

ICBME 2024: Program

Monday, December 9, 2024	
09:00 - 09:15	Session OC - Opening Ceremony - LT7A Chair: Chwee Teck Lim, National University of Singapore
09:15 - 09:45	Session DL - Distinguished Lecture by Prof. Chorh Chuan TAN - LT7A Chair: Raye Yeow, National University of Singapore
09:45 - 10:30	Session PL1 - Plenary Lecture - LT7A Chair: James Goh, National University of Singapore
09:45 - 10:30	795 - AI/Data Science-Driven Precision Medicine <i>Metin Akay</i> University of Houston
10:30 - 10:45	MoN1 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor
10:45 - 12:15	Session MoB1: Special Symposium - Engineering Mechanobiology 1 - LT7A Chair: Andrew Holle, National University of Singapore Co-Chair: Jennifer Young, National University of Singapore
10:45 - 11:15	669 - KN: Hydrogel microconfinement to coordinate cell (re)programming <i>Kristopher Kilian</i> UNSW Sydney
11:15 - 11:45	614 - Microscale geometrical modulation of PIEZO1 mediated mechanosensing through cytoskeletal redistribution <i>Arnold Lining Ju</i> The University of Sydney
11:45 - 12:00	803 - Engineering approaches to investigate effects of diabetogenic milieu on cancer-stromal competitions <i>Ramray Bhat</i> Indian Institute of Science
12:00 - 12:15	764 - From Tissue Engineering to Cultivated Meat: Role of Biopolymers and Physical Conditions in Influencing Cell Fate <i>Lay Poh Tan, Jasmine Seah, Pei Leng Tan, Andy Koh</i> Nanyang Technological University
12:15 - 12:30	385 - Investigation of Mechanosensing of Cell-cell Interactions in Engineered Cell Niches using Multiphoton Microfabrication and Micropatterning (MMM) Technology <i>Abigail Dee Chen¹, Nan Huang², Chi Hung Yip¹, Barbara Pui Chan³</i> ¹ Department of Mechanical Engineering, The University of Hong Kong; Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ² Institute of Tissue Engineering and Regenerative Medicine, The Chinese University of Hong Kong, ³ The Chinese University of Hong Kong
10:45 - 12:15	Session MoB2: Special Symposium - Wearable Technologies 1 - Engineering Auditorium Chair: Changsheng Wu, National University of Singapore
10:45 - 11:15	731 - KN: Intelligent Wearable Resistive Skins for Health Monitoring of Human and Organoids <i>Wenlong Cheng</i> University of Sydney
11:15 - 11:45	657 - KN: Toward an E-Tattoo Body Sensor Network for Human Performance Assessment <i>Nanshu Lu</i> The University of Texas at Austin
11:45 - 12:00	802 - Soft Microelectronics Powered Wearable AI for Digital Health <i>Shiming Zhang</i> The University of Hong Kong
12:00 - 12:15	792 - Wearable bioelectronics for machine learning-powered personalized healthcare <i>Yu Song</i> City University of Hong Kong

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10:45 - 12:15	<p>Session MoB3: Special Symposium - Revolutionizing Healthcare: Unleashing the Power of AI in Medical Imaging - EA-02-11</p> <p>Chair: Chunyi Wen, The Hong Kong Polytechnic University Co-Chair: Shujun Wang, The Hong Kong Polytechnic University</p>
10:45 - 11:15	<p>715 - KN: Deep-Learning-based Radiomics for Knee Osteoarthritis Severity Assessment and Replacement Risk Prediction</p> <p><i>Tianshu Jiang, Lok-Chun Chan, Chunyi Wen</i> The Hong Kong Polytechnic University</p>
11:15 - 11:30	<p>714 - Enhancing Model Generalizability for Diabetic Retinopathy Classification Through Test-Time Adaptation</p> <p><i>Nanxi Yu and Shujun Wang</i> The Hong Kong Polytechnic University</p>
11:30 - 11:45	<p>688 - Enhancing molecular brain MRI with deep learning</p> <p><i>Jianpan Huang</i> The University of Hong Kong</p>
11:45 - 12:00	<p>631 - Artificial Intelligence-Assisted Evaluation of Severity and Progression in Adolescent Idiopathic Scoliosis Using Dorsal Surface Parameters</p> <p><i>Pengyu Lu, Jason Pui Yin Cheung, Dip-Kei Keith Luk, Moxin Zhao, Nan Meng, Teng Zhang</i> Digital Health Laboratory, Faculty of Medicine, The University of Hong Kong</p>
12:00 - 12:15	<p>816 - Harnessing Multimodal AI for Knowledge-Enhanced Computational Pathology</p> <p><i>Lequan Yu</i> Faculty of Science, The University of Hong Kong</p>
10:45 - 12:15	<p>Session MoB4: Special Symposium - Extracellular Vesicles 1 - EA-06-02</p> <p>Chair: Wei Seong Toh, National University of Singapore</p>
10:45 - 11:15	<p>539 - KN: Challenges in Developing MSC EV-based Therapies</p> <p><i>Sai Kiang Lim</i> Paracrine Therapeutics</p>
11:15 - 11:30	<p>606 - Keep your Wisdom Teeth! Multi-uses of Dental Pulp Stem Cell Derived Exosomes</p> <p><i>Ziyu Zhou and Xiaoli Hu</i> Hospital of Stomatology, Sun Yat-sen University, Guangdong Provincial Key Laboratory of Stomatology</p>
11:30 - 11:45	<p>534 - Label-free Microfluidics Technologies for Extracellular Vesicles Isolation</p> <p><i>Hanwei Hou</i> Nanyang Technological University</p>
11:45 - 12:00	<p>789 - Nanosensor technologies for molecular analyses of circulating extracellular vesicles</p> <p><i>Huilin Shao</i> National University of Singapore</p>
10:45 - 12:15	<p>Session MoB5: Oral Session - Biomaterials 1 - EA-06-03</p> <p>Chair: Ling Yu, Wuhan University Co-Chair: Jiayi Guo, Institute of Materials Research and Engineering, A*STAR</p>
10:45 - 11:00	<p>102 - Bioactive Non Woven Dressings for Chronic Wounds Management</p> <p><i>Jiayi Guo</i> A*STAR Institute of Materials Research and Engineering</p>
11:00 - 11:15	<p>134 - Electroactive Poly(ϵ-caprolactone)/Gelatin/ Ti3C2Tx MXene Coaxial Electrospun Nanofibrous Membranes for Accelerating Skin Wound Healing Under Electrical Stimulation</p> <p><i>Zhang Miao Miao</i> Northwestern Polytechnical University</p>
11:15 - 11:30	<p>135 - Regulation of Cell Adhesion on Nanofiber Scaffolds by RGD Modification using PCL Containing Azide Group</p> <p><i>Shu Nakagawa¹, Koji Yamamoto², Yusuke Morita²</i> ¹Graduate School of Life and Medical Sciences, Doshisha University, ²Faculty of Life and Medical Sciences, Doshisha University</p>
11:30 - 11:45	<p>241 - Magnesium Phosphate Cement Induces Osteogenic Differentiation of Osteosarcoma via Upregulating IGFBP5</p> <p><i>Yu Ling, Chen Jingteng, Li Shiyu, Chen Zhangxin, Guo Weichun</i> Wuhan University</p>

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11:45 - 12:00	156 - Carbonized Polymer Dot-Tannic Acid Nanoglue: Tissue reinforcement with Concurrent Fluorescent Tracking, Insulin Delivery, and ROS Regulation for Wound Healing <i>Maansi Aggarwal and Proloy Das</i> Indian Institute of Technology Patna
10:45 - 12:15	Session MoB6: Oral Session - 3D Printing & Additive Manufacturing 1 - EA-06-04 Chair: Barbara Chan, The Chinese University of Hong Kong Co-Chair: Sanjairaj Vijayavenkataraman, New York University Abu Dhabi
10:45 - 11:15	757 - KN: Multiphoton Microfabrication and Micropatterning (MMM) Technology – Technical Capabilities and Biomedical Applications <i>Barbara Chan</i> The Chinese University of Hong Kong
11:15 - 11:30	506 - Poly(ethylene-glycol)-dimethacrylate (PEGDMA) for Stereolithography Bioprinting <i>Nina Shu-Yung Chang, Joseph Zhi Wei Lee, Anupama Sargur Ranganath, Terry Ching, Michinao Hashimoto</i> Singapore University of Technology and Design
11:30 - 11:45	152 - 3D Bioprinting of soft tissues using sustainable bioinks <i>Sanjairaj Vijayavenkataraman</i> New York University Abu Dhabi
11:45 - 12:00	133 - CRANIAL IMPLANT WITH 3D-PRINTING TECHNOLOGY AND POLYMETHYL METHACRYLATE (PMMA): A LOW COST OPTION OF CRANIOPLASTY FOR PATIENTS IN DEVELOPING COUNTRY. <i>Sambardhan Dabadi and Raju Raj Dhungel</i> Annapurna Neurological Institute and Allied Sciences
12:00 - 12:15	117 - Additive manufacturing of next generation implants: bioinspired, high-performance, shape-morphing, smart and living <i>Andres Diaz Lantada¹, Francisco Franco Martinez¹, Adrian Martinez Cendrero¹, Rodrigo Zapata Martinez¹, Carlos Aguilar Vega¹, William Solorzano Requejo¹, Monsur Islam², Jennifer Patterson², Jon Molina-Aldareguia³</i> ¹ Mechanical Engineering Department, Universidad Politecnica de Madrid, ² IMDEA Materials Institute, ³ Mechanical Engineering Department, Universidad Politecnica de Madrid and IMDEA Materials Institute
10:45 - 12:15	Session MoB7: Oral Session - Biosignals, Biosensors & Bioelectronics 1 - EA-06-05 Chair: Wei Chen, University of Sydney Co-Chair: Hanchuan Tang, Huazhong University of Science and Technology
10:45 - 11:15	548 - KN: Unobtrusive Sensor Systems and Health Informatics <i>Wei Chen</i> The University of Sydney
11:15 - 11:30	110 - Silicon Photonic Biosensor for PSA Detection: Synthesis, Characterization and Application <i>Timothy Anton Okhai¹, Azeez Olayiwola Idris², Usisipho Feleni³, Lukas Willem Snyman⁴</i> ¹ Clinical Engineering Department, Tshwane University of Technology, ² Institute of Nanoscience and Nanotechnology, College of Graduate Studies, University of South Africa, ³ Institute of Nanotechnology and Water Sustainability, University of South Africa, ⁴ Department of Electrical and Mining Engineering, University of South Africa
11:30 - 11:45	123 - Improving the limit of detection for genetic assays using rigid nucleic acids <i>Ayokunle A Lekuti, Ayden Malekjahani, Pedro A Valiente, Matthew Osborne, Vanessa Li, Philip M Kim, Warren C. W. Chan</i> University of Toronto
11:45 - 12:00	197 - An electronics-free metagel sensor for continuous and wireless monitoring of deep tissue strains <i>Ye Tian, Hanchuan Tang, Jianfeng Zang</i> Huazhong University of Science and Technology
12:00 - 12:15	601 - Innovative Paper-Based Microfluidic Platform for Multi-Analyte Detection in Ovarian Cancer Using Cost-Effective Printing Techniques <i>Neelam Vishwakarma¹ and Suman Singh²</i> ¹ RMIT University, ² CSIR-Central Scientific Instruments Organisation

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10:45 - 12:15	<p>Session MoB8: Oral Session - Tissue Engineering & Regenerative Medicine 1 - EA-06-07</p> <p>Chair: Peili Teo, A*STAR Institute of Materials Research and Engineering Co-Chair: Zixuan Zhao, National University of Singapore</p>
10:45 - 11:15	<p>653 - KN: Combinatorial biomaterial and retinal regenerative cell therapies for treatment of vitreo-retinal diseases</p> <p><i>Xinyi Su¹, Bhav Harshad Parikh², Zengping Liu³, Xian Jun Loh⁴</i></p> <p>¹Institute of Molecular and Cell Biology (IMCB), ²Institute of Molecular and Cell Biology, ³National University of Singapore, ⁴Institute of Materials Research and Engineering</p>
11:15 - 11:30	<p>112 - GelMA hydrogel microspheres integrating fullerene and extracellular vesicles alleviate osteoarthritis</p> <p><i>Tianqi Wang¹, Hua Wu², Wei Seong Toh¹, James Hoi Po Hui¹</i></p> <p>¹National University of Singapore, ²Huazhong University of Science and Technology</p>
11:30 - 11:45	<p>121 - 3D Printed bioactive skin substitutes for burns</p> <p><i>Peili Teo</i></p> <p>A*STAR Institute of Materials Research and Engineering</p>
11:45 - 12:00	<p>166 - Development of Chondrocyte-encapsulated Alginate Cell-fabric to Enhance Cartilage Regeneration</p> <p><i>Kisuke Yamamoto¹, Koji Yamamoto², Yusuke Morita²</i></p> <p>¹Graduate School of Life and Medical Sciences, Doshisha University, ²Faculty of Life and Medical Sciences, Doshisha University</p>
12:00 - 12:15	<p>381 - Hyperplastic human macromass cartilage for joint regeneration</p> <p><i>Ya Wen¹, Yishan Chen¹, Weiliang Wu¹, Hong Zhang¹, Zhi Peng¹, Xudong Yao¹, Xianzhu Zhang¹, Wei Jiang¹, Youguo Liao¹, Yuan Xie¹, Xilin Shen¹, Heng Sun², Jiajie Hu¹, Hua Liu¹, Xiao Chen¹, Jiansong Chen¹, Hongwei Ouyang¹</i></p> <p>¹Zhejiang University, ²Soochow University</p>
12:15 - 13:30	<p>MoN2 - Lunch @ EA Level 1 Foyer</p>
12:15 - 13:30	<p>Session PN1 - Editorial & Career Panel - Engineering Auditorium</p> <p>Chair: Andy Tay, National University of Singapore</p> <p>PANELLISTS</p> <p>Jill ARUL (Wildtype Media) Irem BAYINDIR-BUCHALTER (Advanced Materials, Wiley) Caroline BEYER (Nature Reviews Bioengineering) Bruno CASTRO (Nature Materials) Xiaodong CHEN (ACS Nano) Jack LEEMING (Nature Masterclass)</p>
12:15 - 13:30	<p>Session PS1 - Poster Session 1 - EA Level 1 Foyer</p>
12:15 - 13:30	<p>136 - Dental pulp stem cell-derived exosomes laden hydrogel promotes wound healing through miR-486-5p-mediated angiogenesis</p> <p><i>Siyu Wang, Ziyu Zhou, Xiaoli Hu</i></p> <p>Hospital of Stomatology, Sun Yat-sen University, Guangdong Provincial Key Laboratory of Stomatology</p>
12:15 - 13:30	<p>148 - Polycarbonate-lipid hybrid nanoparticles for mRNA delivery: Impact of polymer structure on physicochemical and transfection properties</p> <p><i>Dao Thi Hong Le¹, Chuan Yang², Yue Zhang², Gui Zhao², Melgious J.Y. Ang², Ki Hyun Bae², James Hoi Po Hui³, James L. Hedrick⁴, Yi Yan Yang¹</i></p> <p>¹A*STAR Bioprocessing Technology Institute; Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore, ²A*STAR Bioprocessing Technology Institute, ³Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore, ⁴IBM Almaden Research Center</p>
12:15 - 13:30	<p>150 - Label-Free Microfluidic Blood Fractionation for Rapid Analysis of Platelet Activation and Neutrophil-Platelet Aggregates</p> <p><i>Kay Khine Maw¹, Si Ko Myo², Kerem Delikoyun², Johannes Krell³, Wei Wang⁴, Oliver Hayden⁵, Han Wei Wei Hou¹</i></p> <p>¹Nanyang Technological University, ²TUM CREATE, ³Klinikum Rechts der Isar, Department of Anesthesiology, ⁴Singapore Institute of Manufacturing Technology (SIMTech), ⁵Heinz-Nixdorf-Chair of Biomedical Electronics, TranslaTUM School CIT, TUM; Munich Institute of Biomedical Engineering, TUM</p>

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12:15 - 13:30	182 - Individualized Activity of Daily Living Health Prescription Generator <i>Bing-Shiang Yang and Hsueh-Lin Chuang</i> National Yang Ming Chiao Tung University
12:15 - 13:30	190 - Highly specific qPCR primers profile Helicobacter pylori and KRAS as principal agents in stomach cancer <i>Wenfa Ng and Chwee Teck Lim</i> National University of Singapore
12:15 - 13:30	194 - Unique Phytoprotein Targets CGRP-CALCRL Signalling in Periosteal Sensory Nerves to Accelerate Bone Regeneration <i>Augustine S Brah, John A Kubi, Kenneth MC Cheung, Kelvin WK Yeung</i> Department of Orthopaedics and Traumatology, Li Ka Shing Faculty of Medicine, The University of Hong Kong (HKU)
12:15 - 13:30	205 - Nanomechanical Analysis of Exosomes for Discriminating Malignancy in Gastric Cancer Using a Bionic Peritoneum <i>Zhixing Ge¹, Haibo Yu², Wenguang Yang³, Lianqing Liu⁴, Chwee Teck Lim¹</i> ¹ National University of Singapore, ² Shenyang Institute of Automation, Chinese Academy of Sciences, ³ Yantai University, ⁴ Shenyang Institute of Automation
12:15 - 13:30	255 - An Integrated Gravity-driven Microfluidic System for Mass Spectrometry based Immunopeptide Identification <i>Lu Zhang, Johnson Q Cui, Shuhuai Yao</i> The Hong Kong University of Science and Technology
12:15 - 13:30	260 - Photo-mediated hydrogel softening for control of organoid morphogenesis <i>Thi Thuy Duong Dinh, Changzhuang Bai, Isis Middleton, Kristopher Kilian, Pall Thordarson</i> University of New South Wales
12:15 - 13:30	261 - Silk fibroin Zein scaffold for cultivated meat application <i>Santhana Vignesh Thangamani, Xuan Hao Tan, Hwa Liang Leo, James Goh</i> National University of Singapore
12:15 - 13:30	275 - Infrapatellar fat pad-derived MSCs for cartilage tissue engineering <i>Ho Kwan Jeffrey Leung¹, Chun Hoi Yan², Tim Yun Michael Ong³, Shu Hang Patrick Yung³, Barbara Pui Chan³</i> ¹ The University of Hong Kong, The Chinese University of Hong Kong, ² The University of Hong Kong, ³ The Chinese University of Hong Kong
12:15 - 13:30	279 - Impact of fluid dynamic stimuli on Medicago Sativa roots growth in microfluidic system <i>Doh-Won Yi and Joong Yull Park</i> Department of Mechanical Engineering, Graduate School, Chung-Ang University
12:15 - 13:30	283 - μCytoD: A Novel Microfluidic Platform for Efficient Intracellular Delivery <i>Partha Pratim Sarkar, Qiang Zhao, Ye Ai</i> Singapore University of Technology and Design
12:15 - 13:30	286 - Multiscale Extracellular Matrix Properties Influence Cancer Cell Migration <i>Dixiao Chen and Jennifer Young</i> National University of Singapore
12:15 - 13:30	292 - Dynamic cell culture microfluidic platform utilizing rotational motion and open channel flow <i>Kideok Kim¹, Jeongmok Kim¹, Joong Yull Park²</i> ¹ Department of Mechanical Engineering, Graduate School, Chung-Ang University, ² Department of Mechanical Engineering, Graduate School, Chung-Ang University
12:15 - 13:30	303 - The Interplay of ECM Stiffness and Ligand Spacing Regulates Chemoresistance <i>Raageshwari Arulselvam and Jennifer Young</i> National University of Singapore
12:15 - 13:30	318 - Spatial and single cell transcriptome profiling of head and neck cancer reveals heterogeneous tumor niches with distinct macrophage subtypes <i>Zixuan Zhao¹, Josephine Yu Yan Yap¹, Hong Sheng Quah², Narayanan Gopalakrishna Iyer², Eliza Fong¹</i> ¹ National University of Singapore, ² Duke-NUS Medical School

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12:15 - 13:30	<p>323 - Mechanistic study of biomimetic glycosaminoglycans (GAGs)-rich scaffolds and their potential application in nucleus pulposus regeneration</p> <p><i>Hongcai Li¹, Xingxing Yang², Barbara Pui Chan³</i></p> <p>¹1. Tissue Engineering Laboratory, School of Biomedical Sciences; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering, The Chinese University of Hong Kong ²2. Advanced Biomedical Instrumentation Centre, ²2. Advanced Biomedical Instrumentation Centre ³3. Department of Mechanical Engineering, The University of Hong Kong, ³The Chinese University of Hong Kong</p>
12:15 - 13:30	<p>324 - Extracellular matrix structure-stiffness relationships in cardiac aging</p> <p><i>Muhd Faris Hazwan Ramli¹, Ranmadusha M Hengst¹, Matthew Andrew Ackers-Johnson², Roger Sik Yin Foo², Jennifer Young¹</i></p> <p>¹National University of Singapore, ²Yong Loo Lin School of Medicine National University of Singapore</p>
12:15 - 13:30	<p>329 - Media viscosity contributes to the consistent formation of vortex-induced double-emulsion droplets for multicellular cancer cell cluster culturing</p> <p><i>Hao Zhao, Tao Tang, Chwee Teck Lim</i></p> <p>National University of Singapore</p>
12:15 - 13:30	<p>331 - Understanding age-related changes in cardiac extracellular matrix architecture</p> <p><i>Anwasha Guru and Jennifer Young</i></p> <p>National University of Singapore</p>
12:15 - 13:30	<p>336 - Finite Element Model of Human Spine Segments for Vibration and Aging Studies</p> <p><i>Shivam Verma, Arnab Banerjee, Arnab Chanda</i></p> <p>Indian Institute of Technology Delhi</p>
12:15 - 13:30	<p>337 - Softening treatment of fibrotic tissue using fractional laser</p> <p><i>Ren Sato, Ippei Yagi, Eiko Kato, Satoshi Uchida</i></p> <p>Tokyo Metropolitan University</p>
12:15 - 13:30	<p>340 - Evaluation of morphology over time of fusion of spheroids used in the preparation of cell constructs for regenerative medicine</p> <p><i>Ginga Kinoshita¹, Seika Matsuguma¹, Yuki Kako¹, Xiu-Ying Zhang², Zijing Sheng³, Takeshi Shimoto¹</i></p> <p>¹Fukuoka Institute of Technology, ²Department of Pediatric Surgery, Reproductive and Developmental Medicine, Graduate School of Medical Sciences, Kyushu University, ³Department of Medical Biophysics and Radiation Biology, Faculty of Medical Sciences, Kyushu University</p>
12:15 - 13:30	<p>345 - Optimizing ZIF-8 Nanoparticle-Coated PLA Scaffolds for Enhanced Osteogenic Differentiation</p> <p><i>Shirley Ting and Pen-hsiu Grace Chao</i></p> <p>National Taiwan University</p>
12:15 - 13:30	<p>351 - Antithrombotic capabilities of urokinase-coated indwelling dialysis catheters.</p> <p><i>Yuya Iino¹, Kenichi Kokubo², Kozue Kobayashi², Masaru Kubota²</i></p> <p>¹Kitasato University Graduate School of Medical Sciences, ²Kitasato University School of Allied Health Sciences, Kanagawa, Japan;</p>
12:15 - 13:30	<p>360 - Matrix mechanics regulate the ageing cardiac cellular phenotype</p> <p><i>Jashan Singh¹, Matthew Andrew Ackers-Johnson², Jennifer Young³</i></p> <p>¹Mechanobiology Institute, National University of Singapore, ²National University of Singapore, ³Cardiovascular Research Institute, Centre for Translational Medicine MD6, National University Health System</p>
12:15 - 13:30	<p>379 - Anti-inflammatory effects of nitric oxide and hydrogen in an extracorporeal circulatory respiratory assistance model using rats with sepsis</p> <p><i>Kozue Kobayashi, Kenichi Kokubo, Masaru Kubota</i></p> <p>Kitasato University School of Allied Health Sciences</p>
12:15 - 13:30	<p>386 - Bioinspired Janus Nanofiber Hydrogel: A Dual System for therapeutic and bioenergetics to treat Osteoarthritis</p> <p><i>Shivani Chaudhary¹, Sakshi Jain², Sachin Kumar B¹</i></p> <p>¹IIT Delhi, ²NIIT University, Neemrana</p>

