManaRola), Chair: Choongsoo Shin (Sogang Univ)					
	Sookyung Park (KAIST) "Mastering of the Machine Learning in 1 hour"					
17:00-17:05	Break					
17:05-17:25	Award II & Closing (Hall ManaRola)					

Special Talk : Second Room (Hall Riomaggiore)

April 25, 2019 (Thu)

[11:55-12:30] **Strategic NRF Grant meeting** **Chair: Yoon Hyuck Kim (Kyounghee Univ)**
 Dr. Hun Cheol Kim (NRF)

NRF Res. Funds and Winning Strategy (focusing at Human + Grant)

Special Talk : Main Room (Hall ManaRola)

April 25, 2019 (Thu)

[15:40-16:50] **Plenary / Young Scientist Session I** **Chair: WonHyoung Ryu**
 Plenary: Sung Kwon Cho (University of Pittsburgh, USA) **(Yonsei Univ.)**
 Young Scientist: Seongjun Park (KAIST, Korea)

- | | | | |
|---|--|-------|---|
| 1 | Antibiofouling Digital Microfluidics & Bio Micro Swimming Drone
/ Sung Kwon Cho | ----- | 1 |
| 2 | Multifunctional Fiber-based Neural Interfaces / Seongjun Park | ----- | 2 |

April 26, 2019 (Fri)

[09:00-09:40] **Plenary Session II** **Chair: Hyuneui Lim (KIMM)**
 Masaaki Tamagawa (Kyushu Institute of Technology, Japan)

Medical Application of Shock Waves, Bubbles and Micro Capsules
 / Masaaki Tamagawa ----- 3

[16:00-17:00] Strategic Academic Knowledge Aquisition Session **Chair: Choongsoo Shin**
 Sookyung Park (KAIST) **(Sogang Univ)**

A brief introduction to machine learning in 1 hour / Sookyung Park (KAIST) ----- 4

2019 KSME-JSME Bioengineering Joint Symposium

April 26, 2019 (Fri)

Korea-Japan Joint Session I

[09:45-12:00]

Cell Mechanics/BioSensor

Chair: Yun Jung Heo, Shinji Deguchi

(Room #1, Hall ManaRola)

Fr01A001	Mechanical Engineering and Stem Cell Researches / Jung-Woog Shin (Inje University)	----- 5
Fr01A002	Effect of Long-term Mechanical Stimulus on Calcification and Differentiation of Osteoblast-like Cell Line / Noriyuki Kataoka (Nihon University)	----- 5
Fr01A003	3D Bioprinting of Functional Tissue Models with Cell-favorable Microenvironments / Jinah Jang (POSTECH)	----- 6
Fr01A004	Characterizing the mechanical properties of cellular fibers / Shinji Deguchi (Osaka University)	----- 6
Fr01A005	Glowing glucose sensors for biomedical applications / Yun Jung Heo (Kyung Hee University)	----- 7

Korea-Japan Joint Session II

[09:45-12:00]

Human dynamics/BioMimetics

Chair: Sukyung Park, Jiro Sakamoto

(Room #2, Hall Riomaggiore)

Fr01B001	The effect of the shape of the javelin tip on flight distance / Kazuya Seo (Yamagata University)	----- 7
Fr01B002	Hip-knee interjoint coordination during cross-country skiing / Yoon Hyuk Kim (Kyung Hee University)	----- 8
Fr01B003	Evaluation of a golf club based on muscle activity during swing by using inverse dynamics analysis / Katsumasa Tanaka (Kogakuin Universit	----- 8
Fr01B004	A method of monitoring human motion in sports field based on the characteristics of motion dynamics / Sukyung Park (KAIST)	----- 9
Fr01B005	Bio-innovative design using bone shape and its application / Jiro Sakamoto (Kanazawa University)	----- 9

제1발표장 (마나롤라 홀, Hall ManaRola)

Apr 25, 2019일 (Thu)