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12:15 - 13:30	391 - Inflammation induced by extracorporeal circulation in a rat veno-venous extracorporeal membrane oxygenation model. <i>Kozue Kobayashi¹, Toshiki Furihata², Kenichi Kokubo¹, Masaru Kubota¹</i> ¹ Kitasato University School of Allied Health Sciences, ² University of Yamanashi Hospital
12:15 - 13:30	412 - Collagen-based Biomimetic Material for Generating 3D Pancreatic Tumoroid Model <i>Lok Him Ko and Barbara Pui Chan</i> The Chinese University of Hong Kong
12:15 - 13:30	413 - Development of a pre-clinical microfluidic system to prolong tumor explant viability for drug testing ex vivo <i>Dong Hua Seah¹, Changchong Chen¹, Wan Yu Guo², Chin-Ann Ong², Eliza Fong¹</i> ¹ National University of Singapore, ² National Cancer Centre Singapore
12:15 - 13:30	414 - Development of a microfluidic chip to study tumor-lymph node interaction ex vivo <i>Changchong Chen¹, Dong Hua Seah¹, Zixuan Zhao¹, Narayanan Gopalakrishna Iyer², Eliza Fong¹</i> ¹ National University of Singapore, ² Duke-NUS Medical School
12:15 - 13:30	423 - The traction force of endothelial cells in the blood-brain barrier (BBB) due to the inflammation swelling <i>Jungah Huh¹ and Young June Yoon²</i> ¹ Chadwick International School, ² we-consult.kr
12:15 - 13:30	424 - The flow velocity through endothelial cell layers due to the inflammation swelling <i>Seoyeong Lee¹ and Young June Yoon²</i> ¹ North London Collegiate School Jeju, ² we-consult.kr
12:15 - 13:30	426 - The apparent density of cancellous bone is more important than the orientation for elastic modulus <i>Hajin Lee¹ and Young June Yoon²</i> ¹ Seoul Foreign School, ² we-consult.kr
12:15 - 13:30	462 - Analysis of performance and efficacy of drug-eluted poly (MPC-co-BMA) coated on bioresorbable stents <i>Enkhzaya Davaa and Su-Geun Yang</i> Inha University College of Medicine
12:15 - 13:30	466 - Chromatin reorganization during and after stem cell confined migration <i>Hann Shen Ng and Andrew Holle</i> National University of Singapore
12:15 - 13:30	471 - Investigating the effects of mechanical niches on bioengineered hair follicles <i>Kun Yao¹, Wanjing Ou², Barbara Pui Chan¹</i> ¹ The Chinese University of Hong Kong, ² Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine Department of Biomedical Engineering; The Chinese University of Hong Kong ² Department of Mechanical Engineering, The University of Hong Kong
12:15 - 13:30	487 - Imbalanced Proteome Underlies a Hypo-Osmotic Like Stress in Aneuploid Cells <i>Hongyue CUI¹, Jin ZHU¹, Bin Sheng Wong¹, Alok Ghosh¹, Sean Sun², Jacques Prost³, Rong LI¹</i> ¹ National University of Singapore, ² Johns Hopkins University, ³ Institut Curie
12:15 - 13:30	497 - How do High-Crosslinked UHMWPE with Vitamin E, Additive Manufacturing, and Direct Compression Molding Cementless Patella Components Perform in Durability Tests? <i>Tsung-Wei Chang, Jiann-Jong Liao, Fang-Yuan Ho</i> United Orthopedic Corporation
12:15 - 13:30	574 - Development of dermal matrix with revascularization properties to advance the integration of skin substitutes. <i>Clara Barbut¹, Peili Teo², Olga Tsigkou¹</i> ¹ University of Manchester, ² A*STAR Institute of Materials Research and Engineering
13:30 - 14:15	Session PL2 - Plenary Lecture - LT7A Chair: Raye Yeow, National University of Singapore
13:30 - 14:15	800 - Wireless Soft Milliscale Robots for Minimally Invasive and Implantable Medical Operations inside the Human Body <i>Metin Sitti</i> Koc University

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14:15 - 15:45	<p>Session MoC1: Special Symposium - APBEC Symposium - LT7A</p> <p>Chair: I-Ming Hsing, Hong Kong University of Science and Technology Co-Chair: Madoka Takai, The University of Tokyo</p>
14:15 - 14:45	<p>569 - KN: Nucleic-acid based Point of Care Diagnostics and Nature-derived Mucin Biomaterials for Wound Care</p> <p><i>I-Ming Hsing</i> The Hong Kong University of Science and Technology</p>
14:45 - 15:00	<p>592 - Mitigating Hallucinations with Fact-Checking Utilizing Reasoning LoRAs</p> <p><i>Jinwook Choi</i> Seoul National University</p>
15:00 - 15:15	<p>685 - Biocompatible Transdermal Microneedle Sensor for Continuous Glucose Monitoring</p> <p><i>Madoka Takai¹, Shicheng Zhou¹, Hiroshi Hibino²</i> ¹The University of Tokyo, ²Osaka University</p>
15:15 - 15:30	<p>687 - Analyzing Corneal Biomechanics through Symmetric and Antisymmetric Modes</p> <p><i>Po-Jen Shih</i> National Taiwan University</p>
15:30 - 15:45	<p>696 - Multi-scenario surveillance of respiratory viruses in aerosols with sub-single-copy spatial resolution</p> <p><i>Peng Liu</i> Tsinghua University</p>
14:15 - 15:45	<p>Session MoC2: Special Symposium - Clinical Engineering and Regulatory Affairs - Engineering Auditorium</p> <p>Chair: Fabiola M Martinez-Licona, Universidad Autonoma Metropolitana Co-Chair: Peck Ha Tan, Ngee Ann Polytechnic</p>
14:15 - 14:30	<p>639 - Analysis of the impact of the participation of clinical engineers in the development of medical devices regulatory affairs in Mexico</p> <p><i>Fabiola M Martinez-Licona¹ and Monserrat Godinez²</i> ¹Universidad Autonoma Metropolitana, ²Mexican Biomedical Engineering College</p>
14:30 - 14:45	<p>812 - The Impact of Medical Equipment Regulation on Clinical Engineering in Mongolia</p> <p><i>Baterdene Myatav</i> Mongolian Society of Biomedical Engineering</p>
14:45 - 15:00	<p>813 - The Role of Clinical Engineering in Regulatory Affairs to Positively Impact the Patient Safety</p> <p><i>Fabiola M Martinez-Licona</i> Universidad Autonoma Metropolitana</p>
15:00 - 15:15	<p>814 - Better Healthcare for All</p> <p><i>Fernando Liu</i> Shenzhen Mindray Bio-Medical Electronics Co.,Ltd.</p>
15:15 - 15:30	<p>818 - Closer Service, Better Healthcare</p> <p><i>Jillian Li</i> Shenzhen Mindray Bio-Medical Electronics Co.,Ltd.</p>
14:15 - 15:45	<p>Session MoC3: Special Symposium - Computational Fluid Dynamics: A Powerful Tool in Cardiovascular Medicine - EA-02-11</p> <p>Chair: Lik Chuan Lee, Michigan State University Co-Chair: Hwa Liang Leo, National University of Singapore</p>
14:15 - 14:30	<p>416 - Role of Physics Constraints in Multi-Case Neural Network for Predicting Fluid Dynamics in Cardiovascular Structures of Varied Geometries</p> <p><i>Choon Hwai Yap, Wei Xuan Chan, Wenhao Ding</i> Imperial College London</p>
14:30 - 14:45	<p>429 - AI-accelerated Computational Fluid Modelling in Cardiovascular Diseases</p> <p><i>Yiyi Sheng¹, Hwa Liang Leo¹, Wee Kheng Leow¹, Leong Litt, Leonard Yeo²</i> ¹National University of Singapore, ²National University Health System</p>
14:45 - 15:00	<p>594 - Computational Modeling of Coronary Venous Retroperfusion Treatments</p> <p><i>Haifeng Wang¹, Lei Fan², Jenny S Choy³, Ghassan S Kassab³, Lik Chuan Lee¹</i> ¹Michigan State University, ²Marquette University and Medical College of Wisconsin, ³California Medical Innovations Institute</p>

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15:00 - 15:15	595 - Computational modeling of right coronary artery flow impairment in pulmonary hypertension <i>Chenghan Cai¹, Jenny Choy², Ghassan Kassab², Lei Fan¹</i> ¹ Marquette University and Medical College of Wisconsin, ² California Medical Innovations Institute
15:15 - 15:30	677 - Computational Fluid Dynamics for Cardiovascular Engineering: Visualization for Better Understanding <i>Surapong Chatpun</i> Prince of Songkla University
15:30 - 15:45	806 - Modelling the complex flow dynamics in the microcirculation <i>Justin Kok Soon Tan and Sangho Kim</i> National University of Singapore
14:15 - 15:45	Session MoC4: Special Symposium - Extracellular Vesicles 2 - EA-06-02 Chair: Wei Seong Toh, National University of Singapore
14:15 - 14:45	535 - KN: Development of extracellular vesicle mimetics for various biomedical applications <i>Giorgia Pastorin</i> National University of Singapore
14:45 - 15:00	633 - Extracellular vesicles and their therapeutic applications in oral diseases <i>Juan Xia and Wu Shujie</i> Hospital of Stomatology, Guanghua School of Stomatology, Sun Yat-sen University
15:00 - 15:15	619 - Exploring the multifaceted effects of cell membrane in promoting bone repair <i>Emilio Satoshi Hara</i> Okayama University
15:15 - 15:30	628 - Bacterial extracellular vesicles mimetic for vaccine application <i>Bertrand Czarny and Dinesh Kumar Kesavan</i> Nanyang Technological University
15:30 - 15:45	694 - Extracellular vesicles (EVs) and EV-mimetics for joint repair <i>Wei Seong Toh</i> National University of Singapore
14:15 - 15:45	Session MoC5: Oral Session - Biomaterials 2 - EA-06-03 Chair: Daisuke Yoshino, Tokyo University of Agriculture and Technology Co-Chair: Sriram M., National University of Singapore
14:15 - 14:30	252 - Substrate biofunctionalization based on activation of collagen molecules triggered with plasma discharge <i>Daisuke Yoshino</i> Tokyo University of Agriculture and Technology
14:30 - 14:45	184 - Bioactive matrices through PEG peptide hydrogelators for tissue engineering <i>Yuzhu Liu, Shariful Islam, Kristopher Kilian</i> UNSW Sydney
14:45 - 15:00	257 - Development of radiopaque silk fibroin sutures <i>Kallista Wong and James Cho Hong Goh</i> National University of Singapore
15:00 - 15:15	224 - Preparation and Characterization of Antifouling Chitosan/PEO Membranes <i>Rohini Verma</i> Indian Institute of Technology, Delhi
15:15 - 15:30	449 - Engineering Granular Scaffolds For High Throughput 3D Cellular Confinement <i>Shinny Sunny¹, Dr. Senne Seneca², ONG Hui Ting¹, Andrew Holle¹</i> ¹ National University of Singapore, ² Max Planck Institute for Medical Research, Department of Cellular Biophysics
14:15 - 15:45	Session MoC6: Oral Session - Biomechanics & Mechanobiology 1 - EA-06-04 Chair: Hann Shen Ng, National University of Singapore Co-Chair: Amit Ramruttun, National University of Singapore
14:15 - 14:45	558 - KN: Biomechanics of the Lumbar Disc Repair <i>Cheng-Kung Cheng</i> School of Biomedical Engineering, Shanghai Jiao Tong University

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Monday, December 9, 2024	
14:45 - 15:00	304 - Hybrid hydrogel-extracellular matrix scaffolds identify distinct ligand and mechanical signatures in cardiac aging <i>Avery R. Sun¹, Jin Zhu², Roger Foo³, Matthew Ackers-Johnson³, Jennifer Young¹</i> ¹ National University of Singapore, ² Mechanobiology Institute, National University of Singapore, ³ Yong Loo Lin School of Medicine, National University of Singapore
15:00 - 15:15	119 - Metastatic Migration of Breast Tumor Cells under Capillary Confinement and Flow <i>Lanfeng Liang, Chwee Teck Lim, Xiao Song</i> National University of Singapore
15:15 - 15:30	153 - Pendulum Impact Testing of A Single Trabecula for Fracture Toughness of Cancellous Bone Tissue <i>Mari Kasai, Miyu Kobayashi, Satoshi Yamada, Masahiro Todoh</i> Hokkaido University
15:30 - 15:45	451 - Physical confinement as a quantitative determinant of nuclear envelope integrity <i>Yixuan Li and Andrew Holle</i> National University of Singapore
14:15 - 15:45	Session MoC7: Oral Session - Biosignals, Biosensors & Bioelectronics 2 - EA-06-05 Chair: Matthew Osborne, University of Toronto Co-Chair: Yunxia Jin, National University of Singapore, iHealthTech
14:15 - 14:30	295 - QBox: a Automated Portable System for Multiplex Quantum Dot Barcode Diagnostics <i>Matthew Osborne¹, Hongmin Chen¹, Pranav Kadhiresan¹, Nafisa Mahbub¹, Ayden Malekjahani¹, Hannah N Kozlowski¹, Buddhisha Udugama¹, Luan N.M. Nguyen¹, Stephen Perusini², Samira Mubareka³, Warren C.W. Chan⁴</i> ¹ University of Toronto, ² Public Health Ontario, ³ Sunnybrook Health Sciences Center, ⁴ Nanyang Technological University
14:30 - 14:45	300 - Soft Fabric-Based Pneumatic Sensor for Detecting Muscle Changes <i>Qifeng Xun</i> National University of Singapore
14:45 - 15:00	441 - Wireless power transmission system for an implantable locomotion meter -stable output voltage independent of the direction of the receiving coil <i>Akihisa Ohara¹, Natsuko Kubota², Shinya Yanagita¹, Takahiko Yamamoto¹</i> ¹ Tokyo University of Science, ² Tokyo International University
15:00 - 15:15	400 - Highly miniaturized implantable device for wireless neuromodulation <i>Yunxia Jin, John S. Ho, Chwee Teck Lim</i> National University of Singapore
15:15 - 15:30	189 - Pulse wave Signal-Based Machine Learning Approaches for Identifying Left Ventricular Enlargement in Heart Failure Patients <i>Dandan Wu and Hao Liu</i> Chiba university
14:15 - 15:45	Session MoC8: Oral Session - Tissue Engineering & Regenerative Medicine 2 - EA-06-07 Chair: Mingxia Gu, Cincinnati Children's Hospital Co-Chair: Sandor Nemeth, Singapore Institute of Manufacturing Technology, A*STAR
14:15 - 14:30	139 - Engineering vessel organoids with organ-specificity <i>Yifei Miao¹, Nicole M Pek¹, Zhiyun Yu¹, Kentaro Iwasawa¹, Daniel O Kechele¹, Nambirajan Sundaram¹, Victor Pastrana-Gomez¹, Keishi Kishimoto¹, Min-Chi Yang², Cheng Jiang¹, Jason Tchieu¹, Jeffrey A Whitsett¹, Kyle W McCracken¹, Robbert J Rottier³, Darrell N Kotton⁴, Michael A Helmrath¹, James M Wells¹, Takanori Takebe⁵, Aaron M Zorn¹, Ya-Wen Chen², Minzhe Guo¹, Mingxia Gu¹</i> ¹ Cincinnati Children's Hospital Medical Center, ² Icahn School of Medicine at Mount Sinai, ³ Erasmus MC, ⁴ Boston University, ⁵ Cincinnati Children's Hospital Medical Center and Osaka University
14:30 - 14:45	168 - Fabrication of a simply controllable mechanical stimulus system by electromagnet for skeletal muscle-like tissues <i>Daiyuu Oguri¹, Ryosuke Iwai², Takeshi Moriwaki¹</i> ¹ Hirosaki University, ² Okayama University of Science
14:45 - 15:00	198 - Estimation of Space and Time Evolution of Mg2+ Concentration near a Mg2+-Releasing Implant <i>Sandor Nemeth and Clarice Loke</i> A*STAR Singapore Institute of Manufacturing Technology

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15:00 - 15:15	317 - Characterization of Biomechanical Properties in Early-Stage Osteoarthritic Articular Cartilage <i>Syaidatul Syakirah Salehuddin¹, Mohd Juzaila Abd Latif¹, Mohamad Shukri Zakaria¹, Muhamad Noor Harun², Munirah Sha'ban³</i> ¹ Universiti Teknikal Malaysia Melaka (UTeM), ² Universiti Teknologi Malaysia (UTM), ³ International Islamic University Malaysia
15:15 - 15:30	396 - Metal Ion-Enhanced Bis-Urea Low Molecular Weight Gelator Hydrogels for Advanced Tissue Engineering Applications <i>Javier Garcia Perez Delabat and Jennifer Patterson</i> IMDEA Materials
15:30 - 15:45	440 - In situ self-assembled organoid for osteochondral tissue regeneration with dual functional units <i>Zhen Yang¹, Jianhao Lin², Yanan Du³, Dan Xing²</i> ¹ Peking University People's Hospital, ² 1. Arthritis Clinical and Research Center, Peking University People's Hospital; 2. Arthritis Institute, Peking University, ³ Department of Biomedical Engineering, School of Medicine, Tsinghua-Peking Center for Life Sciences, Tsinghua University
15:45 - 16:00	MoN3 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor
16:00 - 17:30	Session MoD1: Special Session - BME Rising Stars - LT7A Chair: Chwee Teck Lim, National University of Singapore
16:00 - 16:10	708 - Discovering Magnetoelasticity in Soft Matter for Bioelectronics <i>Jun Chen</i> UCLA
16:10 - 16:20	765 - From Holograms to Virtual Replicas: Building the Organ Digital Twin <i>Yujia Gao</i> National University Health System
16:20 - 16:30	710 - Early Predictor Tool of Disease Using Label-Free Liquid Biopsy-Based Platforms for Patient-Centric Healthcare <i>Bee Luan Khoo</i> City University of Hong Kong
16:30 - 16:40	725 - Solid-state Epidermal Biomarker Sensor <i>Yuxin Liu</i> National University of Singapore
16:40 - 16:50	794 - Multimodal Metabolic Nanoscopy for Studying Aging and Diseases <i>Lingyan Shi</i> University of California San Diego
16:50 - 17:00	707 - Fighting cancer with bioengineered nanomaterials <i>Andy Tay</i> National University of Singapore
17:00 - 17:10	712 - Mesoscale intravital fluorescence microscopy <i>Jiamin Wu</i> Tsinghua University
17:10 - 17:20	754 - Intelligent soft electronics for healthcare monitoring and VR <i>Xinge Yu</i> City University of Hong Kong
16:00 - 17:30	Session MoD2: Special Symposium - Wearable Technologies 2 - Engineering Auditorium Chair: Hao Wu, Huazhong University of Science and Technology
16:00 - 16:30	560 - KN: Wearable ultrasound technology <i>Sheng Xu</i> UC San Diego
16:30 - 16:45	597 - Passive Radiative Cooling for Thermal Comfort in Flexible and Wearable Electronic Devices <i>Young Min Song</i> Gwangju Institute of Science and Technology
16:45 - 17:00	697 - Nanomesh for Wearable Sensors <i>Binghao Wang</i> Southeast University

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Monday, December 9, 2024	
17:00 - 17:15	572 - Bio-Integrated Soft Electronics Based on Biomimetic 3D Nanofiber Networks <i>Lizhi Xu</i> The University of Hong Kong
17:15 - 17:30	652 - A Bioresorbable Pacemaker with Transient Closed-loop Systems <i>Yeonsik Choi</i> Yonsei University
16:00 - 17:30	Session MoD3: Special Symposium - Multimodal Opto-Ultrasound Sensing and Imaging 1 - EA-02-11 Chair: Chulhong Kim, Pohang University of Science and Technology Co-Chair: Jeesu Kim, Byullee Park, Pusan National University, Sungkyunkwan University
16:00 - 16:30	520 - KN: Multi-modal Imaging: Photoacoustic Imaging Plus More <i>Chulhong Kim</i> Pohang University of Science and Technology
16:30 - 16:45	521 - Innovative Techniques for Enhanced Depth, Clarity, and Information Content in PACT <i>Rongkang Gao and Chengbo Liu</i> Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
16:45 - 17:00	523 - Dual-modal Photoacoustic and Ultrasound Imaging for Complementary Analysis of Biological Tissues In Vivo <i>Jeesu Kim</i> Pusan National University
17:00 - 17:15	661 - High resolution photoacoustic imaging for objective assessment of skin inflammatory conditions <i>Dinish U. S¹, Xiuting Li¹, Yik Weng Yew², Steven Tien Guan Thng², Malini Olivo¹</i> ¹ A*STAR Skin Research Labs, ² National Skin Centre
17:15 - 17:30	659 - Diagnostic imaging using triple-input polarization-sensitive optical coherence tomography in the eye <i>Xinyu Liu</i> Peking University
16:00 - 17:30	Session MoD4: Special Symposium - Emerging Technologies and Materials for Biofabrication of Soft Tissues - EA-06-02 Chair: Sanjairaj Vijayavenkataraman, New York University Abu Dhabi Co-Chair: Gopu Sriram, National University of Singapore; Z. Alan Li, The Chinese University of Hong Kong
16:00 - 16:30	618 - KN: Multi-Material 3D Bioprinting for Tissue Fabrication <i>Y. Shrike Zhang</i> Harvard Medical School
16:30 - 16:45	528 - Organ-on-a-chip modeling of cartilage degeneration and regeneration <i>Jun Liu¹, Zhilong Zhou², Jiahui Lai¹, Rocky S. Tuan¹, Zhong Alan Li¹</i> ¹ Chinese University of Hong Kong; Center for Neuromusculoskeletal Restorative Medicine, ² Chinese University of Hong Kong
16:45 - 17:00	719 - Biofabrication of Vascular Constructs using 3D-printed Molds <i>Michinao Hashimoto</i> Singapore University of Technology and Design
17:00 - 17:15	621 - Dual cross-linked Bioactive 3D printed Meniscal Scaffolds with Enhanced Mechanical Properties <i>Abhay Menon, Kamil Elkhoury, Amer Zahra, Sanjairaj Vijayavenkataraman</i> New York University Abu Dhabi
17:15 - 17:30	638 - Development of a Granular Bioink for Biofabrication of Porous Scaffolds <i>Theresa Seah, Jing Yi Zhang, Joyce Tay, Cyrus Beh</i> A*STAR Bioprocessing Technology Institute
16:00 - 17:30	Session MoD6: Oral Session - Biomechanics & Mechanobiology 2 - EA-06-04 Chair: Xueqing Wu, Beihang University Co-Chair: Amit Ramruttun, National University of Singapore
16:00 - 16:15	219 - Hierarchical Voronoi Structure Inspired by Cat Paw Pads Substantially Enhances Landing Impact Energy Dissipation <i>Xueqing Wu and Baoqing Pei</i> Beihang University

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16:15 - 16:30	172 - Observation of microscopic elastic modulus distribution in enzyme-treated porcine aortic wall using a scanning haptic microscope (SHM) <i>Sota Suzuki and Takeshi Moriwaki</i> Hirosaki University
16:30 - 16:45	187 - Design and Fabrication of a Modular Insole for Plantar Pressure Offloading in Diabetic Patients <i>Gurpreet Singh and Arnab Chanda</i> Indian Institute of Technology Delhi
16:45 - 17:00	174 - Comparing the Microstructural Response of Porcine and Human Articular Cartilage to Mechanical Loading <i>Amit Kumarsing Ramruttun¹, Yingnan Wu¹, Afizah Binte Mohd Hassan¹, Wei Seong Toh², James Hoi Po Hui¹, Ashvin Thambyah³</i> ¹ Department of Orthopaedic Surgery, NUS Medicine, National University of Singapore, ² National University of Singapore, ³ Department of Chemical and Materials Engineering, The University of Auckland
17:00 - 17:15	225 - Measurement of contact pressure applied to vessel models during balloon dilation: effects of stenosis rates and elastic modulus. <i>Shogo Ishikawa¹, Yusuke Tsuboko², Yoshihiro Okamoto², Takahiro Morita³, Atsushi Saito³, Hiroo Yamaga⁴, Takeshi Moriwaki¹</i> ¹ Hirosaki University, ² Division of Medical Devices, National Institute of Health Sciences, ³ Department of Neurosurgery, Hirosaki University Graduate School of Medicine, ⁴ Neurosurgery, Showa University Northern Yokohama Hospital
17:15 - 17:30	274 - INVESTIGATING THE METASTATIC POTENTIAL OF BREAST CANCER CELLS AFTER CONFINED MIGRATION <i>Xiao Song, Jiang Kuan, Lanfeng Liang, Chwee Teck Lim</i> National University of Singapore
16:00 - 18:00	IFMBE Working Group Meeting - EA-06-05
16:00 - 17:30	Session MoD8: Oral Session - VR/AR/MR in Healthcare & Health Metaverse - EA-06-07 Chair: Bina Rai, National University of Singapore Co-Chair: Toshiaki Takahashi, The University of Tokyo
16:00 - 16:15	236 - VR Stress Management: Harnessing Stress as a SuperPower <i>Muhammad Akid Durrani Bin Imran¹, Cherie Shu Yun Goh², Nisha V², Meyammai Shanmugham³, Hasan Kuddoos², Chen Hwei Leo¹, Bina Rai¹</i> ¹ National University of Singapore, ² SCDF, ³ Singapore University of Technology and Design
16:15 - 16:30	402 - Foundation model and mixed-reality for scalable point-of-care ultrasound segmentation <i>Kian Wei Ng¹, Yujia Gao¹, Eng Tat Khoo²</i> ¹ National University Health System, ² National University of Singapore
16:30 - 16:45	409 - Enhancing Medical Training with Haptics and AI in Extended Reality <i>Jiaming Qi¹, Yunghwei Lai², Yujia Gao³, Jiaqi Tang¹, Zixiong Wu¹, Weizhi Ma², Joo Chuan Yeo¹, Yang Liu², Chwee Teck Lim¹</i> ¹ National University of Singapore, ² Tsinghua University, ³ National University Health System
16:45 - 17:00	421 - Evaluating the Efficacy of XR-Based Training Systems for Home-Visiting Nurses: A Prospective Non-Randomized Controlled Trial <i>Toshiaki Takahashi¹, Sotaro Shimada¹, Masaru Matsumoto², Aya Kitamura², Yuko Mugita¹, Gojiro Nakagami¹, Hiromi Sanada¹</i> ¹ The University of Tokyo, ² Ishikawa Prefectural Nursing University
17:00 - 17:15	499 - A Closed-Loop VR System for Anxiety Management: Objective Assessment through Heart Rate Feedback <i>Rahul Kumar Ray¹, Jayant Kalra², Joo Chuan Yeo³</i> ¹ FLAME University, ² Indian Institute of Technology Bombay, ³ National University of Singapore
17:15 - 17:30	518 - Mixed Reality platform for assessment and rehabilitation functional and neurocognitive of post-COVID-19 patients <i>Duc Phong Nguyen¹, Théo Kokel¹, Marie-Christine HO BA THO¹, Tien-Tuan Dao²</i> ¹ Université de Technologie de Compiègne, ² Univ. Lille, CNRS, Centrale Lille, UMR 9013 - LaMcube - Laboratoire de Mécanique, Multiphysique, Multiéchelle
16:00 - 17:30	APBEC Committee Meeting - EA-06-15

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Monday, December 9, 2024	
18:00 - 18:45	Session PL3 - Plenary Lecture - LT7A Chair: Leo Hwa Liang, National University of Singapore
18:00 - 18:45	796 - Into a Sea of Diversity: Expanding the Horizons of Microfluidics <i>Teruo Fujii</i> The University of Tokyo
18:45 - 20:00	MoN4 - Welcome Reception

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Tuesday, December 10, 2024	
08:30 - 09:15	Session PL4 - Plenary Lecture - LT7A Chair: Changsheng Wu, National University of Singapore
08:30 - 09:15	798 - Continuous Monitoring of Protein Biomarkers Using Implantable Sensors <i>Shana Kelley</i> Northwestern University
09:15 - 10:45	Session TuA1: Special Session - APBEC Young Scholars - LT7A Chair: I-Ming Hsing, Hong Kong University of Science and Technology Co-Chair: Chwee Teck Lim, National University of Singapore
09:15 - 09:30	705 - Multimodal medical image processing for PET image enhancement <i>Kevin T Chen</i> National Taiwan University
09:30 - 09:45	720 - Tissue-scaffold-mimicking electronics for seamless integration of electronics with living tissues <i>Xiaochuan Dai</i> Tsinghua University
09:45 - 10:00	738 - Design of Soft Actuators, Sensors, and Mechanisms for Medical Applications <i>Amy Kyungwon Han</i> Seoul National University
10:00 - 10:15	735 - High-throughput analysis of antibodies for data-driven design <i>Ryo Matsunaga¹, Sae Ito¹, Kan Ujiie¹, Mayuko Inagaki¹, Jorge Fernández Pérez¹, Yoshiki Yasuda¹, Makoto Nakakido¹, Shinya Mimasu², Shinji Soga², Daisuke Komura¹, Hiroto Katoh¹, Shumpei Ishikawa¹, Kouhei Tsumoto¹</i> ¹ The University of Tokyo, ² Astellas Pharma Inc.
10:15 - 10:30	711 - Realizing Physicochemical Detection and Biomolecular Quantification in Wearable Devices for Remote Health Monitoring <i>Hnin Yin Yin Nyein</i> The Hong Kong University of Science and Technology
10:30 - 10:45	721 - Wireless contact and contact-free sensors for skin vibration-based multi-modal physiological monitoring <i>Changsheng Wu</i> National University of Singapore
09:15 - 10:45	Session TuA2: Special Symposium - Future of Biomedical Engineering Education in the Asia Pacific Region 1 - Engineering Auditorium Chair: James Goh, National University of Singapore Co-Chair: Ichiro Sakuma, The University of Tokyo
09:15 - 09:45	698 - KN: Challenges of Biomedical Engineering Education - Networking and Learning Methodology <i>Ratko Magjarevic</i> University of Zagreb Faculty of Electrical Engineering and Computing
09:45 - 10:00	529 - Inspiring Innovation: Performance-based assessments in Open-ended Problem-based learning (POP) for Collaborative Community Care Solutions in Education <i>Raymond Kai-Yu Tong</i> The Chinese University of Hong Kong
10:00 - 10:15	805 - The Development and Future Prospects of Biomedical Engineering Education in China <i>Guangzhi Wang and Peng Liu</i> Tsinghua University
10:15 - 10:30	750 - The Evolution of Biomedical Engineering in Malaysia: Current Trends and Future Prospects <i>Mas Sahidayana Mohktar, Juliana Usman, Fatimah Ibrahim</i> Universiti Malaya
10:30 - 10:45	751 - The Current BME Educations with TSBME in Taiwan <i>Mei-Feng Chen, Chien-Wen Lai, Kang Ping Lin</i> Taiwanese Society of Biomedical Engineering

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Tuesday, December 10, 2024	
09:15 - 10:45	<p>Session TuA3: Special Symposium - AI-Driven Innovations in Healthcare (AI-Driven Health) - EA-02-11</p> <p>Chair: Yih Chung Tham, National University of Singapore</p> <p>Co-Chair: Huazhu Fu, A*STAR</p>
09:15 - 09:27	<p>783 - AI-powered discovery of retinal markers of biological aging</p> <p><i>Ching-Yu Cheng</i></p> <p>National University of Singapore</p>
09:27 - 09:39	<p>790 - Brain Dynamics Foundation Model Based on Functional MRI</p> <p><i>Juan Helen Zhou</i></p> <p>National University of Singapore</p>
09:39 - 09:51	<p>760 - Enhancing Clinical AI Reliability: A Foundation Model with Uncertainty Estimation for OCT-based Retinal Diagnosis</p> <p><i>Yuanyuan Peng¹, Aidi Lin², Meng Wang³, Ching-yu Cheng³, Huazhu Fu⁴, Haoyu Chen²</i></p> <p>¹Anhui Medical University, ²Joint Shantou International Eye Center, Shantou University and the Chinese University of Hong Kong, ³Centre for Innovation & Precision Eye Health, Yong Loo Lin School of Medicine, National University of Singapore, ⁴A*STAR Institute of High Performance Computing</p>
09:51 - 10:03	<p>791 - Integrated Image-based Deep Learning and Language Models for Primary Diabetes Care</p> <p><i>Yih Chung Tham</i></p> <p>National University of Singapore</p>
10:03 - 10:15	<p>651 - Enhancing Adversarial Robustness in Medical-Specific CLIP Models: A Case Study on BiomedCLIP</p> <p><i>Yi Zeng¹, Zeyuan Zuo¹, Dan Wang², Teng Zhang¹</i></p> <p>¹Digital Health Laboratory, Faculty of Medicine, The University of Hong Kong, ²Department of Computing, The Hong Kong Polytechnic University</p>
10:15 - 10:27	<p>778 - Federated Learning in Healthcare</p> <p><i>Huazhu Fu</i></p> <p>A*STAR Institute of High Performance Computing</p>
10:27 - 10:39	<p>817 - Universal and Foundation Models of Medical Imaging AI: Traits and Trends</p> <p><i>S Kevin Zhou</i></p> <p>USTC</p>
09:15 - 10:45	
<p>Session TuA4: Special Symposium - Tumor Engineering - EA-06-02</p> <p>Chair: Eliza Fong, National University of Singapore</p> <p>Co-Chair: Giulia Adriani, National University of Singapore</p>	
09:15 - 09:45	<p>544 - KN: Tissue-Inspired Synthetic Biomaterials to study Breast Cancer</p> <p><i>Shelly Peyton</i></p> <p>Tufts University</p>
09:45 - 10:00	<p>607 - Building tumors: engineering complexity through biomaterial design</p> <p><i>Brendan Harley</i></p> <p>University of Illinois at Urbana-Champaign</p>
10:00 - 10:15	<p>610 - Bioengineered patient-derived tumor explants for personalized drug testing</p> <p><i>Kanishka Fernando, Zhuoran Wu, Eliza Fong</i></p> <p>National University of Singapore</p>
10:15 - 10:30	<p>670 - Microenvironment engineering: building a pipeline for individualized tumor modelling</p> <p><i>Kristopher Kilian</i></p> <p>UNSW Sydney</p>
10:30 - 10:45	<p>726 - Leveraging Tumor Microenvironment to Modulate Immune Responses in Pancreatic Cancer</p> <p><i>Alessandro Scagliotti¹, Giorgia Tiberi¹, Paula Ariadna Diez Villegas¹, Ivan Depetro¹, Ermes Candiello¹, Giulia Adriani², Paola Cappello³</i></p> <p>¹Dept. of Molecular Biotechnology and Healthy Sciences, University of Turin, ²A*STAR Singapore Immunology Network, ³University of Turin</p>

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Tuesday, December 10, 2024	
09:15 - 10:45	<p>Session TuA5: Oral Session - Biomaterials 3 - EA-06-03</p> <p>Chair: Yoshitaka Nakanishi, Kumamoto University</p> <p>Co-Chair: Hepi Hari Susapto, National University of Singapore</p>
09:15 - 09:30	<p>355 - Aging-in-a-dish: Dynamic cardiac extracellular matrix-mimetic hydrogels</p> <p>Hepi Hari Susapto¹, Muhd Faris Hazwan Ramli¹, Yixuan Li¹, Andrew Holle¹, Matthew Ackers-Johnson², Jennifer Young¹</p> <p>¹National University of Singapore, ²Cardiovascular Research Institute, National University Health Systems</p>
09:30 - 09:45	<p>293 - Development of a Fabrication Technique for Gelatin Sponge with Controlled Interconnectivity through Microbubble Incorporation</p> <p>Wakana Otsu¹, Shu Nakagawa¹, Koji Yamamoto², Yusuke Morita²</p> <p>¹Graduate School of Life and Medical Sciences, Doshisha University, ²Department of Biomedical Engineering, Faculty of Life and Medical Sciences, Doshisha University</p>
09:45 - 10:00	<p>358 - Micro- and nano-plastics for Immunological Assessments</p> <p>Yoshitaka Nakanishi, Yukio Fujiwara, Yuta Nakashima</p> <p>Kumamoto University</p>
10:00 - 10:15	<p>302 - Development of Gelatin/DCPA Microfiber Scaffold with Apatite-forming Ability for Bone Formation</p> <p>Ayaka Hayashi¹, Shu Nakagawa¹, Koji Yamamoto², Yusuke Morita²</p> <p>¹Graduate School of Life and Medical Sciences, Doshisha University, ²Faculty of Life and Medical Sciences, Doshisha University</p>
10:15 - 10:30	<p>229 - Application of Photothermal Antibacterial Hydrogel Loaded with M2-Exosomes in Wound Repair of Diabetic Patients</p> <p>Xia Juan, Li Weichang, Wu Shujie</p> <p>Hospital of Stomatology, Guanghua School of Stomatology, Sun Yat-sen University</p>
09:15 - 10:45	<p>Session TuA6: Oral Session - Biomechanics & Mechanobiology 3 - EA-06-04</p> <p>Chair: Jinhee Yoo, Sungkyunkwan University</p> <p>Co-Chair: Fenfang Li, Shenzhen Bay Laboratory</p>
09:15 - 09:30	<p>356 - Inflammatory Response Induced by Ultrasound-Activated Mechanosensitive Channels in Macrophages</p> <p>Myeong Ryeol Choi¹, Jinhee Yoo¹, Hyung Ham Kim¹, Yong Joo Ahn²</p> <p>¹Graduate School of Convergence Science and Technology, Pohang University of Science and Technology, ²Pohang University of Science and Technology</p>
09:30 - 09:45	<p>305 - High-fidelity Biomechanical Framework to Test the Slipping Risk of Footwear Treads</p> <p>Shubham Gupta and Arnab Chanda</p> <p>Centre for Biomedical Engineering, Indian Institute of Technology (IIT) Delhi</p>
09:45 - 10:00	<p>311 - Extracellular matrix mechanics regulates ovarian function with age</p> <p>Xingyu Shen, Haiyang Wang, Jennifer Young, Rong Li</p> <p>National University of Singapore</p>
10:00 - 10:15	<p>508 - Calcium signaling influences ultrasound-mediated endothelial monolayer permeabilization assisted by microbubbles and integrin-binding microbeads</p> <p>Fenfang Li and Jiawei Lin</p> <p>Shenzhen Bay laboratory</p>
10:15 - 10:30	<p>316 - AI-Powered Analysis of Cellular Dynamics and State Transitions in Cancer-Associated Fibroblasts Under Drug Treatment</p> <p>Seokhoon Ham¹, Dila Naz Bozkaya¹, Somayadineshraj Devarasou¹, Minwoo Kang¹, Chanhong Min¹, Jennifer L Young², Jennifer H Shin¹</p> <p>¹KAIST, ²National University of Singapore</p>
10:30 - 10:45	<p>334 - Extracellular matrix normalization to target age-related cardiac dysfunction</p> <p>Ranmadusha M Hengst¹, Muhd Faris Hazwan Ramli¹, Avery R. Sun¹, Morris Wolf², Mark Tibbit², Jennifer Young¹</p> <p>¹National University of Singapore, ²Department of Mechanical and Process Engineering, ETH Zurich</p>

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09:15 - 10:45	Session TuA7: Oral Session - Biosignals, Biosensors & Bioelectronics 3 - EA-06-05 Chair: Yiyuan Yang, National University of Singapore Co-Chair: Yu Song, City University of Hong Kong
09:15 - 09:30	234 - Smart Analysis Needle System for Point-of-care Cell Therapeutics <i>Yiyuan Yang</i> National University of Singapore
09:30 - 09:45	111 - Rapid and Sensitive detection of pathogenic K.pneumoniae for Urinary Tract Infection (UTI) diagnosis with a plasmonic gold nanoparticle-based aptasensor <i>Aniruddha Deb</i> Department of Chemical Engineering, BIT MESRA
09:45 - 10:00	281 - Integrated Paper-based Device for Wearable Biochemical and Electrophysiological Monitoring <i>Bo Liang</i> Zhejiang University
10:00 - 10:15	448 - Preliminary Analysis of Changes in Bowel Sounds Before and After Non-gastrointestinal-related Surgery <i>Pien-Pien Lin¹, Chih-Min Liu², Chien-Sheng Liu³, Chii-Wann Lin¹</i> ¹ Department of Biomedical Engineering, National Taiwan University, ² Department of Anesthesiology, National Taiwan University Hospital, ³ LiveStrong Biomedical Technology Co., Ltd.
10:15 - 10:30	352 - Flow through assay for detection of Sars-CoV-2 virus using ACE-2 coated gold nanoparticles in saliva. <i>Tejal Dube¹ and Manojkumar Ramteke²</i> ¹ Indian Institute of Technology, ² Indian Institute of Technology Delhi
09:15 - 10:45	Session TuA8: Oral Session - Tissue Engineering & Regenerative Medicine 3 - EA-06-07 Chair: Hang Liu, National University of Singapore Co-Chair: Ji Hoon Jeong, Soonchunhyang Institute of Medi-bio Science (SIMS)
09:15 - 09:30	271 - Bruch's Membrane-Inspired Scaffolds for Retinal Pigment Epithelium Cell Regeneration <i>Hang Liu, Daniel Wong Soo Lin, Xinyi Su, Zengping Liu</i> National University of Singapore
09:30 - 09:45	326 - Preparation and properties of the novel wound dressing for skin repair <i>Ruoying Wang</i> Northwestern Polytechnical University
09:45 - 10:00	314 - A mild reduction of the cell surface proteins determines cell fates through the ITGβ1/FAK axis <i>Ji Hoon Jeong, Sung Sik Hur, Kae Won Cho, Yongsung Hwang</i> Soonchunhyang Institute of Medi-bio Science (SIMS)
10:00 - 10:15	460 - Modelling the effect of inflammation in cartilage tissue engineering- effects on pentosan polysulphate-loaded scaffolds for intervertebral disc repair <i>Aeolus Vilar¹, Tony Goldschlager², Jess Frith³</i> ¹ Monash University, ² Monash Department of Surgery, ³ Department of Materials Science and Engineering, Monash University
10:15 - 10:30	377 - From cells to microtissues: developing bioengineered hair follicles for in vitro drug screening <i>Wanjing OU¹ and Barbara Chan²</i> ¹ Department of Mechanical Engineering, The University of Hong Kong ² Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ² The Chinese University of Hong Kong
10:30 - 10:45	530 - nCaP-Functionalized Bilayer Scaffolds with Effects of Immunoregulation and Osteogenic-Angiogenic Coupling for Osteochondral Repair <i>Qi Jiang, Yicong Wu, Bowei Huang, Ziyu Ding, Shufang Zhang</i> Zhejiang University
10:45 - 11:00	TuN1 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor

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Tuesday, December 10, 2024	
11:00 - 12:30	<p>Session TuB1: Special Symposium - Engineering Mechanobiology 2 - LT7A</p> <p>Chair: Jennifer Young, National University of Singapore</p> <p>Co-Chair: Khoon Lim, University of Sydney</p>
11:00 - 11:30	<p>635 - KN: Spheroid Models to Study Cancer Cell Behaviors</p> <p><i>Jiwon Kim, Hyuntae Jeong, Jennifer H. Shin</i></p> <p>KAIST</p>
11:30 - 11:45	<p>598 - Programming Physical Cues to Modulate Cellular Function using Biofabrication</p> <p><i>Khoon Lim</i></p> <p>University of Sydney</p>
11:45 - 12:00	<p>605 - Wavy Structure Regulates Vascular Smooth Muscle Cell Phenotype</p> <p><i>Chun-Yu Lin, Yu-Yu Hsueh, Pen-hsiu Grace Chao</i></p> <p>National Taiwan University</p>
12:00 - 12:15	<p>612 - Engineering tuneable hydrogels to dissect mesoscale mechanobiology</p> <p><i>Jacopo Di Russo</i></p> <p>RWTH Aachen University</p>
12:15 - 12:30	<p>582 - Space Jam-ming: Generating Interstitial Spaces through Fragmented Granular GelMA for Enhanced Cancer Migration</p> <p><i>Yu Suk Choi, Danielle Vahala, Sebastian Amos</i></p> <p>University of Western Australia</p>
11:00 - 12:30	<p>Session TuB2: Special Symposium - Future of Biomedical Engineering Education in the Asia Pacific Region 2 - Engineering Auditorium</p> <p>Chair: Hairong Zheng, Nanjing University</p> <p>Co-Chair: Kang-Ping Lin, Chung Yuan Christian University</p>
11:00 - 11:15	<p>525 - Healthcare Innovation After the Pandemic: Engineering-based Medical Education</p> <p><i>Chulhong Kim</i></p> <p>Pohang University of Science and Technology</p>
11:15 - 11:30	<p>645 - Towards an Interdisciplinary and Impactful Biomedical Engineering and Biomechanics Education in Indonesia – The Case of Institut Teknologi Bandung</p> <p><i>Tatacipta Dirgantara and Andi Isra Mahyuddin</i></p> <p>Institut Teknologi Bandung</p>
11:30 - 11:45	<p>809 - Empowering Graduates Through Outcome-Based Education: A Biomedical Engineering Journey at Prince of Songkla University, Thailand</p> <p><i>Surapong Chatpun</i></p> <p>Prince of Songkla University</p>
11:45 - 12:00	<p>689 - STATUS OF BIOMEDICAL ENGINEERING EDUCATION IN MONGOLIA</p> <p><i>Bumbat Myagmarjav and Enkhjargal Biziya</i></p> <p>Mongolian University of Science and Technology</p>
12:00 - 12:15	<p>762 - Education of BME value: a JSMBE activity from hackathon and school visit</p> <p><i>Yasuyuki Shiraishi¹, Yusuke Tsuboko², Tatsuhiko Arafune³, Takeo Matsumoto⁴, Ryo Haraguchi⁵, Ichiro Sakuma⁶, Tomohiro Kuroda⁷</i></p> <p>¹Tohoku University IDAC, ²National Institute of Health Sciences, ³Tokyo Denki University, ⁴Nagoya University, ⁵University of Hyogo, ⁶University of Tokyo, ⁷Kyoto University</p>
12:15 - 12:30	<p>665 - Creating an Authentic Learning Environment in the NUS-BME program</p> <p><i>Raye Yeow</i></p> <p>National University of Singapore</p>

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11:00 - 12:30	Session TuB3: Special Symposium - Unlocking the Future of Precision Medicine: Generative AI in Healthcare - EA-02-11 Chair: Ernest Iadanza, University of Siena
11:00 - 11:30	776 - KN: Microbiome data analysis <i>Ernesto Iadanza</i> Department of Medical Biotechnologies
11:30 - 11:45	647 - Synthetic data generation in CT and MR imaging <i>Stefano Diciotti</i> University of Bologna
11:45 - 12:00	624 - Extending Dermatological Image Datasets <i>Alessio Luschi¹, Linda Tognetti², Pietro Rubegni², Ernesto Iadanza¹</i> ¹ Department of Medical Biotechnologies, ² Department of Medical and Surgical Science and Neuroscience
12:00 - 12:15	626 - Addressing Small Dataset Limitations in Atrial Fibrillation Research <i>Ali Salman¹, Francesco Goretti², Alessandra Cartocci¹, Ernesto Iadanza³</i> ¹ University of Siena, ² University of Florence, ³ Department of Medical Biotechnologies
11:00 - 12:30	Session TuB4: Special Symposium - Neurotechnology - EA-06-02 Chair: Yiliang Lin, National University of Singapore
11:00 - 11:30	422 - KN: Biological neuromorphic computing using brain organoids <i>Feng Guo</i> Indiana University
11:30 - 11:45	428 - Wireless, battery-free, fully implantable optoelectronic devices and systems for brain tissue oxygenation <i>He Ding¹ and Xing Sheng²</i> ¹ Beijing Institute of Technology, ² Tsinghua University
11:45 - 12:00	501 - Demystifying intercellular communication using 3D histology techniques <i>Young-Gyun Park</i> Korea Advanced Institute of Science and Technology
12:00 - 12:15	417 - Multifunctional, Stealthy Optoelectronic Neural Interfaces Using Thermally Drawn Fibers with Soft Materials <i>Seongjun Park</i> KAIST
12:15 - 12:30	439 - Explorations of Neural Dynamics with Flexible Implantable Optogenetic Devices <i>Yiyuan Yang</i> National University of Singapore
11:00 - 12:30	Session TuB5: Oral Session - Biomaterials 4 - EA-06-03 Chair: Mudrika Khandelwal, Indian Institute of Technology Hyderabad Co-Chair: Rujie Sun, University of Southampton
11:00 - 11:15	510 - High-performance functional fibers from the Bacterial Cellulose hydrogel <i>Anurag Kumar¹, Mudrika Khandelwal¹, Maryam Naebe², Abu Naser Md Ahsanul Haque²</i> ¹ Indian Institute of Technology Hyderabad, ² Deakin University
11:15 - 11:30	370 - Development of a chemically defined basement membrane for Intestinal Epithelialization and Airway differentiation <i>Maitraee Mistry¹, Abigail D Chen², Xingxing Dr. Yang³, Michael C W Chan⁴, Barbara P. Chan⁵</i> ¹ Department of Mechanical Engineering, The University of Hong Kong; Advanced Biomedical Instrumentation Centre, ² Department of Mechanical Engineering, The University of Hong Kong; Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ³ Department of Mechanical Engineering, The University of Hong Kong; Advanced Biomedical Instrumentation Centre; Tissue Engineering Lab, School of Biomedical Science; Institute to Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ⁴ School of Public Health, Li Ka Shing Faculty of Medicine, The University of Hong Kong; Centre for Immunology & Infection (C2i), ⁵ The Chinese University of Hong Kong

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11:30 - 11:45	713 - 3D-Printed Controlled Drug Delivery Systems: From Passive Degradation to Stimuli-Triggered Release <i>Rujie Sun</i> University of Southampton
11:45 - 12:00	395 - Magnetic Bacterial Cellulose Composite-based Transdermal Drug Delivery Systems: Multi-Dimensional Aspects of Loading, Release, Environment and Stimuli <i>Aszad Alam¹, Aimin Yu², Mudrika Khandelwal³</i> ¹ Indian Institute of Technology Hyderabad; ² Swinburne University of Technology, ³ Indian Institute of Technology Hyderabad
12:00 - 12:15	169 - Three-dimensional functionalized poly(ϵ-caprolactone) scaffolds for bone regeneration <i>Meenal Agrawal and Rajiv K. Srivastava</i> Department of Textile and Fibre Engineering, Indian Institute of Technology Delhi
11:00 - 12:30	Session TuB6: Oral Session - Bio-Micro / Nanotechnologies 1 - EA-06-04 Chair: Xin Song, The Chinese University of Hong Kong Co-Chair: Liu Yi Wu, University of Toronto
11:00 - 11:15	202 - Magnetic hydrogel micromachines for biofilm eradication <i>Bonan Sun¹, Tony K. F. Chan¹, Li Zhang¹, Joseph J. Y. Sung²</i> ¹ The Chinese University of Hong Kong, ² Nanyang Technological University
11:15 - 11:30	115 - Discovering nanoparticle corona ligands responsible for liver macrophage capture <i>Bram Bussin¹, Marshall G.G. MacDuff¹, Wayne Ngo², Jamie L. Y. Wu¹, Zachary P. Lin¹, Adrian Granda Farias³, Benjamin Stordy¹, Zahra Sepahi¹, Jason Moffat³, Warren C.W. Chan¹</i> ¹ University of Toronto, ² Gladstone Institute, ³ SickKids
11:30 - 11:45	301 - Fabrication of Accessible and Biocompatible PDMS-agarose-based 3D Microwell Array <i>Minyeop Kang¹, Jeongmok Kim², Joong Yull Park¹</i> ¹ Department of Mechanical Engineering, Graduate School, Chung-Ang University, ² Department of Mechanical Engineering, Graduate School, Chung-Ang University
11:45 - 12:00	114 - How nanoparticles transport across the tumour endothelium <i>Jamie L. Y. Wu¹, Qin Ji¹, Colin Blackadar¹, Luan N. M. Nguyen¹, Zachary P. Lin¹, Zahra Sepahi¹, Benjamin P. Stordy¹, Shrey Sindhvani¹, Warren C. W. Chan²</i> ¹ University of Toronto, ² Nanyang Technological University
12:00 - 12:15	122 - Genotyping SARS-CoV-2 Variants Using Ratiometric Nucleic Acid Barcode Panels <i>Vanessa Li, Hannah N. Kozlowski, Ayden Malekjahani, Ayokunle A. Lekuti, Warren C.W. Chan</i> University of Toronto
12:15 - 12:30	138 - Sensitive Detection of Cell Surface Markers via DNA-Mediated, On-Membrane Sequential Assembly of Conjugated Polymer Nanoparticles <i>Yuki Maeda¹, Noriko Nakamura¹, Seiichi Ohta²</i> ¹ University of Tokyo, ² The University of Tokyo
11:00 - 12:30	Session TuB7: Oral Session - AI in Healthcare 1 - EA-06-05 Chair: May Dongmei Wang, Georgia Institute of Technology Co-Chair: Tien Tuan Dao, Université de Lille
11:00 - 11:30	808 - KN: Challenges and Opportunities in AI-Driven Healthcare: Generative Models and Metaverse <i>May Dongmei Wang</i> Georgia Institute of Technology
11:30 - 11:45	237 - Multimodal comparison of features in ESWL outcome prediction models <i>Soya Kobayashi¹, Daisuke Fujita¹, Hironobu Shibutani², Shinsuke Gohara², Syoji Kobashi¹</i> ¹ University of Hyogo, ² Ishikawa Hospital
11:45 - 12:00	491 - Virtual Human Twin of the Childbirth Process: Augmented Engineering meets Modern AI <i>Tien-Tuan Dao</i> Univ. Lille, CNRS, Centrale Lille, UMR 9013 - LaMcube - Laboratoire de Mécanique, Multiphysique, Multiéchelle

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12:00 - 12:15	410 - AI Challenges and Opportunities in Clinical Engineering <i>Fabiola M Martinez-Licon and Alma E. Martinez-Licon</i> Universidad Autonoma Metropolitana
11:00 - 12:30	Session TuB8: Oral Session - Computational Modelling and Simulation 1 - EA-06-07 Chair: Taiji Adachi, Kyoto University Co-Chair: Bao Li, Beijing University of Technology
11:00 - 11:30	640 - KN: In silico study on mechanical adaptation and microdamage repair in bone by remodeling <i>Taiji Adachi</i> Kyoto University
11:30 - 11:45	163 - Nanoparticle Retention in Solid Tumours <i>Atta Cheuk Yan Chang¹, Luan Nha Matthew Nguyen², Qin Ji¹, Colin Blackadar¹, Stefan M. Mladjenovic¹, Warren C.W. Chan³</i> ¹ University of Toronto, ² Massachusetts Institute of Technology, ³ Nanyang Technological University
11:45 - 12:00	210 - Towards Accurate Prediction of Peri-Prosthetic Fractures: A Comprehensive Finite Element Model of Uncemented Total Hip Arthroplasty <i>Vineet Seemala¹, Mark A Williams¹, Richard King², Arnab Palit¹</i> ¹ WMG, The University of Warwick, ² Department of Trauma & Orthopaedics, University Hospitals Coventry and Warwickshire NHS Trust
12:00 - 12:15	247 - Study on rapid prediction of coronary flow velocity field based on fluid particle concentration and physics-data multi-derived neural network <i>Bao Li, Hao Sun, Yang Yang, Youjun Liu</i> Beijing University of Technology
12:15 - 12:30	390 - Comparative computational study of a solid and a porous hip stem for canine femora through Finite Element Analysis (FEA) <i>Souptick Chanda¹, Soumyadeep Sarkar², Ram Niwas Sundariwal³</i> ¹ IIT Guwahati, ² PhD Student at India, ³ LUVAS
12:30 - 13:30	TuN2 - Lunch @ EA Level 1 Foyer
12:30 - 13:30	Session LE1 - Lunch Talk by Mindray - EA-02-11
12:30 - 13:30	Session PS2 - Poster Session 2 - EA Level 1 Foyer
12:30 - 13:30	106 - Performance of Bioresorbable Peptide Incorporated Polymers Produced for Fused Deposition Modelling (FDM) <i>Asyraf Abbas, Eun Ju Park, Jiayi Guo, Yew Chin Teo, Peili Teo</i> A*STAR Institute of Materials Research and Engineering
12:30 - 13:30	120 - Electrostatic repulsion from the glycocalyx regulates access to nanoparticles <i>Bram Bussin¹, Marshall G.G. MacDuff¹, Wayne Ngo², Warren C.W. Chan¹</i> ¹ University of Toronto, ² Gladstone Institutes
12:30 - 13:30	130 - Targeting Tumor Endothelium Uptake Mechanisms to Maximize Nanoparticle Delivery <i>Sara Ahmed¹, Ayokunle A Lekuti¹, Vanessa Li¹, Anthony Tavares¹, Marshall MacDuff¹, Bram Bussin¹, Huiyan Li², Zachary Lin³, Warren Chan⁴</i> ¹ University of Toronto, ² NTU, ³ NIH, ⁴ Nanyang Technological University
12:30 - 13:30	141 - Microgel-integrated Microneedle Array Patches for Non-invasive Transdermal SARS-CoV-2 RBD Vaccination <i>Ki Hyun Bae¹, Kun Liang², Brandon Yi Loong Seow¹, Jia Min Loh², Steven Tien Guan Thng³, Yi Yan Yang¹</i> ¹ A*STAR Bioprocessing Technology Institute, ² A*STAR Skin Research Labs, ³ Skin Research Institute of Singapore (SRIS)
12:30 - 13:30	142 - Suggestions for superior hand washing methods -Based on kinematic studies- <i>Masaya Uwabe¹, Sunao Takeda¹, Ryosuke Kasai¹, Kohei Tanaka¹, Soichiro Matsushita¹, Kazuhiko Shinohara¹, Nae Hinata¹, Masaki Kyoso², Fuminori Kamijo¹</i> ¹ Tokyo University of Technology, ² Tokyo City University
12:30 - 13:30	154 - Smart Tracking System for Medical Assets in Hospitals: SOFTWARE APPLICATION <i>Kurt C. Bibera and Kristine Mae Paboreal Dunque</i> University of Science and Technology of Southern Philippines

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12:30 - 13:30	179 - A Flexible Wearable Electret Haptic Actuator for Human-Machine Interaction <i>Haiyang Wan¹, Jian Jiao², Raye Yeow³</i> ¹ South China University of Technology, ² Robotics Research Center, Peng Cheng Laboratory, ³ National University of Singapore
12:30 - 13:30	181 - Design and evaluation of a hip-knee brace to reduce knee joint stress <i>Kai-Chung Cheng and Bing-Shiang Yang</i> National Yang Ming Chiao Tung University
12:30 - 13:30	200 - Bioinspired compliant aquatic robot for silent multi-jet swimming <i>Gavril Tan</i> National University of Singapore
12:30 - 13:30	206 - Heating Experiment of Resonant Cavity Applicator for Simultaneously Thermal Treatment of Knee OA <i>Hayato Taoda¹ and Yasuhiro Shindo²</i> ¹ Graduate school of Toyo University, ² Toyo University
12:30 - 13:30	216 - Feasibility study of two-photon excitation photodynamic therapy with quantum entangled light <i>Hinako Yokota¹, Yuichi Miyamoto², Hiroaki Yoshikawa², Masahiro Toida², Tadashi Kasamatsu²</i> ¹ Division of Medical Science, Graduate School of Medicine, Saitama Medical University, ² Saitama Medical University
12:30 - 13:30	228 - A User-Friendly SSVEP-BCI System Designed with Machine Learning to Facilitate the Lives of People with Disabilities. <i>Qiangwen Na and Tanaka Hisaya</i> Kogakuin University
12:30 - 13:30	239 - Development of Perovskite Light Emitting Devices for Accelerating Wound Healing <i>Somnath Mahato and Muhammad Danang Birowosuto</i> Łukasiewicz Research Network - PORT
12:30 - 13:30	248 - Polyacrylamide Hydrogel-Based Wearable Sensors with PEDOT: PSS as Conductive Material For Electrocardiogram (ECG) Monitoring <i>Saurabh Soni and Dipti Gupta</i> Indian Institute of Technology Bombay
12:30 - 13:30	256 - Comparative study on efficiency of dialysis and flow volume between single needle and double needle <i>Kiyoshi Naemura</i> Tokyo University of Technology
12:30 - 13:30	262 - Heating Position Control Method Using Bolus for Resonant Cavity Applicator <i>Masahiro Sakurai¹ and Yasuhiro Shindo²</i> ¹ Graduate school of Toyo University, ² Toyo University
12:30 - 13:30	264 - Hyperthermia Treatment Using Shape Memory Alloy Needle Electrodes <i>Ryuta Naito¹ and Yasuhiro Shindo²</i> ¹ Graduate School of Toyo University, ² Toyo University
12:30 - 13:30	277 - Visual-enhanced Superhigh-resolution Pressure Mapping Enabled By A Soft Electroluminescent Mechano-sensory Electronic Skin <i>Zixiong Wu¹, Chwee Teck Lim¹, Shuwen Chen², Shicheng Fan¹, Qiao Zheng¹, Jiaming Qi¹</i> ¹ National University of Singapore, ² Huazhong University of Science and Technology
12:30 - 13:30	297 - Micro-scale Robotic Systems for Intravascular Targeted Therapy <i>Xin Song and Li Zhang</i> The Chinese University of Hong Kong
12:30 - 13:30	299 - PI3K and Wnt/β-catenin Signalling Regulate Nanoparticle Transport in Endothelial Cells <i>Colin J Blackadar¹, Qin Ji¹, Jamie Wu¹, Atta Chang¹, Warren Chan²</i> ¹ University of Toronto, ² Nanyang Technological University
12:30 - 13:30	308 - A comparison of eyeblink activity during task-oriented and daily conversations <i>Minato Kawaguchi</i> Kanto Gakuin University

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12:30 - 13:30	<p>320 - Analysis of Heating Characteristics of Various Transducer Positions in HIFU Therapy</p> <p><i>Yamato Takeuchi¹ and Yasuhiro Shindo²</i></p> <p>¹Graduate school of Toyo University, ²Toyo University</p>
12:30 - 13:30	<p>325 - An eye patch that automatically opens eyelids and measures pupils</p> <p><i>Sen-Yung Liu¹, Sheng-Fu Liang², Chung-Ping Young², Chi-Yeh Chen², Chih-Ming Lin¹, Yi-Chen Huang¹, Pei-Ni Chiang², Rei-Ren Zhang², Chia-Ming Tung²</i></p> <p>¹Changhua Christian Hospital, ²Department of Computer Science and Information Engineering, National Cheng Kung University</p>
12:30 - 13:30	<p>327 - Analysis of Infrared Laser Therapy for Thermal Treatment of Heberden's Nodes</p> <p><i>Yuto Murata¹ and Yasuhiro Shindo²</i></p> <p>¹Graduate School of Toyo University, ²Toyo University</p>
12:30 - 13:30	<p>349 - Assessment of Carbon Footprint of a Japanese Hemodialysis Clinic.</p> <p><i>Takayuki Ota¹, Kenichi Kokubo², Kozue Kobayashi², Masaru Kubota²</i></p> <p>¹Kitasato University Graduate School of Medical Science, ²Kitasato University School of Allied Health Sciences, Kanagawa, Japan</p>
12:30 - 13:30	<p>350 - Magnetic hydrogel microswarm platform for biofilm eradication in periodontal pockets</p> <p><i>Huihui DU¹, Shihao Yang¹, Kai Fung Chan², Li Zhang³</i></p> <p>¹Department of Mechanical & Automation Engineering, The Chinese University of Hong Kong, ²Chow Yuk Ho Technology Centre for Innovative Medicine and Li Ka Shing Institute of Health Sciences, The Chinese University of Hong Kong, ³the Department of Mechanical & Automation Engineering, The Chinese University of Hong Kong</p>
12:30 - 13:30	<p>361 - Engineering a Biomimetic Niche for Intestinal Epithelial Culture using Multiphoton Microfabrication and Micropatterning (MMM) Platform</p> <p><i>Chun Hin Chris Chan¹, Nan Huang¹, Abigail Dee Chen², Vincent Kwok Lim Lam³, Vincent Chi Hang Lui⁴, Kenneth Kak Yuen Wong⁴, Paul Kwong Hang Tam⁴, Barbara Chan⁵</i></p> <p>¹Department of Mechanical Engineering, The University of Hong Kong, Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ²Department of Mechanical Engineering, The University of Hong Kong; Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ³Department of Mechanical Engineering, The University of Hong Kong, ⁴Department of Surgery, Li Ka Shing Faculty of Medicine, The University of Hong Kong, ⁵The Chinese University of Hong Kong</p>
12:30 - 13:30	<p>392 - Intelligent walking aid device that actively responds to user intentions</p> <p><i>Soon-Geul Lee¹, Insik Won², Jongwoo Kim¹, Jaesung Lee¹</i></p> <p>¹Kyung Hee University, ²Incheon International Airport Corp.</p>
12:30 - 13:30	<p>398 - Image-guided microrobotic platform for endoluminal interventions in the gastrointestinal tract</p> <p><i>Kai Fung Chan¹, Lin Su², Ben Wang³, Li Zhang²</i></p> <p>¹Chow Yuk Ho Technology Centre for Innovative Medicine, The Chinese University of Hong Kong, ²Department of Mechanical & Automation Engineering, The Chinese University of Hong Kong, ³College of Chemistry and Environmental Engineering, Shenzhen University</p>
12:30 - 13:30	<p>403 - 4D printed cell niche for single cell mechanoregulation using multiphoton microfabrication and micropatterning technology</p> <p><i>Nan Huang¹, Chun Hin Chris Chan², Barbara Pui Chan³</i></p> <p>¹Institute of Tissue Engineering and Regenerative Medicine, The Chinese University of Hong Kong, ²Department of Mechanical Engineering, The University of Hong Kong, Tissue Engineering Lab, School of Biomedical Science; Institute of Tissue Engineering and Regenerative Medicine; Department of Biomedical Engineering; The Chinese University of Hong Kong, ³The Chinese University of Hong Kong</p>
12:30 - 13:30	<p>478 - Tailoring Lipid Nanoparticle with Ex Situ Incorporated Conjugated Oligoelectrolyte for Enhanced mRNA Delivery Efficiency</p> <p><i>Wilson Soh, Sebastian Sean Jing Kang Liau, Guillermo C. Bazan</i></p> <p>National University of Singapore</p>