[09:30-10:30]	Bioengineering	Chair: Sang Hoon Kang (UNIST)
Th01A001	Verification of Seat Position Change System for Improvement of Safety during Autonomous Emergency Breaking Operation at Out of Seat Position / Jisoo Jung, Kun Woo Kim, Myeong Kwan Kang, Seonglae Kim, HyungJoo Kim, Dohyung Lim (Sejong University) -----	10
Th01A002	Anisotropic tough hydrogels with programmable superstructures / MREDHA MD TARIFUL ISLAM (전남대), Le Hong Hieu, Van Tron Tran, Insu Jeon -----	11
Th01A003	A Study on EEG Change Tracking on Cognitive Rehabilitation Program Image Based on Tablet Media / Kim Seon Chil, Lee Jong Ha, Lim Hyun Sub (Keimyung University) -----	11
Th01A004	Analysis of Residual Stress according to Process conditions on the Manufacturing of Tibia Ba seplate with Porous Structure through Simulation / Jinju Jang, 김석주 (Sejong University), Taey ang Kwak, Hansol Seo , Dohyung Lim -----	12
[10:40-11:55]	Bio-MEMS/Sensor/Device	Chair: Hong Nam Kim (KIST)
Th02A001	Optimal time-window size of convolutional neural networks for periodic rehabilitation exercises / Kyoung-Soub Lee (KAIST), Sanghoon Chae, Sanghoon Chae -----	13
Th02A002	Fabrication of Photosynthesis based Bio-photoelectrochemical Cell using Plasmon Nanoparticle-thylakoid Conjugated Anode / Yong Jae Kim (Yonsei University), Hyeonaug Hong, Seon Il Kim, JaeHyoung Yun, WonHyoung Ryu -----	13
Th02A003	Wavy pattern microfluidic fabrication on a PDMS based platform / Thapa Mukesh (Keimyung University), Lee Sung Han, Heo Yun Seok -----	14
Th02A004	크랙센서를 이용한 헤드셋형 맥박센서 개발 / 김태위 (아주대), 김성연, 강대식 -----	14
Th02A005	Concentric Drugs Carrier with Dual Controlled Release of Dexamethasone/Bevacizumab for Wet Age-related Macular Degeneration (AMD) / Jisoo Kim (POSTECH), Jisoo Kim, Jae Yon Won, Jongmin Kim, Jinah Jang, Young-Hoon Park, Dong-Woo Cho -----	15
[13:00-14:00]	Bio & Cell-Mechanics	Chair: Jang Wan Choi (Ewha Womans Univ)
Th03A001	Changes of spinopelvic parameters in different positions / 조호정 (가톨릭대), 곽대순 -----	15
Th03A002	자성나노입자와 자기력을 이용한 세포 조절 / 윤석환 (한국산업기술대) -----	16
Th03A003	Geometric pattern of extracellular matrix protein dictates cell migration / Sehyun Park (Yonsei University), Hyungsuk Lee -----	16
Th03A004	Physical stress regulates the expansion patterns of epithelial monolayer / Youngbin Cho (KAIST), Bomi Gweon, Jacob Notbohm, Dayoung Kim, Hyuntae Jeong, Hwanseok Jang, David Helfman, Yongdoo Park, Jeffrey Fredberg, Jennifer H. Shin -----	17
[14:10-15:25]	Human Modeling & Simulation	Chair: Dai-Soon Kwak (Catholic Univ)
Th04A001	Design Optimization of Biomimetic Tendon-driven Hand Rehabilitation Device Using Trajectory Estimation Simulation Model / Seongyun Cho (KAIST), Dong Hyun Kim, Hyung-Soon Park -----	18

Th04A002	A Study on effect of data transformation through walking dynamics in GRF estimation using neural network model / Sukyung Park, Bum Joon Kim (KAIST), Hyerim Lim -----	18
Th04A003	Wearable Arm Motion Tracking System Using Fiber Bragg Grating Sensors in Real-Time / Minsu Jang (KIST), Jun Sik Kim, Kyumin Kang, Byung Kook Kim, Soong Ho Um, Jinseok Kim, Sungwook Yang -----	19
Th04A004	Computational study for prediction of electrical parameters influencing cardiac pumping capacity during ventricular tachyarrhythmia / Da Un Jeong, Ki Moo Lim (Kumoh National Institute of Technology) -----	20
Th04A005	The body-centered coordinate enhances the estimation accuracy of ground reaction force using neural network / Hyerim Lim (KAIST), Bum Joon Kim, Sukyung Park -----	21

Apr 26, 2019일 (Fri)