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12:30 - 13:30	479 - Mechano-Acoustic-Wave (MAW) sensing technology for continuous monitoring of tissue mechanics <i>Chenhang Li¹, Heling Wang², Chaorui Qiu¹, Changsheng Wu³, Xiaoyue Ni¹, John A. Rogers⁴</i> ¹ Duke University, ² Laboratory of Flexible Electronics Technology, Tsinghua University, ³ National University of Singapore, ⁴ Northwestern University
12:30 - 13:30	484 - Enhanced oral bioavailability of megestrol acetate via polymer-hybridized solid lipid nanoparticles using ultrasonic nebulization method <i>Youngrok Choi, Yoonhee Shim, Eunbin Ji, Junhyeon Park, Hye Jin Yoo, Su-Geun Yang</i> inha university(Brain Korea 21 Four program)
12:30 - 13:30	485 - Utilizing Milliwave Sensors to Create a Comprehensive Home Care and Sleep Monitoring System for the Elderly <i>Yu-Jhen CHEN¹, Chieh-Wei WU², Jui-Da LIN², Hsiang-Ho CHEN²</i> ¹ Department of Biomedical Engineering, Chang Gung University, ² Department of Biomedical Engineering, Chang Gung University, Taoyuan, Taiwan
12:30 - 13:30	500 - Neurostimulation system with protruding (3D) electrode structure <i>Hachul Jung, Jinwoo Ahn, Young-jin kim</i> KBIO
12:30 - 13:30	637 - The Effectiveness of Fulcrum Bending Plus Cervical Exercise Assistive Device in the Rehabilitation of Patients with Chronic Cervical Discomfort <i>Yan Fu, Teng Zhang, Jason Pui Yin Cheung, Weichen Qi, Dip-Kei Keith Luk</i> The University of Hong Kong
12:30 - 13:30	779 - 3D Printing of Silk Acid Microgel Scaffolds for Biomedical Applications <i>Sorour Sadeghzade¹, Chengchen Guo¹, Ajinkia Nene²</i> ¹ Westlake University, ² Shenzhen Institute of Advanced Technology
13:30 - 14:15	Session PL5 - Plenary Lecture - LT7A Chair: Yuxin Liu, National University of Singapore
13:30 - 14:15	801 - Acoustic Tweezers and Neuromodulation <i>Hairong Zheng</i> Nanjing University
14:15 - 15:45	Session TuC1: Special Symposium - Engineering Mechanobiology 3 - LT7A Chair: Andrew Holle, National University of Singapore Co-Chair: Ajay Tijore, Indian Institute of Science Bangalore
14:15 - 14:45	723 - KN: Auxetic microstructure-based anti-loosening bone screw: Concept, design, and biomechanical performance <i>Lizhen Wang and Yubo Fan</i> Beihang University
14:45 - 15:00	602 - Trail formation alleviate excessive adhesion and promote efficient neutrophil migration <i>Wenhui Hu¹, Wenbo Gao¹, Yixin Gong¹, Pan Guo¹, Wang Li¹, Xinyu Shu¹, Shouqin Lü¹, Zhu Zeng¹, Yan Zhang¹, Mian Long²</i> ¹ Institute of Mechanics, Chinese Academy of Sciences, ² Institute of Mechanics, Chinese Academy of Sciences; University of Chinese Academy of Sciences
15:00 - 15:15	693 - Biophysical routes to study cancer initiation in epithelial tissues <i>Sindhu Muthukrishnan, Amrapali Datta, Tanishq Tejaswi, Medhavi Vishwakarma</i> Indian Institute of Science
15:15 - 15:30	609 - Reduction of mechanosensitivity of circulating tumor cells to fluid shear stress during hematogenous metastasis <i>Cunyu Zhang, Guanshuo Hu, Kai Tang, Youhua Tan</i> Hong Kong Polytechnic University

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15:30 - 15:45	104 - Curvature Matrix Spatial-Temporally Primes Epigenetic State for Enhanced Cell Reprogramming Efficiency and Subtype Diversification <i>Yang Song</i> Sichuan University
14:15 - 15:45	Session TuC2: Special Symposium - Future of Biomedical Engineering Education in the Asia Pacific Region 3 - Engineering Auditorium Chair: Ratko Magjarevic, University of Zagreb Co-Chair: Leandro Pecchia, University Campus Biomedico
14:15 - 15:45	Panel Session Raymond KY Tong Fatimah Ibrahim Mei-Feng Chen Chulhong Kim Bumbat Myagmarjav Tatacipta Dirgantara Surapong Chatpun Yasuyuki Shiraishi Liu Peng
14:15 - 15:45	Session TuC3: Special Symposium - Quantitative Analysis of Dopamine Transporter Imaging - EA-02-11 Chair: Kang-Ping Lin, Chung-yuan Christian University
14:15 - 14:35	684 - KN: Tc-99m-TRODAT-1 SPECT as an imaging biomarker in Parkinson's disease and Parkinsonian syndromes <i>Ren-Shyan Liu</i> Cheng Hsin General Hospital
14:35 - 14:45	683 - Nuclear medicine imaging in Parkinson's disease - comma or no comma ? - that is the question <i>Subapriya Suppiah</i> Pusat Pengimejan Diagnostik Nuklear (PPDN), Universiti Putra Malaysia
14:45 - 14:55	690 - Diagnostic Evaluation of Tc-99m TRODAT-1 SPECT-CT in the Differential Diagnosis of Parkinsonism in Hospital Kuala Lumpur: A preliminary experience <i>Kamalia Kamarulzaman</i> Hospital Kuala Lumpur
14:55 - 15:05	680 - Trodat scan for ureaveling Brain disorder (Bandung experience) <i>Kharisma Perdani Kusumahstuti</i> Hasan Sadikin General Hospital/Padjdjaran University Indonesia
15:05 - 15:15	679 - Clinical Feasibility of Quantitative Analysis of Dopamine Transport Imaging <i>Ming-Hsien Lin</i> Camillian Saint Mary's Hospital Luodong
15:15 - 15:25	682 - The application of dopamine transporter single-photon emission computer tomography (DAT-SPECT) in clinical practice for patients with parkinsonism <i>Zen-Yong Chen</i> Camillian Saint Mary's Hosptial Luodong
15:25 - 15:35	678 - Cross-Center Calibration of ROI-Based [99mTc]-Trodat-1 SPECT Scan Using an Anthropomorphic Striatal Phantom <i>Wen-Chen Lin and Kang-Ping Lin</i> Chung Yuan Christian University
14:15 - 15:45	Session TuC4: Special Symposium - Emerging Technologies for Microfluidics - EA-06-02 Chair: Michinao Hashimoto, Singapore University of Technology and Design Co-Chair: Chia-Hung Chen, City University of Hong Kong
14:15 - 14:30	671 - Microfluidic Strategies to Understand Host-Microbiome Interactions in Dental and Periodontal Disease <i>Gopu Sriram</i> National University of Singapore

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14:30 - 14:45	699 - Engineering Microfluidic Human Tissue Barriers on Chip <i>Song Ih Ahn</i> KAIST
14:45 - 15:00	701 - Filling the gaps for a competent lymph node on chip <i>Mei ElGindi, Shaza Karaman, Brian Chesney Quartey, Jeremy Teo</i> New York University Abu Dhabi
15:00 - 15:15	704 - Leveraging 3D Printing for Next-Generation Organ-on-Chip Fabrication <i>Louis Ong¹, Surasak Kasetsirikul², Yi-Chin Toh¹</i> ¹ Queensland University of Technology, ² QUT Centre for Biomedical Technologies, Queensland University of Technology
15:15 - 15:30	793 - A Missing Puzzle in The Flow Chemistry <i>Ya-Yu Chiang</i> National Taiwan University
15:30 - 15:45	810 - Modeling the Gut-Liver Axis Using Body-on-a-Chip Systems: Insights into Disease Mechanisms and Therapeutic Development <i>Kenichiro Kamei</i> New York University Abu Dhabi
14:15 - 15:45	Session TuC5: Oral Session - 3D Printing & Additive Manufacturing 2 - EA-06-03 Chair: Rongzhou Lin, South China University of Technology Co-Chair: Sandor Nemeth, A*STAR Singapore Institute of Manufacturing Technology (SIMTech)
14:15 - 14:30	230 - Particle engulfment printing for tissue-like bioelectronics <i>Rongzhou Lin</i> South China University of Technology
14:30 - 14:45	259 - Mechanical anisotropy with strut length gradient in stochastic lattice inspired by cancellous bone structure for additively manufactured implants <i>Akihiko Nishimura¹, Satoshi Yamada¹, Hayato Suzuki², Masahiro Todoh¹</i> ¹ Hokkaido University, ² Hokkaido Research Organization
14:45 - 15:00	243 - Tension-driven three-dimensional printing of free-standing Field's metal structures <i>Shaohua Ling¹, Xi Tian², Qihang Zeng¹, Zhihang Qin¹, Selman A. Kurt¹, Yu Jun Tan¹, Jerry Y. H. Fuh¹, Zhuangjian Liu³, Michael D. Dickey⁴, John S. Ho¹, Benjamin Tee¹</i> ¹ National University of Singapore, ² Tsinghua University, ³ Agency for Science Technology and Research, ⁴ North Carolina State University
15:00 - 15:15	199 - Drug Release Times from Different Shapes of Releasing Bodies <i>Sandor Nemeth and Clarice Loke</i> A*STAR Singapore Institute of Manufacturing Technology
15:15 - 15:30	159 - A Novel Bioprinting Tissue Vascularization Strategy Based On Interfacial Polyelectrolyte Complexation <i>Zhongyu Tang¹, Chixuan Liu², Jiachen Yang¹, Changze Wei¹, Yen Wah Tong¹</i> ¹ National University of Singapore, ² A*STAR Skin Research Labs
14:15 - 15:45	Session TuC6: Oral Session - Bio-Micro / Nanotechnologies 2 - EA-06-04 Chair: Seiichi Ohta, The University of Tokyo
14:15 - 14:45	788 - KN: Integrated nanosensor technologies for molecular analyses of circulating biomarkers <i>Huilin Shao</i> National University of Singapore
14:45 - 15:00	160 - Detection of slight aggregation of surface-modified nanoparticles using centrifugal field-flow fractionation and its impact on bioassays <i>Hiroki Tsuchiya, Noriko Nakamura, Seiichi Ohta</i> The University of Tokyo

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15:00 - 15:15	<p>164 - 3D Electron Microscopy for Analyzing Nanoparticles in Tumours</p> <p><i>Stefan M. Mladjenovic¹, Ishaan S. Chandok², Ali Darbandi³, Luan Nha Matthew Nguyen⁴, Benjamin Stordy¹, Mei Zhen⁵, Warren C.W. Chan⁶</i></p> <p>¹University of Toronto, ²Harvard University Department of Physics, ³Nanoscale Biomedical Imaging Facility, Hospital for Sick Children, ⁴Massachusetts Institute of Technology, ⁵Lunenfeld-Tanenbaum Research Institute, ⁶Nanyang Technological University</p>
15:15 - 15:30	<p>294 - Size-tunable conjugated polymer nanoparticles as a platform to visualize size-dependent in vivo nanoparticle transport for diagnostics</p> <p><i>Noriko Nakamura¹ and Seiichi Ohta²</i></p> <p>¹The University of Tokyo, ²The University of Tokyo</p>
15:30 - 15:45	<p>214 - Why Tumour Cells Take Up Nanoparticles</p> <p><i>Qin Ji¹, Colin Blackadar², Jamie Wu², Atta Cheuk Yan Chang¹</i></p> <p>¹University of Toronto, ²University of Toronto, Biomedical Engineering</p>
14:15 - 15:45	<p>Session TuC7: Oral Session - Microfluidics & Organ-on-Chip 1 - EA-06-05</p> <p>Chair: Keisuke Goda, University of Tokyo</p> <p>Co-Chair: Lanfeng Liang, National University of Singapore</p>
14:15 - 14:45	<p>604 - KN: Intelligent image-activated cell sorting & beyond</p> <p><i>Keisuke Goda</i></p> <p>University of Tokyo</p>
14:45 - 15:00	<p>280 - Simulating Cellular Responses Using a Bladder Mimic Chip with Various Dimensional Deformation</p> <p><i>Sang Wook Park¹, Joong Yull Park², Daehan Kim¹</i></p> <p>¹Department of Mechanical Engineering, Graduate School, Chung-Ang University, ²Department of Mechanical Engineering, Department of Intelligent Energy and Industry, Chung-Ang University</p>
15:00 - 15:15	<p>288 - Development of low-cost, yeast fermentation powered microfluidic pump for lab-on-a-chip applications</p> <p><i>Jeongmok Kim¹, Seongyeol Baek¹, Joong Yull Park²</i></p> <p>¹Department of Mechanical Engineering, Graduate School, Chung-Ang University, ²Department of Mechanical Engineering, Graduate School, Chung-Ang University</p>
15:15 - 15:30	<p>173 - Cardiovascular Risk Assessment in Convalescent COVID-19 Patients Based on Leukocyte and Platelet Adhesion in a 3D Stenosis model</p> <p><i>Hui Min Tay¹, Lingyi Zhuang¹, Rinkoo Dalan², Han Wei Hou¹</i></p> <p>¹Nanyang Technological University, ²Tan Tock Seng Hospital</p>
15:30 - 15:45	<p>368 - Observation of cancer cells using four-chamber microfluidic device with different oxygen concentrations</p> <p><i>Naoto Kawahara¹, Shohei Yanagita¹, Satoshi Aratake¹, Satomi Hirose¹, Jean-Paul Rieu², Nasser Ghazi², Kenichi Funamoto¹</i></p> <p>¹Tohoku University, ²Université Lyon 1</p>
14:15 - 15:45	<p>Session TuC8: Oral Session - Computational Modelling and Simulation 2 - EA-06-07</p> <p>Chair: Tomohiko Utsuki, Tokai University</p> <p>Co-Chair: Satrio Wicaksono, Institut Teknologi Bandung</p>
14:15 - 14:30	<p>258 - Numerical Investigation of Guided Endodontic Access Sleeves during Drilling with Various Sleeve Heights</p> <p><i>Wandi Prasetia¹, Satrio Wicaksono¹, Anna Muryani², Andi Isra Mahyuddin¹, Tatacipta Dirgantara¹, Dudi Aripin², Hendra Dian Adhita Dharsono², Zainul Ahmad Rajion³</i></p> <p>¹Faculty of Mechanical and Aerospace Engineering, Bandung Institute of Technology, ²Faculty of Dentistry, Padjadjaran University, ³Kulliyah of Dentistry, International Islamic University Malaysia</p>
14:30 - 14:45	<p>227 - Finite element modelling aided design of shape morphing implants triggered by biodegradation</p> <p><i>William Solórzano-Requejo¹, Conall Quinn², Vanesa Martínez³, Jon Molina-Aldareguia³, Ted Vaughan², Andres Diaz Lantada⁴, Jennifer Patterson³</i></p> <p>¹Universidad Politécnica de Madrid, ²University of Galway, ³IMDEA Materials Institute, ⁴Mechanical Engineering Department, Universidad Politecnica de Madrid</p>

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14:45 - 15:00	284 - Deep learning-based real-time prediction of coronary 3D flow field pressure distribution from coronary CT angiography <i>Yang Yang, Bao Li, Youjun Liu</i> Beijing University of Technology
15:00 - 15:15	364 - An Integrated Mathematical Model of Biothermal Dynamics and Pharmacokinetics Including the Model of Brain's Physiological Conditions <i>Atomu Takahashi and Tomohiko Utsuki</i> Tokai University
15:15 - 15:30	435 - Fundamental study on pulse wave propagation in three-dimensional circular tubes using fluid-structure interaction to diagnose atherosclerosis at an early stage <i>Yuto Sato and Tomohiro Fukui</i> Kyoto Institute of Technology
15:45 - 16:00	TuN3 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor
16:00 - 17:30	Session TuD1: Special Session - IFMBE Young Investigators Award @ ICBME 2024 - LT7A Chair: Andy Tay, National University of Singapore
16:00 - 16:15	263 - Localized Oxygen Control in a Microfluidic Osteochondral Interface Model Recapitulates Bone-Cartilage Crosstalk During Osteoarthritis <i>Louis Ong, Antonia Sun, Zhongzheng Wang, Indira Prasadam, Yi-Chin Toh</i> Queensland University of Technology
16:15 - 16:30	282 - Acoustic Bio-metamaterials for wireless human-machine interface <i>Hanchuan Tang</i> Huazhong University of Science and Technology
16:30 - 16:45	425 - Bioactive sucralfate-based microneedles promote wound healing through reprogramming macrophages and protecting endogenous growth factors <i>Zhicheng Le and Andy Tay</i> National University of Singapore
16:45 - 17:00	464 - Battery-free neural implant for studying neurobehavioral patterns in freely-moving primates <i>Saehyuck Oh, Janghwan Jekal, Kyung-In Jang</i> Daegu Gyeongbuk Institute of Science and Technology(DGIST)
17:00 - 17:15	576 - Novel Preclinical Models and Treatments for Chronic Wounds <i>Jiah Shin Chin¹, Mandy Tan¹, David Becker²</i> ¹ A*STAR Skin Research Labs, ² Lee Kong Chain School of Medicine, NTU
16:00 - 17:30	Session TuD2: Panel Session - Clinical Panel Session - Engineering Auditorium Chair: Liang Zhong, Duke-NUS Medical School
	PANELLISTS Rena Angela DHARMWAN (Nat'l Cancer Centre Singapore) Yujia GAO (Nat'l University Health System) Charlene LIEW (Changi General Hospital) Gideon OOI (Singapore General Hospital) Alvin SOON (Tan Tock Seng Hospital)
16:00 - 17:30	Session TuD3: Special Symposium - Nanoscale Mechanobiology 1 - EA-02-11 Chair: Jennifer Young, National University of Singapore Co-Chair: Wenting Zhao, Nanyang Technological University
16:00 - 16:15	718 - Epithelial Gap Closure on Topologically Patterned Substrates <i>Changjin Huang</i> Nanyang Technological University
16:15 - 16:30	717 - Interferometric Scattering Microscopy: A Label-Free Approach to Visualizing Nanoscopic Cellular Organizations and Dynamics <i>Chia-Lung Hsieh</i> Academia Sinica

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16:30 - 16:45	196 - CELLULAR NANOINJECTION FOR BIOMEDICAL APPLICATIONS <i>Roey Elnathan</i> Deakin University
16:45 - 17:00	752 - Shedding light on mitochondria and ER mechanobiology by optogenetic mechanostimulators <i>Liting Duan</i> Chinese University of Hong Kong
17:00 - 17:15	588 - Vertically aligned nanopillars show stiffening of the nucleus induced by acute chromatin decompaction <i>Aninda Mitra¹, Romina Burla², Yongpeng Zeng¹, Na Qin¹, Vinod Benjamin¹, Mui Hoon Nai³, Barbara Huebner¹, Alexander Ludwig¹, Chwee Teck Lim³, GV Shivashankar⁴, Isabella Saggio², Wenting Zhao¹</i> ¹ Nanyang Technological University, ² Sapienza University of Rome, ³ National University of Singapore, ⁴ ETH Zurich
16:00 - 17:30	Session TuD5: Oral Session - 3D Printing & Additive Manufacturing 3 - EA-06-03 Chair: Z. Alan Li, The Chinese University of Hong Kong Co-Chair: Niraj Sinha, Indian Institute of Technology, Kanpur
16:00 - 16:15	531 - Investigation of mechanical properties, anti-bacterial and biofilm degradation behaviors of 3D printed Fe3C nanoparticles/bioactive glass scaffolds with different pore architectures <i>Ashok Vishwakarma, Archana Raichur, Niraj Sinha</i> Indian Institute of Technology Kanpur
16:15 - 16:30	505 - Embedded 3D Printing of Hydroxypropyl Cellulose for Strain Sensing <i>Eaint Nandi Win Naung, Arunraj S/O Chidambaram, Abinaya Nachinarkiniyan, Michinao Hashimoto</i> Singapore University of Technology and Design
16:30 - 16:45	494 - 3D-printed tropical fruit by-products with low-methoxyl pectin <i>Jian Da Tan, Cheng Pau Lee, Michinao Hashimoto</i> Singapore University of Technology and Design
16:45 - 17:00	433 - Development of a low-cost automated cell counting system using CNC milling and soft lithography <i>Takanobu Takenouchi, Yuta Iijima, Kazuyo Ito, Daisuke Yoshino</i> Tokyo University of Agriculture and Technology
16:00 - 17:30	Session TuD6: Oral Session - Biomechanics & Mechanobiology 4 - EA-06-04 Chair: Joo Hyun Kim, Soonchunhyang Institute of Medi-bio Science (SIMS) Co-Chair: Anwasha Guru, National University of Singapore
16:00 - 16:15	322 - Phosphorylated focal adhesion kinase by mild reduction of cell surface proteins inhibits integrin $\alpha 5\beta 1$-dependent patient-derived cancer cell migration and invasion <i>Joo Hyun Kim</i> Soonchunhyang Institute of Medi-Bion Science
16:15 - 16:30	375 - Maturation of Lubricating Functions and Molecular Expression during Cultured Cartilage Formation under Mechanical Stimulation <i>Takamune Hayakawa¹, Haruka Kobayashi¹, Yusuke Morita², Koji Yamamoto²</i> ¹ Graduate School of Life and Medical Sciences, Doshisha University, ² Faculty of Life and Medical Sciences, Doshisha University
16:30 - 16:45	431 - Construction of a cultured vascular model allowing stent implantation <i>Taku OKUNO and Daisuke Yoshino</i> Tokyo University of Agriculture and Technology
16:45 - 17:00	450 - Confined migration induces osteogenic stem cell differentiation <i>Xu Gao, Yixuan Li, Jia Wen Nicole Lee, Jianxuan Zhou, Andrew Holle</i> National University of Singapore

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17:00 - 17:15	357 - Biomechanical analysis of a new quadriceps tendon reconstruction technique with synthetic mesh: An in-vitro cadaveric study <i>Seng Koon Ku¹, Khairul Anwar Bin Ayob¹, Azhar M. Merican¹, Desmond Y.R. Chong²</i> ¹ University of Malaya, ² Singapore Institute of Technology
17:15 - 17:30	374 - Evaluation of the Effects of Tissue Contact State of hiPSC-Derived Cardiac Spheroids on Their Pulsatile and Phenotypic Changes <i>Rina Kawamura¹, Koshi Ideguchi¹, Yusuke Morita², Koji Yamamoto²</i> ¹ Graduate School of Life and Medical Sciences, Doshisha University, ² Faculty of Life and Medical Sciences, Doshisha University
16:00 - 17:30	Session TuD7: Oral Session - Microfluidics & Organ-on-Chip 2 - EA-06-05 Chair: Anderson Shum, City University of Hong Kong Co-Chair: Mudrika Khandelwal, Indian Institute of Technology Hyderabad
16:00 - 16:30	736 - KN: Droplet microfluidics for single-target bio-analyses <i>Anderson Shum</i> City University of Hong Kong
16:30 - 16:45	353 - Development of an oxygen-control microfluidic device for co-culture of cancer cells and microvascular network <i>Satoshi Aratake and Kenichi Funamoto</i> Tohoku University
16:45 - 17:00	376 - Bacterial nanocellulose based microfluidic AST device <i>Mudrika Khandelwal, Suhanya Duraiswamy, Saritha C, Mukul Choudhary</i> IIT Hyderabad
17:00 - 17:15	354 - Observation of the Migration of Macrophage-like HL-60 Cells under Various Oxygen Concentration using a Microfluidic Device <i>Taishi Nakamura and Kenichi Funamoto</i> Tohoku University
17:15 - 17:30	171 - Label-free Single Microparticles and Cell Aggregates Sorting in Continuous Cell-based Manufacturing <i>Lingyan Gong, Linwei He, Nan Lu, Chayakorn Petchakup, King Ho Holden Li, Chor Yong Tay, Han Wei Hou</i> Nanyang Technological University
16:00 - 17:30	Session TuD8: Oral Session - Computational Modelling and Simulation 3 - EA-06-07 Chair: Marie-Christine HO BA THO, Université de Technologie de Compiègne Co-Chair: Chloe Armour, Imperial College London
16:00 - 16:15	517 - Facial Rehabilitation by Coupling Reinforcement Learning and Finite Element Modeling <i>Duc Phong Nguyen¹, Marie-Christine HO BA THO¹, Tien-Tuan Dao²</i> ¹ Université de Technologie de Compiègne, ² Univ. Lille, CNRS, Centrale Lille, UMR 9013 - LaMcube - Laboratoire de Mécanique, Multiphysique, Multiéchelle
16:15 - 16:30	469 - Numerical Simulation of the Effect of Geometry in Out-of-Plane Bifurcation in Pulmonary Airways on Airway Resistance <i>Motoki Koga and Tomohiro Fukui</i> Kyoto Institute of Technology
16:30 - 16:45	437 - Fundamental numerical simulation of single particle behavior in a channel with symmetrical bifurcation towards effective inhalation therapy <i>Daisuke Haraguchi and Tomohiro Fukui</i> Kyoto Institute of Technology
16:45 - 17:00	587 - Patient-specific modelling of pulmonary hypertension: wall shear stress highlighted as a potential haemodynamic biomarker for diagnosis and disease severity <i>Chloe Armour, Deepa Gopalan, Ben Statton, Declan P O'Regan, Luke Howard, Martin Wilkins, Yun Xu, Allan Lawrie</i> Imperial College London
17:00 - 17:15	427 - Numerical simulation of the suspension viscosity considering effects of particle-fluid interaction on low confinement condition in two-dimensional parallel plate flow <i>Junji Maeda and Tomohiro Fukui</i> Kyoto Institute of Technology

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09:15 - 10:45	<p>Session WeA1: Special Symposium - Engineering Mechanobiology 4 - LT7A</p> <p>Chair: Yu Suk Choi, University of Western Australia Co-Chair: Jacopo Di Russo, RWTH Aachen University</p>
09:15 - 09:45	<p>603 - KN: Mechanical microenvironment regulates liver injury and regeneration</p> <p><i>Wang Li¹, Xiaoyu Zhang¹, Ning Li², Mian Long³</i></p> <p>¹Institute of Mechanics, Chinese Academy of Sciences; University of Chinese Academy of Sciences, ²Institute of Mechanics, Chinese Academy of Sciences, ³Institute of Mechanics, Chinese Academy of Sciences; University of Chinese Academy of Sciences</p>
09:45 - 10:00	<p>774 - Understanding the forces that control cell fate and disease progression</p> <p><i>Yongsung Hwang</i></p> <p>Soonchunhyang University</p>
10:00 - 10:15	<p>593 - Mesenchymal Stem Cell Osteogenesis by Ultrasound-Generated Nanoscale Mechanical Perturbations</p> <p><i>Aditi Joshi¹ and Ajay Tijore²</i></p> <p>¹Indian Institute of Science, Bangalore, ²Indian Institute of Science Bangalore</p>
10:15 - 10:30	<p>616 - Photoswitchable hydrogels to study the dynamics of mechanical priming in mesenchymal stromal cells</p> <p><i>Aafreen Ansari¹, Surakshya Shrestha¹, Maria Garcia Cruz¹, Danielle Vahala², Yu Suk Choi², Amy Gelmi³, Alex Combes¹, Vinh Truong⁴, Rocky Tuan⁵, John Forsythe¹, Jess Frith¹</i></p> <p>¹Monash University, ²University of Western Australia, ³RMIT University, ⁴A*STAR Institute of Sustainability for Chemicals, Energy and Environment, ⁵Chinese University of Hong Kong; Center for Neuromusculoskeletal Restorative Medicine</p>
10:30 - 10:45	<p>180 - Accelerated differentiation of liver sinusoidal endothelial cells with zonal heterogeneity under tuned mechanical stimuli</p> <p><i>Yudi Niu, Tiantian Wang, Yuying Zhang, Lei Sun, Yanan Du</i></p> <p>School of Biomedical Engineering, Tsinghua University</p>
09:15 - 10:45	<p>Session WeA2: Special Symposium - Wearable Technologies 3 - Engineering Auditorium</p> <p>Chair: Yu Song, City University of Hong Kong</p>
09:15 - 09:45	<p>563 - KN: Skin-Interfaced Wearable Biosensors</p> <p><i>Wei Gao</i></p> <p>California Institute of Technology</p>
09:45 - 10:00	<p>664 - Self-Powered Devices Based on Triboelectrification</p> <p><i>Zong-Hong Lin</i></p> <p>National Taiwan University</p>
10:00 - 10:15	<p>748 - Tellurene wearable sensors</p> <p><i>Wenzhuo Wu</i></p> <p>Purdue University</p>
10:15 - 10:30	<p>140 - Interfacial Design of Flexible Sensors for Biomedical Engineering</p> <p><i>Hao Wu</i></p> <p>Huazhong University of Science and Technology</p>
10:30 - 10:45	<p>753 - Electronic fibers for smart fabrics</p> <p><i>Wei Yan</i></p> <p>Donghua University</p>
09:15 - 10:45	<p>Session WeA3: Special Symposium - Red Blood Cell Mechanics for Diseases & Diagnosis - EA-02-11</p> <p>Chair: Xiaobo Gong, Shanghai Jiao Tong University Co-Chair: Ming Dao, Massachusetts Institute of Technology</p>
09:15 - 09:45	<p>761 - KN: Mechanics of Red Blood Cells and Spleen Function in Health and Disease</p> <p><i>Ming Dao</i></p> <p>MIT</p>
09:45 - 10:00	<p>763 - Investigations on the mechanisms of fluid-membrane interaction of red blood cells and novel practices</p> <p><i>Xiaobo Gong</i></p> <p>Shanghai Jiao Tong University</p>

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10:00 - 10:15	654 - Shear-induced diffusion and hydrodynamic interactions of pairwise microcapsules near a wall <i>Xuqu Hu</i> Dalian University of Technology
10:15 - 10:30	703 - Red blood cell mechanics and ATP transport in microcirculation: model and simulations <i>Zhe Gou¹, Hengdi Zhang², Chaouqi Misbah²</i> ¹ Central South University, ² CNRS, LIPhy, Université Grenoble Alpes
10:30 - 10:45	786 - A study on the buckling of erythrocyte membranes in narrow capillary flows <i>Deyun Liu¹, Kazuyasu Sugiyama², Xiaobo Gong¹</i> ¹ Shanghai Jiao Tong University, ² Osaka University
09:15 - 10:45	Session WeA4: Special Symposium - Flexible and Stretchable Electronics for Biomedical Engineering - EA-06-02 Chair: Kento Yamagishi, University of Tokyo Co-Chair: Takashi Sato, Nat'l Institute of Advanced Industrial Science and Technology
09:15 - 09:30	777 - 3D Printing of Liquid-Metal Microfluidic Antennas for Stretchable Wireless Devices <i>Kento Yamagishi¹ and Michinao Hashimoto²</i> ¹ The University of Tokyo, ² Singapore University of Technology and Design
09:30 - 09:45	233 - Stretchable sweat-wicking Janus electrodes based on soft polymers with asymmetric wettability <i>Suksmandhira Harimurti, Wenqing Wang, Kento Yamagishi, Masaki Kobayashi, Tomoyuki Yokota, Takao Someya</i> the University of Tokyo
09:45 - 10:00	600 - Wearable wound management systems using bioresorbable materials <i>Hanjun Ryu</i> Chung-Ang University
10:00 - 10:15	632 - Room-Temperature Direct Self-Assembly for Biocompatible High-Resolution Soft Electronics <i>Lingying Li and Takeo Minari</i> National Institute for Materials Science
10:15 - 10:30	646 - Fluid-integrated Electronics for Biomedical Applications <i>Jin-Tae Kim</i> POSTECH
10:30 - 10:45	662 - Highly-Stretchable and High-Performance Electronic Devices for Biomedical Application Using Liquid Metal Interfaces <i>Takashi Sato</i> National Institute of Advanced Industrial Science and Technology
09:15 - 10:45	Session WeA5: Oral Session - Biomaterials 5 - EA-06-03 Chair: Qiongyu Guo, Southern University of Science and Technology Co-Chair: Marcela Bilek, University of Sydney
09:15 - 09:30	716 - Biodegradable Drug-Eluting Microgels for Locoregional Chemoembolization Treatment <i>Qiongyu Guo</i> Southern University of Science and Technology
09:30 - 09:45	483 - Biomimetic Surface Functionalization of 3D-Ti with Ce-Sr Incorporation for Enhanced In-Vitro Cytocompatibility and Osseointegration in Animal Model <i>Ann Mary Mathew, Sreya PV, Deepak Kumar Pattanayak</i> CSIR-Central Electrochemical Research Institute, Karaikudi
09:45 - 10:00	488 - Bioactive 3D-Ti Cancellous Scaffold Incorporated with Ca & Zn for Advanced Biomedical Application <i>Sreya PV, Ann Mary Mathew, Deepak Kumar Pattanayak</i> CSIR-Central Electrochemical Research Institute, Karaikudi
10:00 - 10:15	365 - Fish Collagen-Based Bone-Mimetic Coating for Biomedical Applications <i>Shunichi Kakizawa¹, Yasuaki Takagi², Masahiro Todoh¹</i> ¹ Hokkaido University, ² Hokkaido University

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10:15 - 10:30	746 - Engineering robust bioinstructive interfaces for cell microenvironments, tissue-integration, diagnostics, biosensing and nanomedicine <i>Marcela Bilek</i> University of Sydney
09:15 - 10:45	Session WeA6: Oral Session - Biomarkers Discovery and Cell Therapy - EA-06-04 Chair: Guozhen Liu, The Chinese University of Hong Kong, Shenzhen Co-Chair: Haiyang Wang, National University of Singapore
09:15 - 09:45	157 - KN: Inflammation monitoring: from integrated devices to chronic disease biomarker discovery <i>Guozhen Liu</i> The Chinese University of Hong Kong, Shenzhen
09:45 - 10:00	467 - Evaluation of emotional-like behavior in mice exposed to magnetic fields by forced swimming test <i>Yuno Matsuyama, Yuta Otsuka, Shun Kakuta, Daisuke Yamada, Akiyoshi Saitoh, Takahiko Yamamoto</i> Tokyo University of Science
10:00 - 10:15	341 - Rejuvenation of aged oocyte through exposure to young follicular microenvironment <i>HaiYang Wang and Rong Li</i> National University of Singapore
10:15 - 10:30	741 - Digital biomarkers of ageing for monitoring physiological systems in community-dwelling adults <i>Jessica Lu, Weilan Wang, Andrea Maier</i> National University of Singapore Yong Loo Lin School of Medicine
09:15 - 10:45	Session WeA7: Oral Session - BioRobotics & Medical Devices 1 - EA-06-05 Chair: Kai Fung Chan, The Chinese University of Hong Kong Co-Chair: Li Qian, National University of Singapore
09:15 - 09:30	109 - Sensorised Glove to Detect Scratching in Patients with Atopic Dermatitis <i>Cheuk-Yan C Au¹, Syen Yee Leow², Joo Chuan Yeo¹, Mark Jean Aan Koh², Ali Asgar Saleem Bhagat¹</i> ¹ National University of Singapore, ² KK Women's and Children's Hospital
09:30 - 09:45	162 - Kinematic Evaluation of Biomimetic Wrist Joint Prosthetics Based on a Complaint Mechanism <i>Arif Sugiharto¹, Napat Damnernyut², Attaporn Wisessint², Masahiro Todoh³</i> ¹ Division of Human Mechanical Systems and Design, Graduate School of Engineering, Hokkaido University, ² Department of Mechanical Engineering, Faculty of Engineering, Kasetsart University, ³ Division of Mechanical and Aerospace Engineering, Faculty of Engineering, Hokkaido University
09:45 - 10:00	193 - An Autonomous Bio-inspired Soft Robot Swarm Control Architecture Built with 3D Printing and Deep Learning <i>Luoyin Zhao, Raye Yeow, Jonathan William Ambrose, Xinzhi Zhang</i> National University of Singapore
10:00 - 10:15	212 - Magnetic Continuum Robot with Intraoperative Magnetic Moment Programming for Minimally Invasive Surgery <i>Yanfei Cao and Li Zhang</i> The Chinese University of Hong Kong
10:15 - 10:30	204 - Focused Ultrasound Powers Versatile Untethered Soft Robots for Biomedical Applications <i>Bo Hao and Li Zhang</i> The Chinese University of Hong Kong
09:15 - 10:45	Session WeA8: Special Symposium - Bioprinting and Microphysiological Systems 1 - EA-06-07 Chair: Qi Gu, Institute of Zoology, Chinese Academy of Sciences Co-Chair: Y. Shrike Zhang, Harvard Medical School
09:15 - 09:45	634 - KN: How to design engineered organs to closely resemble natural complex systems? <i>Qi Gu</i> Institute of Zoology, Chinese Academy of Sciences
09:45 - 10:00	772 - Microfluidic manipulation of multiphasic liquid-liquid phase-separated (LLPS) systems for in vitro models <i>Tiantian Kong</i> Shenzhen University

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10:00 - 10:15	771 - 3D-printed biomimetic composite scaffolds with controlled drug release for bone defect repair <i>Yongteng Song¹, Changjin Huang², Haiguang Zhang¹</i> ¹ Shanghai University, ² Nanyang Technological University
10:15 - 10:30	819 - Dynamic Photomask Printer for Fabrication of Organs-on-a-Chip (OoC) <i>Michinao Hashimoto</i> Singapore University of Technology and Design
10:45 - 11:00	WeN1 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor
11:00 - 12:30	Session WeB1: Special Symposium - Immunoengineering 1 - LT7A Chair: Andy Tay, National University of Singapore
11:00 - 11:30	552 - KN: Nanoparticle delivery to solid tumours <i>Warren C.W. Chan</i> Nanyang Technological University
11:30 - 11:45	636 - Nanopores and nanostraws for cell transfection <i>Christelle N Prinz</i> Lund University
11:45 - 12:00	769 - Tissue Nanotransfection-Driven Cell Reprogramming <i>Daniel Gallego-Perez</i> The Ohio State University
12:00 - 12:15	549 - Concurrent Delivery of Multiple Anticancer Drugs to the Cerebral Cavity Using Degradable Nanofibers <i>Yuan-Yun Tseng¹ and Shih-Jung Liu²</i> ¹ Chang Gung Memorial Hospital, ² Chang Gung University
12:15 - 12:30	547 - Nanoneedle Transfection for Efficient CAR Treg manufacturing <i>Ningjia Sun, William Edwards, Qi Peng, Cong Wang, Yikai Wang, Cristiano Scotta, Giovanna Lombardi, Ciro Chiappini</i> King's College London
11:00 - 12:30	Session WeB2: Special Symposium - Bioelectronics 1 - Engineering Auditorium Chair: Yamin Zhang, National University of Singapore
11:00 - 11:30	700 - KN: Bioelectronics with intimate and long-term stable biointerfaces <i>Sihong Wang</i> University of Chicago
11:30 - 11:45	615 - Designing Dynamic Bio-Interfaces: Advancing Tissue-Like Materials for Regenerative Medicine and Bioelectronics <i>Yiliang Lin</i> National University of Singapore
11:45 - 12:00	561 - Flexible electronics for the theranostics of gastrointestinal dysmotility <i>Kewang Nan</i> Zhejiang University
12:00 - 12:15	129 - Nanosheet electrodes and kirigami wirings for electromyographic analysis of the palm muscle during baseball pitching <i>Kento Yamagishi¹, Sho Mihara², Masaru Azuma², Shinji Takeoka², Kazuyuki Kanosue², Tomoyuki Nagami³, Toshinori Fujie⁴</i> ¹ The University of Tokyo, ² Waseda University, ³ Kitasato University, ⁴ Tokyo Institute of Technology
12:15 - 12:30	571 - Fully biodegradable self-powered electronics for nerve restoration <i>Liu Wang</i> Beihang University
11:00 - 12:30	Session WeB3: Special Symposium - From Lab Bench to Market: How to Commercialize Your Research? - EA-02-11 Chair: Mirdhini Rajaram, NUS Medtech
11:00 - 11:15	641 - Faster lab to real world launch by Regulatory Affairs <i>Jack Wong</i> Founder of Asia Regulatory Professionals Association

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11:15 - 11:30	533 - Achieving Success in Translational Product Development <i>Irwan Moideen</i> TI MedTech
11:30 - 11:45	537 - Navigating the IP Maze: Challenges and Strategic Solutions for Innovators <i>Melanie Yun</i> Drew & Napier LLC
11:45 - 12:00	522 - Navigating Medical Device Clinical Trials: Approval Processes and Key Considerations <i>PeiYun Christelle Tan</i> Founder, MedMosaic Pte. Ltd., and Clinical Research Professional, ClinChoice
12:00 - 12:15	644 - Personal Journey from PhD to MedTech Startup <i>Jonathan William Ambrose and Ajinkya Bhat</i> National University of Singapore
12:15 - 12:39	643 - Academic research to entrepreneurship - A transformative journey <i>Gokula Krishnan Ramachandran</i> MeasureAI
11:00 - 12:30	Session WeB5: Oral Session - Microfluidics & Organ-on-Chip 3 - EA-06-03 Chair: Rong Fan, Yale University Co-Chair: Yi-Chin Toh, Queensland University of Technology
11:00 - 11:30	727 - KN: Single-Cell and Spatial Omics: from Ice Age to Space Adventure <i>Rong Fan</i> Yale University
11:30 - 11:45	339 - Microfluidic stiffness gradient hydrogels reveal cancer-specific responses to matrix stiffness <i>Martin Kiwanuka¹, Shashaank A. Venkatesh¹, Jyothsna Vasudevan¹, Hepi H. Susapto¹, Samuel Maher², Yu Suk Choi², Yongsung Hwang³, Khoon S. Lim⁴, Andrea Pavesi⁵, Jennifer Young¹</i> ¹ National University of Singapore, ² School of Health Sciences, University of Western Australia, ³ Soonchunhyang Institute of Medi-Bio Science, Soonchunhyang University, ⁴ School of Medical Sciences, University of Sydney, ⁵ A*STAR Institute of Molecular and Cell Biology; National University of Singapore
11:45 - 12:15	625 - KN: Engineering complex microenvironments at tissue interfaces <i>Yi-Chin Toh</i> Queensland University of Technology
12:15 - 12:30	540 - Innervated Bone-on-a-chip System for Mimicking Bone Remodeling <i>Zhilong Zhou¹ and Zhong Alan Li²</i> ¹ The Chinese University of Hong Kong, ² Chinese University of Hong Kong; Center for Neuromusculoskeletal Restorative Medicine
11:00 - 12:30	Session WeB6: Oral Session - Biomechanics & Mechanobiology 5 - EA-06-04 Chair: Andrew Holle, National University of Singapore Co-Chair: Yunfeng Chen, The University of Texas Medical Branch
11:00 - 11:15	474 - Multi-parametric thrombus profiling microfluidics detects intensified biomechanical thrombogenesis associated with hypertension and aging <i>Misbahud Din¹, Souvik Paul¹, Sana Ullah¹, Haoyi Yang², Rong-Guang Xu¹, Nurul Aisha Zainal Abidin³, Allan Sun³, Yiyao Catherine Chen³, Rui Gao³, Bari Chowdhury¹, Fangyuan Zhou⁴, Stephenie Rogers¹, Mariel Miller¹, Atreyee Biswas¹, Liang Hu⁵, Zhichao Fan⁶, Christopher Zahner¹, Jing Fan⁷, Zi Chen⁸, Megan Berman¹, Lingzhou Xue², Lining Arnold Ju³, Yunfeng Chen¹</i> ¹ The University of Texas Medical Branch, ² The Pennsylvania State University, ³ The University of Sydney, ⁴ Georgia Tech, ⁵ Shanghai University of Traditional Chinese Medicine, ⁶ UConn Health, ⁷ The City University of New York - City College, ⁸ Brigham and Women's Hospital and Harvard Medical School