[13:40-14:40]	Bio-Manufacturing	Chair: Junhee Lee (KIMM)
Fr02A001	다층박막 적층기술기반 감지 및 약물 방출 가능한 기능성 실 제조 / 고정혁 (한국해양대) -----	21
Fr02A002	Release rate analysis on microfluidic fabricated alginate particles containing liposome / Sejin Jung (Sungkyunkwan University), Ryungeun Song, Baekhoon Seong, Jihoon Kim, Jin Hwan Ko, JinKee Lee -----	22
Fr02A003	Stretchable and self-healing hydrogels / TRAN VAN TRON (Chonnam National University), Tariful Islam Mredha, Insu Jeon -----	22
Fr02A004	Non-drying Hydrogels / LE HONG HIEU (Chonnam National University), Tariful Islam Mredha, Insu Jeon -----	23
[14:50-15:50]	Bioengineering	Chair: Sungwook Yang (KIST)
Fr03A001	Intermittent and Periodic Vasoconstriction analysis during Cardiopulmonary Bypass / Yoon Ha Joo (Seoul National University), Jung Chan Lee -----	23
Fr03A002	Classification of EEG for Dementia Patients with Convolutional Neural Network / Hee-Don Sim (Chungnam National University), Han-UI Gong, So-Min Lee, Hye-Hyun Kim, Seok-Jo yang -----	24
Fr03A003	The classification accuracy and the correlation of feature in sEMG-based ANN classifier for the finger gesture recognition / Jongman Kim (Yonsei University), Taehee Kim, Bummo Koo, Hanul Jeong, Youngho Kim -----	24
Fr03A004	Real-time Estimation and Compensation of the Internal Friction by Machine Learning / Jinyeong Jeong (KAIST), Si-Hwan Heo, Hyung-Soon Park -----	25

제2발표장 (리오마조레 홀, Hall Riomaggiore)

Apr 25, 2019일 (Thu)

[09:30-10:30]	Human Modeling & Simulation	Chair: GeeMoo Lim (Kumoh National Institute of Technology)
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Th01B001	Knee contact force estimation using a musculoskeletal dynamics knee model with ligaments / Young-jun Koo (Chung-ang University), Giuk Lee Seungbum Koo -----	25
Th01B002	Reliable Gait Event Detection in Stroke Survivors by using Relative Foot Position Algorithm (RFPA) / Chankyu Han (KAIST), Yusung Kim, Hyun-Soon Park -----	26
Th01B003	Joint contact force during walking in unilateral foot osteoarthritis subjects / Jeongwon Kim (Chung-ang University), Giuk Lee, Kyoung Min Lee, Seungbum Koo -----	26
Th01B004	Human walking could be demonstrated by a passive SLIP model / Myunghyun Lee (KAIST), Sukyung Park -----	27

[10:40-11:55]

Biomimetics & Nature-Inspired Technology

Chair: Youngdo Jung (KIMM)

Th02B001	A Theoretical Study and Numerical Methodology to Predict Advancing and Receding Angle of the Droplet on Textured Surfaces / Donggyu Kim (KAIST), Seunghwa Ryu -----	27
Th02B002	Development of human arm-mimetic soft robot joint for shock absorption / Sung-Hyuk Song (KIMM), Yong-Sin Seo, Jae-Young Lee, Cheol Hoon Park, Byeungin Kim, Byeungin Kim, Chanhun Park -----	28
Th02B003	3D cell-printing of tendon-bone interface using tissue-specific bioinks for rotator cuff repair / Suhun Chae (POSTECH), In-Ho Jeon, Dong-Woo Cho -----	29
Th02B004	Nature-inspired humidity-responsive actuator based on hydrogel using electrospinning / Saebom Lee (Sungkyunkwan University), Minki Lee, Jinkee Lee -----	29
Th02B005	Development of Implantable Vascularized Pancreatic Construct by 3D Cell Printing Technology / Jaewook Kim (POSTECH), In Kyong Shim, Yu Na Lee, Dong Gyu Hwang, Myungji Kim, Seok-Won Kim, Song Cheol Kim, Dong-Woo Cho, Jinah Jang -----	30

[13:00-14:00]

Biomedical Simulation & Devices

Chair: Seon Chil Kim (Keimyung Univ)

Th03B001	Effects of Microgravity on Stem Cell Proliferation / Hee Rak Kim (Korea Polytechnic University), Seok Hwan Yun, Gyu Sik Hong, Jeong Hwan Cho, Yeon Cho, Jin Hyung Shim, Taig Young Kim -----	30
Th03B002	Improvement of recirculation and thrombus for Central Venous Catheter / Seongsu Cho (Sungkyunkwan University), Ryungeun Song, Ryungeun Song, Sun Cheol Park, Jinkee Lee -----	31
Th03B003	Relation between MRI resolution and brain segmentation / Seong Hyeon Jo (KAIST), Hyung-Soon Park -----	31
Th03B004	Effect of Knee Assistive Wear on Metabolic Parameters during Sit-to-Stand Test / Hangil Lee (KAIST), Seok Hee Kim, Seok Hee Kim -----	32

[14:10-15:25]

Bio-Robotics

Chair: Sung-Hyuk Song (KIMM)

Th04B001	Design of an Inertial Clutch for Wrist Mechanism of a Golf-Specific Prosthetic Hand / Min Jae Jo (KAIST), Min Jae Jo, Hyung-Soon Park -----	32
Th04B002	Improvement of locust-like flapping-wing-assisted jumping robot / Gi Heon Ha (Konkuk University), Hoang Vu Phan, Hoon Cheol Park -----	33
Th04B003	Reliability of Human Lim Impedance Estimation of HapticMaster / Hyunah Kang (UNIST), Sung Shin Kim, Sang Hoon Kang -----	33
Th04B004	Development of String Actuation System with Variable Diameter Shaft / Yoon-Seop Lim (KAIST), Chan-Beom Park, Hyung-Soon Park -----	34
Th04B005	Real-time Gait Analysis System for Patients with Cerebral Palsy / Kun-Do Lee (KAIST), Hyung-Soon Park -----	34

[17:00-18:15]	Bio-Manufacturing / Biomedical Simulation	Chair: Seok-Jo Yang (Chungnam Univ)
Th05B001	Fabrication and <i>in-vitro/in-vivo</i> assessments of the kagome-structure scaffold via biodegradable composite material / Yong Sang Cho (Wonkwang University), Meiling Quan, Nae-Woon Kang, Hoon-Jin Jeong, Myoung Hwa Hong, Young Yul Kim, Young-Sam Cho -----	35
Th05B002	3D 세포 프린팅 기술을 이용한 대동물용 삼차원 심근 패치의 비임상 효능에 관한 연구 / 정승만 (POSTECH), 김한별, 홍영준, 장진아 -----	35
Th05B003	Design of a Finger Spasticity Measurement Device Considering the Branches of the Nerve / Ye Chan Lee (KAIST), Dong Hyun Kim, Hyung-Soon Park -----	36
Th05B004	A Peripheral Nerve Gripper based on Negative-pressure with Passive and Active Microneedle Arrays / Namseon Jang (KIST), Yong Seok Ihn, Jinwoo Jeong, Sungwook Yang, Sehyuk Yim, Sang-Rok Oh, Keehoon Kim, Donghyun Hwang -----	36
Th05B005	Development and Outlook of Medical Device by Bioabsorbable Metal / Hwa Chul Jung (U&I Corporation), Hyung Jin Roh, Won Hyun Shim -----	37

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[13:40-14:40]	Bio & Cell-Mechanics / Sports Mechanics	Chair : Jinah Jang (POSTECH)
Fr02B001	Role of Morphostasis Regulation through Tensile Force on Scar Formation / M. Kang (KAIST), U. H. Ko, H. T. Jeong, E. J. Oh, H. M. Kim, T. J. Kim, J. W. Lee, H. Y. Chung, J. Shin -----	38
Fr02B002	Development of a sequential bone remodeling algorithm to simulate bone remodeling after spinal surgery / Won Man Park (Elsoltec), Yong Jun Jin, Cheongryul Choi -----	39
Fr02B003	Effects of core muscle strength training on lower extremity biomechanics during side-step cutting / 정지영 (서강대), 신충수 Effects of core muscle strength training on lower extremity biomechanics during side-step cutting / Jiyoung Jeong (Sogang University), Choongsoo Shin -----	39
Fr02B004	Proposal of inverse dynamic analysis method of upper limbs closed chain during golf swing / Hyeob Choi (KAIST), Sukyung Park -----	40

[14:40-15:40]	Biomedical Simulation & Devices	Chair: Yun Seok Heo (Keymyung Univ)
Fr03B001	Low dose radiation shielding compound manufacturing technology trend / Kim Seon Chil (Keymyung University), Lee Jong Ha -----	40
Fr03B002	Monte Carlo simulation for Pb-Free Protection Sheet / Kwon Su Chon (Daegu Catholic University) -----	41
Fr03B003	Optimal Design and Application of Lead-Free Metal-Polymer Composite for Radiation Shielding / Junghoon Shin (Dongwon EN-Tec), Woojun Kang, Seung-Ho Shin, Hanbok Seo, Jaemin Kim, Seung-Yop Lee -----	41
Fr03B004	Development of Bioresorbable Esophagus Stent by 3D Printing Technology Focusing on Radiation Esophagitis / Dong-Heon Ha (POSTECH), Suhun Chae, Jae Yeon Lee, Jae Yun Kim, Sung-Woo Lee, Young-Eun Kim, Hak Jae Kim, G-One Ahn, Jae-Ho Cho, Dong-Woo Cho -----	42