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11:15 - 11:30	453 - The DNA-binding protein NFATC2 drives mechanosensitive mechanical memory via soft substrate-induced nuclear translocation <i>Jia Wen Nicole Lee, Yixuan Li, Xu Gao, Andrew Holle</i> National University of Singapore
11:30 - 11:45	456 - Activation of fibroblasts migrating through confining microchannels <i>Yeji Chang, Jia Wen Nicole Lee, Yixuan Li, Xu Gao, Andrew Holle</i> National University of Singapore
11:45 - 12:00	747 - Nanoscale ligand spacing regulates mechanical force-induced cancer cell killing <i>Manasa Veena S¹, Ajay Tijore¹, Dixiao Chen², Jennifer L. Young², Akshay Kumar¹, Rudra Pratap¹</i> ¹ Indian Institute of Science Bangalore, ² National University of Singapore
12:00 - 12:15	785 - PIEZO1-mediated mechanoprotection of cell membrane integrity <i>Yao Wang¹, Haoqing Jerry Wang¹, Jasmine Jin¹, Qian Peter Su², Tomas Andersen¹, Zijing Zhou³, Charles D Cox³, Arnold Lining Ju⁴</i> ¹ University of Sydney, ² University of Technology Sydney, ³ Victor Chang Cardiac Research Institute, ⁴ The University of Sydney
12:15 - 12:30	780 - Biomechanics of Macrophages Interacting with Sublethal Concentrations of Ionic Liquids <i>Ajinkya Nene¹ and Sorour Sadeghzade²</i> ¹ Laboratory of Inflammation and Vaccines, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, ² Westlake University
11:00 - 12:30	Session WeB7: Oral Session - BioRobotics & Medical Devices 2 - EA-06-05 Chair: Souichi Saeki, Meijo University, Faculty of Science and Technology, Department of Mechatronics Engineering Co-Chair: Li Qian, National University of Singapore
11:00 - 11:15	285 - Soft Robots for Terraforming Applications <i>Xinzhong Zhang¹, Raye Yeow¹, Zhang Ziyang², Luoyin Zhao¹</i> ¹ National University of Singapore, ² Department of Biomedical Engineering and Department of Pharmacy and Pharmaceutical Sciences, National University of Singapore
11:15 - 11:30	389 - Development of Robot-Assisted Intraoperative Diagnosing System in Orthopedics Surgery using Optical Coherence Tomography and Artificial Intelligence <i>Ryusei Kato¹, Manaya Iwai¹, Ayane Noro¹, Souichi Saeki²</i> ¹ Department of Mechatronics Engineering, Graduate School of Science and Technology, Meijo University, ² Department of Mechatronics Engineering, Faculty of Science and Technology, Meijo University
11:30 - 11:45	291 - Development of a multiple-segment Layer Jamming brake for wearable soft robotic applications. <i>Shaun M Buxani</i> National University of Singapore
11:00 - 12:30	Session WeB8: Special Symposium - Bioprinting and Microphysiological Systems 2 - EA-06-07 Chair: Y. Shrike Zhang, Harvard Medical School Co-Chair: Qi Gu, Institute of Zoology, Chinese Academy of Sciences
11:00 - 11:30	627 - KN: In situ (Bio)printing Methods towards Regenerative Medicine <i>Y. Shrike Zhang</i> Harvard Medical School
11:30 - 11:45	730 - ETV2 mediated differentiation of human pluripotent stem cells results in functional endothelial cells for engineering advanced vascularized microphysiological models <i>Shun Zhang¹, Zhengpeng Wan², Roger D Kamm²</i> ¹ Institute of Zoology, Chinese Academy of Sciences, ² Department of Biological Engineering, Massachusetts Institute of Technology
11:45 - 12:00	755 - Deep learning-driven vessel-on-a-chip platform for classification of vasculogenesis developmental stages <i>Hang Zhou¹, Taiga Irida², Kazuya Fujimoto², Ryuji Yokokawa²</i> ¹ Institute of Zoology, Chinese Academy of Sciences (CAS), ² Kyoto University

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Wednesday, December 11, 2024	
12:00 - 12:15	767 - Filament diameter-adjustable 3D printing for gradient matters fabrication <i>Changshun Ruan</i> Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences
12:30 - 13:30	WeN2 - Lunch @ EA Level 1 Foyer
12:30 - 13:30	Session PN2 - IEEE EMBS Panel on Medtech Translation & Commercialization - Engineering Auditorium Chair: Metin Akay, University of Houston Co-Chair: Ali Asgar Saleem Bhagat, National University of Singapore
	PANELLISTS Ashwin CHARI (NTUitive) Thuy Tram DANG (NTU, Formacyte Therapeutics) Mengling FENG (NUS, FathomX) Shuwen KOH (NUS-TTI) Lynnne LIM (NousQ) Raye YEOW (NUS, Roco Technology, Armastec)
12:30 - 13:30	Session LE2 - EmpowHER Hour - Women in BME Lunch Event - T-Lab Level 10 Foyer
12:30 - 13:30	Session PS3 - Poster Session 3 - EA Level 1 Foyer
12:30 - 13:30	101 - A Multi-bandpass Light Path for Engineering Portable Epifluorescence Microscopes <i>Hongmin Chen</i> University of Toronto
12:30 - 13:30	151 - CARTEL: Development of Cardiac Telemetry Box for Remote Patient Monitoring <i>Ma. Louvil R. Abasolo and Kristine Mae Paboreal Dunque</i> University of Science and Technology of Southern Philippines
12:30 - 13:30	167 - Addressing antimicrobial resistance with artificial intelligence (AI)-enabled optimization of drug combinations <i>Kui You¹, Yazid Nurhidayah Binte Mohamed², Li Ming Chong¹, Lissa Hooi¹, Peter Wang¹, Isaiah Zhuang¹, Stephen Chua¹, Ethan Lim¹, Alrick Zi Xin Kok¹, Kalisvar Marimuthu², Shawn Vasoo², Oon Tek Ng², Conrad E.Z. Chan², Edward Kai-Hua Chow¹, Dean Ho¹</i> ¹ National University of Singapore, ² National Centre for Infectious Diseases
12:30 - 13:30	195 - An exploratory study of optimal wavelength bands for remote blood glucose estimation based on near-infrared spectral facial images. <i>Mayuko Nakagawa¹, Kosuke Oiwa², Kent Nagumo¹, Akio Nozawa¹</i> ¹ Aoyama Gakuin University, ² Nagaoka University of Technology
12:30 - 13:30	231 - Acoustically Enhanced Triboelectric Stethoscope for Ultrasensitive Cardiac Sounds Sensing and Disease Diagnosis <i>Xindan Hui, Lirong Tang, Hengyu Guo</i> Chongqing University
12:30 - 13:30	265 - A Model for Identifying High-Altitude Pulmonary Edema Using Deep Learning <i>Shijia Zhang, Baoqing Pei, Xueqing Wu</i> Beihang university
12:30 - 13:30	268 - A Predictive Model for Acute Mountain Sickness Using Multivariate Logistic Regression <i>Shijia Zhang, Baoqing Pei, Xueqing Wu</i> Beihang university
12:30 - 13:30	287 - Highly Multiplexed Protein Detection in Situ with Rolling Circle Amplification (RCA) Assisted Cyclic Color-Combinatorial in Situ Hybridization (ccc-FISH) <i>Binbin Cui and Shuhuai Yao</i> The Hong Kong University of Science and Technology

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12:30 - 13:30	<p>289 - Biomimetic AIEgen-based nanomedicine for photo-thermal and enzymatic antibiofilm combination therapy</p> <p><i>Ji Wang¹, Zhihao WU¹, Pengfei Zhang², Shuhuai YAO¹</i></p> <p>¹HKUST, ²SIAT</p>
12:30 - 13:30	<p>312 - Abdominal Impedance Change at Rest, before and after Defecation for Bowel Movement Detection</p> <p><i>Yuta Ino and Masaki Kyoso</i></p> <p>Tokyo City University</p>
12:30 - 13:30	<p>313 - Using Convolutional Neural Network to Achieve Acute Cholelithiasis Recognition Through Jetson Nano and a Portable Ultrasonic Probe</p> <p><i>Yu-Jhen CHEN¹, Cheng-Shiuan SONG², Hsiang-Ho CHEN¹</i></p> <p>¹Department of Biomedical Engineering, Chang Gung University, ²Department of Medical Imaging and Radiological Sciences, Chang Gung University</p>
12:30 - 13:30	<p>342 - Lamination of cardiomyocyte sheets using stamping method</p> <p><i>Hina Kikuchi and Katsuhisa Sakaguchi</i></p> <p>Tokyo City University</p>
12:30 - 13:30	<p>347 - Construction of three-dimensional tissue of endometrial decidualization using perfusion culture</p> <p><i>Hideyuki Matsuhashi¹, Katsuhisa Sakaguchi², Jun Honma³, Gorou Kuramoto⁴, Tatsuya Shimizu⁴</i></p> <p>¹Tokyo City University Department of Medical Engineering, Faculty of Science and Engineering Cell and Tissue Engineering Laboratory, ²Tokyo City University Department of Medial Engineering, Faculty of Science and Engineering Cell and Tissue Engineering Laboratory, ³Tokyo Women's Medical University, Institute of Advanced Biomedical Sciences, ⁴Tokyo Women's Medical University, Institute of Advanced Biomedical Sciences</p>
12:30 - 13:30	<p>359 - Characteristics of enzymatic biofuel cells toward in vivo devices utilized enzyme-modified zwitterionic polymer nanogel</p> <p><i>Takehiro Sato, Tsukuru Masuda, Jincal Li, Issei Tanaka, Madoka Takai</i></p> <p>University of Tokyo</p>
12:30 - 13:30	<p>372 - Deep Learning Framework for Analyzing Dynamics of Microbial Communities in Gut-on-a-chip Platform</p> <p><i>Hung Dong Truong, Jeeyeon Lee, Chwee Teck Lim</i></p> <p>National University Of Singapore</p>
12:30 - 13:30	<p>378 - 3D multicellular cancer microenvironment platform for personalized drug screening - neuroblastoma (NB) as an example</p> <p><i>Hoi Lam Cheung¹, Kenneth Kak Yuen Wong², Barbara Chan³</i></p> <p>¹School of Biomedical Science, Institute of Tissue Engineering and Regenerative Medicine and Department of Biomedical Engineering, The Chinese University of Hong Kong; Tissue Engineering Laboratory, Department of Mechanical Engineering, The University of Hong Kong; Advanced Biomedical Instrumentation Centre, ²Department of Surgery, The University of Hong Kong, ³The Chinese University of Hong Kong</p>
12:30 - 13:30	<p>394 - Dissecting the breast tumor cell migratory behavior towards competing chemokines in tumor-on-a-chip platform.</p> <p><i>Keerthy Reghunandan¹, Jyothsna Vasudevan², Javier G. Fernandez¹, Andrea Pavesi³</i></p> <p>¹Singapore University of Technology and Design, ²National University of Singapore, ³A*STAR Institute of Molecular and Cell Biology</p>
12:30 - 13:30	<p>401 - Exploring Fascinating Potential: Repurposing Embelin Derivatives for Dengue Virus Treatment</p> <p><i>Amrita Muralikrishnan and Mahendran Sekar</i></p> <p>Monash University Malaysia</p>
12:30 - 13:30	<p>419 - Empirical mode decomposition-based removal of blink artifacts from single-electrode electroencephalogram signals</p> <p><i>Kazuo Kato and Hiroyuki Kadokura</i></p> <p>Tohoku Gakuin University</p>
12:30 - 13:30	<p>468 - Noise-reduced wireless bioresorbable pressure monitoring devices for accurate ICP measurement across diverse environments</p> <p><i>Minki Hong, Seunghun Han, Sehwon Park, Sumin Kim, Jahyun Koo</i></p> <p>School of Biomedical Engineering, College of Health Science, Korea University</p>

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12:30 - 13:30	470 - Investigation of the Effects of Transcutaneous Electrical Nerve Stimulation on Flap Survival and Wound Healing in Rats <i>Yun-Ta Sung¹, Pien-Pien Lin², Jung-Hsien Hsieh³, Hao-Chih Tai³, Mei-Chih Chan³, Chii-Wann Lin¹</i> ¹ Department of Biomedical Engineering / National Taiwan University, ² Department of Biomedical Engineering, National Taiwan University, ³ Division of Plastic Surgery, Department of Surgery / National Taiwan University Hospital
12:30 - 13:30	476 - Portable Optical Imaging and Sensing System for Point of Care Testing: Its Feasibility Evaluation using Optical Phantom <i>Hyunseon Yu, Donghwan Ko, Byungjo Jung</i> Yonsei University
12:30 - 13:30	486 - Computational Model Validation of Anti-Dislocation Performance in Total Knee Arthroplasty <i>Tsung-Wei Chang, Fang-Yuan Ho, Jiann-Jong Liao</i> United Orthopedic Corporation
12:30 - 13:30	489 - Future-Ready Medical Vest: Real-Time Multi-Channel Auscultation for AI-Assisted Pulmonary Diagnostics <i>Hua Zhang¹, Rohit Milind NEURGAONKAR¹, Kay Wei Luee¹, Raj Pallapothu², Chin Tuan Tan²</i> ¹ Temasek Polytechnic, ² Bring About MI
12:30 - 13:30	503 - Driver Vital Signs Sensing on Near-Infrared Facial Images Using Deep Learning <i>Ayaka Nomura, Kent Nagumo, Akio Nozawa</i> Aoyama Gakuin University
12:30 - 13:30	504 - Wearable monitoring of brain activations in response to visual stimuli provided through a virtual reality headset <i>Martti Ilvesmäki, Alessandra Dussin, Jari Paunonen, Atefeh Amin, Sadegh Moradi, Kristina Mikkonen, Hany Ferdinando, Teemu Myllylä</i> University of Oulu
12:30 - 13:30	512 - A gold nanorod-doped plasmonic-electrochemical sensor for the sensitive detection of cortisol in serum <i>Tanusree Ghoshal, Jiwajyoti Mahanta, Prathu Raja Parmar, Dipankar Bandyopadhyay</i> Department of Chemical Engineering, Indian Institute of Technology, Guwahati
12:30 - 13:30	546 - Perfusion culture to generate 3D tissue-integrated vascular networks <i>Katsuhisa Sakaguchi</i> Tokyo City University
13:30 - 14:15	Session PL6 - Plenary Lecture - LT7A Chair: Han Wei Hou, Nanyang Technological University
13:30 - 14:15	724 - Biomechanical design and evaluation of implantable and interventional devices <i>Yubo Fan</i> Beihang University
14:15 - 15:45	Session WeC1: Special Symposium - Immunoengineering 2 - LT7A Chair: Andy Tay, National University of Singapore
14:15 - 14:45	536 - KN: Nanoscale Immuno-Engineering Delivery Systems Optimized for Disease Treatment <i>Xing-jie Liang</i> National Center for Nanoscience and Technology of China
14:45 - 15:00	555 - Stem cells - rich structures for biomedical applications <i>João F. Mano</i> University of Aveiro
15:00 - 15:15	759 - Leveraging proteases as biomolecular signatures in designing biomaterials and therapeutic delivery systems <i>Tram Dang</i> Nanyang Technological University
15:15 - 15:30	650 - Bridging immune-neurovascular crosstalk via the immunomodulatory microspheres for promoting neural repair <i>Huitong Ruan¹ and Tongtong Xu²</i> ¹ Shanghai Jiao Tong University School of Medicine, ² Shanghai Jiao Tong University

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15:30 - 15:45	623 - Reducing exhaustion of ex vivo expanded T-cells using hydrogel-based platforms <i>Aseel Alatoom and Jeremy Teo</i> New York University Abu Dhabi
14:15 - 15:45	Session WeC2: Special Symposium - Bioelectronics 2 - Engineering Auditorium Chair: Kewang Nan, Zhejiang University
14:15 - 14:45	617 - KN: Bioinspired Composite Materials, Devices and Systems for Sensing <i>Benjamin CK Tee</i> National University of Singapore
14:45 - 15:00	739 - Integration Technology for Integrated Stretchable Electronics <i>Yuqing Zheng</i> Peking University
15:00 - 15:15	566 - Magnetic implants for wireless biosensing <i>Mengdi Han</i> Peking University
15:15 - 15:30	672 - Semiconducting hydrogels for bioelectronics <i>Ting Lei</i> Peking University
15:30 - 15:45	573 - Biomimetic Structuring of Micro-Nanomaterials for Bioelectronic Medicine <i>Wubin Bai</i> University of North Carolina at Chapel Hill
14:15 - 15:45	Session WeC3: Special Symposium - Clinical Orthopaedic Biomechanics - EA-02-11 Chair: Ashvin Thambyah, University of Auckland
14:15 - 14:45	599 - KN: Entesis Regeneration in Anterior Cruciate Ligament Reconstruction <i>James Goh, Ernest X H Tan, James H P Hui</i> National University of Singapore
14:45 - 15:00	557 - IMU-AUGMENTED PATIENT REPORTED OUTCOME MEASURES FOR ESTIMATING POST-OPERATIVE PATIENT SATISFACTION <i>Justin Fernandez¹, Sabina Yang¹, Shasha Yeung², Thor Besier¹, Paul Monk¹, Ted Yeung¹</i> ¹ University of Auckland, ² University of Western Australia
15:00 - 15:15	622 - A Novel in Vitro Experimental Design for Biomechanical Testing of Patellofemoral Joint Kinetics and Kinematics <i>Elizabeth Clarke¹, A Mounir Boudali², Jobe Shatrov³, Koki Abe⁴, David Parker⁵, William Walter⁶</i> ¹ University of Sydney, ² Sydney Musculoskeletal Health, Kolling Institute, Northern Clinical School, Faculty of Medicine and Health, University of Sydney, Sydney, New South Wales, Australia, ³ Landmark Orthopaedics; Sydney Musculoskeletal Health, Kolling Institute, Northern Clinical School, Faculty of Medicine and Health, University of Sydney, ⁴ Sydney Musculoskeletal Health, Kolling Institute, Northern Clinical School, Faculty of Medicine and Health, University of Sydney, ⁵ Landmark Orthopaedics and Department of Orthopaedics and Traumatic Surgery, Royal North Shore Hospital, ⁶ Sydney Musculoskeletal Health, Kolling Institute, Northern Clinical School, Faculty of Medicine and Health, University of Sydney; Department of Orthopaedics and Traumatic Surgery, Royal North Shore Hospital
15:15 - 15:30	692 - Low-Intensity Ultrasound: Advancements in Tool Development, Scientific Insights, Clinical Applications, and Challenges <i>Jaw-Lin Wang</i> BDL, Industrial Technology Research Institute, Taiwan
15:30 - 15:45	811 - A novel multimodal platform for studying cartilage: Incorporating non-invasive imaging, biochemical analysis, and mechanical testing. <i>Ashvin Thambyah</i> University of Auckland

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14:15 - 15:45	<p>Session WeC4: Special Symposium - Multimodal Opto-Ultrasound Sensing and Imaging 2 - EA-06-02</p> <p>Chair: Chulhong Kim, Pohang University of Science and Technology</p> <p>Co-Chair: Jeesu Kim, Byullee Park, Pusan National University, Sungkyunkwan University</p>
14:15 - 14:45	<p>553 - KN: Next-Generation Histological Imaging Devices Empowered by Deep Learning</p> <p><i>Terence Tsz Wai Wong</i></p> <p>The Hong Kong University of Science and Technology</p>
14:45 - 15:00	<p>630 - Photoacoustic imaging of three-dimensional cell cultures</p> <p><i>Byullee Park</i></p> <p>Sungkyunkwan University</p>
15:00 - 15:15	<p>673 - Intraoperative Margin Assessment in Breast Cancer: The Emerging Role of Ultrasound-Guided Photoacoustic Imaging</p> <p><i>Ghayathri Balasundaram</i></p> <p>A*STAR Skin Research Labs</p>
15:15 - 15:30	<p>681 - High-speed, wide-field photoacoustic microscopy with a magnetic-drive scanner</p> <p><i>Jeongwoo Park¹, Joongho Ahn², Hyoseok Choi², Jin Young Kim²</i></p> <p>¹Department of Biomedical Convergence Science and Technology, Kyungpook National University, ²Departments of Electrical Engineering, Convergence IT Engineering, and Mechanical Engineering, Pohang University of Science and Technology; Opticho Inc.</p>
14:15 - 15:45	<p>Session WeC5: Oral Session - 3D Printing & Additive Manufacturing 4 - EA-06-03</p> <p>Chair: Hala Zreiqat, The University of Sydney</p> <p>Co-Chair: Jonathan Ambrose, National University of Singapore</p>
14:15 - 14:30	<p>733 - Innovations in Nanostructured 3D-Printed biomaterials for Personalized Bone Healing</p> <p><i>Hala Zreiqat</i></p> <p>The University of Sydney</p>
14:30 - 14:45	<p>516 - 3D-printable poly(vinylalcohol) for sacrificial molding in biomimetic matrices</p> <p><i>Lee Joseph Zhi Wei, Shu-Yung Chang, Yanisa Keeratimongkollert, Brandon, Kaiheng Tay, Muhammad Dinie Bin Zaini, Michinao Hashimoto</i></p> <p>Singapore University of Technology and Design</p>
14:45 - 15:00	<p>221 - Bioinspired self-supporting isotropic nested lattices for bone implants</p> <p><i>Ramalingaiah Boda¹, Biranchi Panda¹, Shanmugam Kumar²</i></p> <p>¹IIT Guwahati, ²University of Glasgow</p>
15:00 - 15:15	<p>373 - Patient-specific 3D printed implant in reconstruction after resection of scapula tumor</p> <p><i>Jaideep Singh Bhardwaj¹, Abhijeet Salunke², Souptick Chanda¹</i></p> <p>¹IIT Guwahati, ²Department of Surgical Oncology The Gujarat Cancer & Research Institute(GCRI)</p>
15:15 - 15:30	<p>144 - Printability assessment of novel PEEK composites for Freeformer 3DP</p> <p><i>Praveen Jeyachandran¹, Ng Chit Hwei¹, Si Jian Hui¹, Jonathan Tan Jiong Hao¹, Senthil Kumar², Jerry Fuh YH², Naresh Kumar¹</i></p> <p>¹Department of Orthopaedic Surgery, Yong Loo Lin School of Medicine, National University of Singapore, ²Department of Mechanical Engineering, National University of Singapore</p>
14:15 - 15:45	<p>Session WeC6: Oral Session - Bio-Micro / Nanotechnologies 3 - EA-06-04</p> <p>Chair: Xinna Wang, The University of Hong Kong</p> <p>Co-Chair: Marvin Skiba, Nanyang Technological University</p>
14:15 - 14:30	<p>321 - Engineering a complex soluble cell niche with a counter-gradient of different soluble factors using Multiphoton Microfabrication and Micropatterning (MMM) technology</p> <p><i>Xinna Wang¹ and Barbara Pui Chan²</i></p> <p>¹Department of Mechanical Engineering, The University of Hong Kong, ²The Chinese University of Hong Kong</p>
14:30 - 14:45	<p>309 - Conjugating Ligands to an Equilibrated Nanoparticle Protein Corona Enables Cell Targeting in Serum</p> <p><i>Ben Stordy¹, Yuwei Zhang¹, Zahra Sepahi¹, Warren Chan²</i></p> <p>¹University of Toronto, ²Nanyang Technological University</p>