Posters (마나롤라 홀, Hall ManaRola)

Apr 26, 2019일 (Fri)

Poster setup before 9AM

[12:40-13:40]

좌장: 천권수 (대구가톨릭대), 구승범 (KAIST), 조영삼 (원광대)

PS001	Biomechanical investigation of extragraft bone formation on the cervical spinal motion segment after anterior cervical discectomy and fusion / Won Man Park (Elsoltec), Yong Jun Jin, Cheongryul Choi	----- 43
PS002	Assessment on spheroidal breast cancer models based on morphology gene expression phenotype, and migratory phenotype / Jiwon Kim (KAIST), Youngbin Cho, Jennifer H. Shin	----- 44
PS003	Tools to study mechanotransduction of cells and Cadherin-based force balance / Joo Yong Sim (ETRI)	----- 45
PS004	Dynamic simulation of the pelvic impact force in backward fall according to the airbag shape / Haneul Jeong (Yeonsei University), Yejin Nam, Youngho Kim	----- 45
PS005	Three-dimensional ulnolunate distance change during forearm rotation / 조호정, 신승한, 곽대순 (가톨릭대)	----- 46
PS006	CCTV camera calibration method using multiple view images with different camera parameters / Geonhui Shin (Chung-Ang University), Giuk Lee, Seungbum Koo	----- 46
PS007	Reconstruction of 3D femur model with 2D images and template model / Gi Woon Park, Yongtae Jun (Sejong University)	----- 47
PS008	A method of collecting the center of mass from walking video using correlation filter to estimate ground reaction force / Jeong Hyunho (KAIST), Sukyung Park	----- 47
PS009	Effect of tachyarrhythmia on Heart energy consumption rate : Mathematic stury / Ha Yeong Yoon, Ki Moo Lim (Kumoh National Institute of Technology)	----- 48
PS010	Effect of ankle plantar flexion angle ar initial contact on the contribution of lower extremity muscles to reduce landing impact / Jinkyu Lee (Sogang University), Choongsoo S. Shin	----- 48
PS011	관성센서 기반의 크로스컨트리 스키 스케이팅 주법에 대한 3차원 전신 기구학 분석 / 천마로, Batbayar Khuyagbaatar, 이정민, Temuujin Batbayar, 최용철, 김윤혁 (경희대)	----- 49
PS012	Examination of lower extremity muscle morphology in healthy males and females using ultrasound images / Jiyoung Jeong (Sogang University), Choongsoo S. Shin	----- 50
PS013	The impact analysis of a putter for various boundary conditions / Jeongheon Kim (KAIST), Sukyung Park	----- 50
PS014	A method of reducing trajectory error from IMU signal based on characteristics of the swing motion / Myeongsub Kim (KAIST), Sukyung Park	----- 51
PS015	Estimation of vertical ground reaction force using limited number of sensors / Hyeob Choi (KAIST), Junghoon Park, Jung Kim, Sukyung Park	----- 51
PS016	Fabrication of Biodegradable Kapok-Zeolite Membrane and Cesium Adsorption / Eun-ae Park (Sogang Unviersity), Han-bok Seo, Jae-min Kim, Seung-Yop Lee	----- 52
PS017	Development of water-saving plant growth technique mimicking widely dispersed hyphae in soil / Tae-Yoon Kim (Sogang University), Sang-Hyo Lee, Seung-Yop Lee	----- 52
PS018	Fabrication of actomyosin vesicle for micro-actuation / Jonghyeok Baek, Donyoung Kang, Hyungsuk Lee (Yonsei University)	----- 53
PS019	Development of 3D cell-printed multiple-organs in vitro model for Type 2 Diabetes Mellitus Emulation / Joeng Ju Kim (POSTECH), Vy Vuong-Tuong Nguyen, Ju Young Park, Jae Yeon Won, Dong-Woo Cho	----- 53

PS020	Nature-Inspired antifouling surfaces for implantable medical devices / 박승철 (KIMM), 한규현, 이천지, 정초롱, 임현의	----- 54
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