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14:45 - 15:00	319 - Identifying the nanoparticle serum affinity threshold required to achieve cell targeting <i>Zahra Sepahi¹, Ben Stordy¹, Warren Chan²</i> ¹ University of Toronto, ² Nanyang Technological University
15:00 - 15:15	490 - Advancing Nanoparticle Imaging: Integrating X-ray Fluorescence and Anomalous SAXS for In-depth Analysis of the Protein Corona <i>Marvin Skiba¹, Gabriela Guedes², Lars Klemeyer³, Dmitry Karpov⁴, Sylvio Haas⁵, Neus Feliu⁶, Dorota Kozej³, Aitziber L. Cortajarena⁷, Carlos Sanchez-Cano⁸, Wolfgang Parak¹</i> ¹ Center for Hybrid Nanostructures, University of Hamburg; The Hamburg Centre for Ultrafast Imaging, ² Center for Cooperative Research in Biomaterials (CIC biomaGUNE), Basque Research and Technology Alliance (BRTA), ³ Center for Hybrid Nanostructures, University of Hamburg, ⁴ European Synchrotron Radiation Facility, ⁵ Deutsches Elektronen-Synchrotron DESY, ⁶ Zentrum für Angewandte Nanotechnologie CAN, Fraunhofer-Institut für Angewandte Polymerforschung IAP, ⁷ Center for Cooperative Research in Biomaterials (CIC biomaGUNE), Basque Research and Technology Alliance (BRTA); Ikerbasque, Basque Foundation for Science, ⁸ Ikerbasque, Basque Foundation for Science; Donostia International Physics Center
15:15 - 15:30	578 - Targeted DNA Aptamers against Interleukin-6 for the development of Impedimetric Aptasensor <i>Amit Kumar Yadav¹ and Dhiraj Devidas Bhatia²</i> ¹ Department of Biological Sciences and Engineering, Indian Institute of Technology Gandhinagar (IITGN), ² Indian Institute of Technology Gandhinagar, Gujarat, India
15:30 - 15:45	579 - Magnetite Nanoparticles@Ti3C2 -MXene Nanohybrid Based Ultrasensitive Electrochemical Immunosensor for Oral Cancer Biomarker Detection in Artificial Saliva <i>Dr Damini Verma¹, Ms Manali Choramle², Ashish Kalkal³, Rangadhar Pradhan², Gopinath Packirisamy⁴</i> ¹ Indian Institute of Technology Roorkee, Uttarakhand, India, ² Department of Biosciences and Bioengineering, Indian Institute of Technology Roorkee, ³ Nanostructured system Laboratory, Department of Mechanical Engineering, University College London; Wellcome/EPSRC Centre for Interventional and Surgical Sciences, University College London, ⁴ Centre for Nanotechnology, Indian Institute of Technology Roorkee; Department of Biosciences and Bioengineering, Indian Institute of Technology Roorkee
14:15 - 15:45	Session WeC7: Oral Session - Therapeutics and Theranostics 1 - EA-06-05 Chair: Yong Zhang, City University of Hong Kong Co-Chair: Sebastian Liau, Institute for Functional Intelligent Materials
14:15 - 14:45	585 - KN: Engineered Materials and Devices for Photodynamic therapy and Optogenetics <i>Yong Zhang</i> City University of Hong Kong
14:45 - 15:00	178 - Bioengineered Peritoneal Carcinomatosis Tumor Explants for Drug Development <i>Zhuoran Wu¹, Haiyao Ding¹, Zixuan Zhao¹, Yieh Lin Chong², Ruochii You¹, Hengjia Zhou¹, Hong Kit Lim³, Dong Hua Seah¹, Elektutige Anton Kanishika Fernando¹, Chor Yong Tay³, Chin-Ann Ong², Eliza Fong¹</i> ¹ National University of Singapore, ² National Cancer Center Singapore, ³ Nanyang Technological University
15:00 - 15:15	343 - Enhancing PTEN-Null Prostate Cancer Therapy via Conjugated Oligoelectrolyte mRNA-Lipid Nanoparticles <i>Sebastian Liau¹, Wilson Wee Mia Soh¹, Guillermo C Bazan²</i> ¹ NUS Institute for Functional Intelligent Materials, ² NUS Institute for Functional Intelligent Materials, Department of Chemistry, Department of Chemical and Biomolecular Engineering, Institute for Digital Molecular Analytics and Science
15:15 - 15:30	455 - Nanointerception of Organelle Crosstalk Enhances Cancer Therapy <i>Huiyan Li¹ and Ao Wang²</i> ¹ University of Toronto, ² Fudan University
15:45 - 16:00	WeN3 - Coffee Break @ EA Level 1 Foyer and Level 6 Corridor

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14:15 - 15:45	Session WeC8: Oral Session - Neuroengineering / Neurotechnology 1 - EA-06-07 Chair: David Grayden, The University of Melbourne Co-Chair: Zhenpeng Qin, University of Texas at Dallas
14:15 - 14:45	648 - KN: Towards practical, in-home brain-computer interfaces <i>David Grayden</i> The University of Melbourne
14:45 - 15:00	191 - Self-optimizing framework for natural sensory feedback through transcutaneous electrical nerve stimulation <i>Franklin Leong, Solaiman Shokur, Silvestro Micera</i> EPFL
15:00 - 15:15	430 - Spatially precise and minimally invasive delivery of peptides to the spinal cord for behavior modulation <i>Tiffany W Leong¹, Zhenghong Gao¹, Eric T David¹, Xiaoqing Li¹, Qi Cai¹, Juliet M Mwirigi¹, Tingting Zhang¹, Monica Giannotta², Elisabetta Dejana², John Wiggins¹, Sharada P Krishnagiri¹, Robert M Bachoo³, Xiaoqian Ge¹, Theodore J Price¹, Zhenpeng Qin¹</i> ¹ University of Texas at Dallas, ² AIRC Institute of Molecular Oncology, ³ University of Texas Southwestern Medical Center
15:15 - 15:30	371 - Effects of Direct Current Stimulation on Cortical Neurons: Anodal vs. Cathodal Responses <i>Fan Zhang¹, Tao Feng¹, Ruixue Wang², Jiawei Han³, Minmin Wang⁴, Wang Xi⁵, Shaomin Zhang⁶</i> ¹ Department of Biomedical Engineering, Qiushi Academy for Advanced Studies, Zhejiang University, ² Department of Neurosurgery, Third Affiliated Hospital of Naval Medical University, ³ Department of Neurosurgery, Second Affiliated Hospital, School of Medicine, Zhejiang University, ⁴ Department of Biomedical Engineering, Qiushi Academy for Advanced Studies, Zhejiang University; Westlake Institute for Optoelectronics, Westlake University, ⁵ Interdisciplinary Institute of Neuroscience and Technology (ZIINT), the Second Affiliated Hospital, School of Medicine, Zhejiang University; MOE Frontier Science Center for Brain Research and Brain Machine Integration, Key Laboratory of Biomedical Engineering of Ministry of Education, College of Biomedical Engineering and Instrument Science, Zhejiang University, ⁶ Qiushi Academy for Advanced Studies, Key Laboratory of Biomedical Engineering of Ministry of Education, Zhejiang Provincial Key Laboratory of Cardio-Cerebral Vascular Detection Technology and Medicinal Effectiveness Appraisal, Zhejiang University
16:00 - 17:30	Session WeD1: Special Symposium - In Honour of Prof C.T. Lim Symposium - LT7A Chair: Han Wei Hou, Nanyang Technological University
16:00 - 16:15	532 - Multi-omics analysis in cancer research <i>Su Bin Lim</i> Ajou University School of Medicine
16:15 - 16:30	674 - Geo-morpho-mechanical control of cell phenotype and tissue development <i>Nicholas A Kurniawan</i> Eindhoven University of Technology
16:30 - 16:45	675 - Mechanoregulation of blood clotting <i>Hongxia Fu</i> University of Washington
16:45 - 17:00	686 - Soft/Stretchable Electronics for Wearables and Human-machine Interfaces <i>Shuwen Chen</i> Huazhong University of Science and Technology
17:00 - 17:15	702 - Microsystems for Personalised Medicine <i>Bee Luan Khoo</i> City University of Hong Kong
17:15 - 17:30	709 - Cell-cell adhesion affects epithelial monolayer integrity <i>Surabhi Sonam</i> D Y Patil International University, Akurdi, Pune

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Wednesday, December 11, 2024	
16:00 - 17:30	<p>Session WeD2: Special Symposium - Current Status and Future Direction of the BME Translational Research in Asia - Engineering Auditorium</p> <p>Chair: Cheng-Kung Cheng, Shanghai Jiao Tong University</p> <p>Co-Chair: James Goh, National University of Singapore</p>
16:00 - 16:15	<p>524 - Accelerating Research Commercialization – From Bench to Bank</p> <p><i>Ali Asgar Bhagat</i></p> <p>National University of Singapore</p>
16:15 - 16:30	<p>527 - Clinical Photoacoustic/Ultrasound Imaging and Sensing</p> <p><i>Chulhong Kim</i></p> <p>Pohang University of Science and Technology</p>
16:30 - 16:45	<p>620 - Rapid Commercialization Strategies of Biomaterials Medical Devices</p> <p><i>Hsu-Wei Fang</i></p> <p>National Taipei University of Technology</p>
16:45 - 17:00	<p>706 - Translational Research Platform of the Medical Device in Changzhou - From SCI to FDA</p> <p><i>Cheng-Kung Cheng</i></p> <p>School of Biomedical Engineering, Shanghai Jiao Tong University</p>
17:00 - 17:15	<p>782 - Translating Pressure Sensor Platform Technologies for Biomedical Applications</p> <p><i>Benjamin CK Tee</i></p> <p>National University of Singapore</p>
17:15 - 17:30	<p>775 - Magnetic Mitohormesis: A potential paradigm shift in cancer treatment</p> <p><i>Alfredo Franco-Obregon and Yee Kit Tai</i></p> <p>National University of Singapore</p>
16:00 - 17:30	<p>Session WeD3: Special Symposium - Nanoscale Mechanobiology 2 - EA-02-11</p> <p>Chair: Wenting Zhao, Nanyang Technological University</p> <p>Co-Chair: Roey Elnathan, Deakin University</p>
16:00 - 16:30	<p>770 - KN: Membrane-curvature mediated integrin activation and mechanotransduction</p> <p><i>Wei Zhang, Chih-Hao Lu, Yang Yang, Bianxiao Cui</i></p> <p>Stanford University</p>
16:30 - 16:45	<p>734 - Measure Single-Molecule Force Duration and Loading Rate in Living Cells With DNA-based Nanotechnology</p> <p><i>Zheng Liu</i></p> <p>Wuhan University</p>
16:45 - 17:00	<p>766 - Viral afterlife: SARS-CoV-2 as a reservoir of immunomimetic peptides that reassemble into proinflammatory supramolecular complexes</p> <p><i>Yue Zhang¹, Victor Nizet², Silvio Antoniak³, Nigel Mackman³, Richard L. Gallo², Gerard C. L. Wong⁴</i></p> <p>¹School of Engineering, Westlake University, ²University of California San Diego, ³The University of North Carolina at Chapel Hill, ⁴University of California, Los Angeles</p>
17:00 - 17:15	<p>254 - Dissecting force transmission across LINC complex using multiplexing nuclear tension sensors</p> <p><i>Jinfeng Wang¹, Jing Zhou², Qin Peng¹</i></p> <p>¹Shenzhen Bay Laboratory, ²Peking University</p>
17:15 - 17:30	<p>217 - Hydrostatic pressure induces nuclear softening of pancreatic cancer cells via regulation of methylation levels and Lamin A/C localization.</p> <p><i>Norino Uenaka and Daisuke Yoshino</i></p> <p>Tokyo University of Agriculture and Technology</p>

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Wednesday, December 11, 2024	
16:00 - 17:30	Session WeD4: Oral Session - Biomedical Engineering Education, Training & Professional Development - EA-06-02 Chair: Bina Rai, National University of Singapore Co-Chair: Chen Huei Leo, National University of Singapore
16:00 - 16:15	137 - Design and development of MemoryTrail virtual reality game to study brain and memory processes in a fun and interactive manner <i>Rasyiqah Bte Shaik Mohamed Salim¹, Jacob Shihang Chen², Chen Huei Leo¹, Bina Rai¹</i> ¹ National University of Singapore, ² Singapore University of Technology and Design
16:15 - 16:30	418 - Incorporating Biodesign in engineering curriculum for the learning of healthcare design and innovation – the SIT approach <i>Desmond Y.R. Chong, Agnes Xue, Irwan Shah Mohd Moideen, Steven Tay</i> Singapore Institute of Technology
16:30 - 16:45	253 - Instructional design and implementation of open-ended, inquiry-based laboratory activities for biomedical engineering education <i>Chen Huei Leo¹, Nachamma Sockalingam², Mei Xuan Tan², Ya Juan Zhu², Xiao Juan Khoo²</i> ¹ National University of Singapore, ² Singapore University of Technology and Design
16:45 - 17:00	242 - Exploring New Approaches in Biomedical Engineering Education: Insights from a Pilot Program at Universidad Autonoma Metropolitana <i>Fabiola M Martinez-Licona</i> Universidad Autonoma Metropolitana
16:00 - 17:30	Session WeD5: Oral Session - Flexible Electronics & Wearable Technologies 1 - EA-06-03 Chair: Min-Ho Seo, Pusan National University Co-Chair: Varsha Gupta, A*STAR Institute for Human Development and Potential
16:00 - 16:15	132 - Unsupervised machine learning to investigate trajectory patterns of COVID-19 symptoms and physical activity measured via smart wearables. <i>Varsha Gupta¹, Sokratis Kariotis², Dennis Wang³</i> ¹ A*STAR Institute for Human Development and Potential, ² A*STAR Bioinformatics Institute, ³ Imperial College London
16:15 - 16:30	444 - Precisely Manipulating Polymer-Chain-Interactions for Multifunctional Hydrogel <i>Shuai Guo and Swee Ching Tan</i> National University of Singapore
16:30 - 16:45	472 - Multifunctional battery fiber for health monitoring and motion-rechargeable system <i>Xiao Xiao, Chang Liu, Zimo Wang, Ghim Wei Ho, Changsheng Wu</i> National University of Singapore
16:45 - 17:00	363 - Three Synchronized, Miniaturized, Wireless IMU Sensors for Automated Gait and Balance Analysis System <i>Seokhoon Choi¹, Ki-Hoon Kim¹, Sungchul Huh², Min-Ho Seo¹</i> ¹ Pusan National University, ² Pusan National University Yangsan Hospital
17:00 - 17:15	492 - AI-enabled, paper-based multiplexed colorimetric sensor for wound monitoring <i>Zijie Yang¹, Xinting Zheng², Laura Sutarlie², Moogaambikai Thangaveloo³, Yong Yu², Nur Asinah Binte Mohamed Salleh², Jiah Shin Chin⁴, Ze Xiong⁵, David Becker³, Xian Jun Loh², Benjamin Tee¹, Xiao Di Su²</i> ¹ National University of Singapore, ² A*STAR Institute of Materials Research and Engineering, ³ Nanyang Technological University, ⁴ A*STAR Skin Research Labs, ⁵ ShanghaiTech University
16:00 - 17:30	Session WeD6: Oral Session - Bio-Micro / Nanotechnologies 4 - EA-06-04 Chair: Wei Seong Toh, National University of Singapore Co-Chair: Monisha Mohan, Indian Institute of Information Technology Design and Manufacturing Kancheepuram-Chennai
16:00 - 16:15	493 - Design & Development of a highly sensitive aptamer-based electrochemical sensor using Graphene oxide-gold nanocomposite for detection of Enrofloxacin <i>Deepak Saravanan and Monisha Mohan</i> IIITDM Kancheepuram

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16:15 - 16:30	<p>583 - How do nanoparticles enter and exit solid tumours?</p> <p><i>Shrey Sindhvani¹, Abdullah Muhammad Syed², Luan N. M. Nguyen³, Jessica Ngai⁴, Benjamin R. Kingston⁵, Jamie L. Y. Wu⁶, Laura Maiorino³, Jeremy Rothschild⁶, Zachary Lin⁷, Presley MacMillan⁸, Yuwei Zhang⁹, Stefan Wilhelm¹⁰, Stefan M. Mladjenovic⁶, Ben Stordy⁶, Ben Ouyang¹¹, Wayne Ngo¹², Anton Zilman⁶, Suresh Gadde¹³, Mikala Egeblad¹⁴, Warren C.W. Chan¹⁵</i></p> <p>¹University of Chicago, ²Azalea Therapeutics, ³Massachusetts Institute of Technology, ⁴AMGEN, ⁵Oregon Health and Science University, ⁶University of Toronto, ⁷National Cancer Institute, ⁸Dalhousie University, ⁹Gator Bio, ¹⁰University of Oklahoma, ¹¹Dana-Farber Cancer Institute, ¹²University of California, Berkley, ¹³University of Ottawa, ¹⁴Johns Hopkins University, ¹⁵Nanyang Technological University</p>
16:30 - 16:45	<p>276 - Development of technology for CTC capture and recovery using a microfilter devices</p> <p><i>Suzuka ISHIKAWA¹, Yoich SAITO², Seitaro KUMAMOTO³, Keiichiro YASUDA³, Yusuke KITAMURA², Masaaki IWATSUKI⁴, Toshihiro IHARA², Yoshitaka NAKANISHI², Yuta NAKASHIMA²</i></p> <p>¹Graduate School of Science and Technology, Kumamoto University, ²Faculty of Advanced Science and Technology, Kumamoto University, ³Ogic Technologies Co., Ltd, ⁴Faculty of Life Science, Kumamoto University</p>
16:45 - 17:00	<p>315 - Effective capture of circulating tumor cells by multilayered dynamic deformable microfilters</p> <p><i>Aoi OGATA¹, Yoichi SAITO², Seitaro KUMAMOTO³, Keiichiro YASUDA³, Yusuke KITAMURA⁴, Masaaki IWATSUKI⁵, Toshihiro IHARA⁴, Yoshitaka NAKANISHI⁴, Yuta NAKASHIMA⁴</i></p> <p>¹Graduate School of Science and Technology, Kumamoto University, ²Faculty of Advanced Science and Technology, Kumamoto University, Japan, ³Ogic Technologies Co., Ltd, ⁴Faculty of Advanced Science and Technology, Kumamoto University, ⁵Faculty of Life Science, Kumamoto University</p>
16:00 - 17:30	<p>Session WeD7: Oral Session - Therapeutics and Theranostics 2 - EA-06-05</p> <p>Chair: Xiaoyuan Chen, National University of Singapore</p> <p>Co-Chair: Man Ting Au, The Hong Kong Polytechnic University</p>
16:00 - 16:30	<p>742 - KN: Cancer Theranostics</p> <p><i>Xiaoyuan (Shawn) Chen</i></p> <p>National University of Singapore</p>
16:30 - 16:45	<p>473 - Minimally invasive Hybrid Laser Therapy using laser needles</p> <p><i>Donghwan Ko, Hyunseon Yu, Byungjo Jung</i></p> <p>Yonsei University</p>
16:45 - 17:00	<p>459 - Endothelin Receptor Antagonism: A Novel Strategy for Post-COVID Osteoarthritis</p> <p><i>Man Ting Au¹, Junguo Ni¹, Kaiming Tang², Shuofeng Yuan², Chunyi Wen¹</i></p> <p>¹Department of Biomedical Engineering, The Hong Kong Polytechnic University, ²State Key Laboratory of Emerging Infectious Diseases, Department of Microbiology, School of Clinical Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong</p>
11:00 - 12:30	<p>Session WeD8: Oral Session - Neuroengineering / Neurotechnology 2 - EA-06-07</p> <p>Chair: Zhenpeng Qin, University of Texas at Dallas</p> <p>Co-Chair: Teemu Myllylä, University of Oulu</p>
16:00 - 16:15	<p>481 - A Neuron-Targeting Peptide for Protein Delivery in the Central Nervous System</p> <p><i>Xiaoqian Ge and Zhenpeng Qin</i></p> <p>University of Texas at Dallas</p>
16:15 - 16:30	<p>502 - Explore The Relationship Between Brain Semantic Representation and Word Embedding Representation Based on sEEG Signals</p> <p><i>Haiyan Zhang¹, Yunying Wu², Shaomin Zhang³</i></p> <p>¹Zhejiang University, ²Qiushi Academy for Advanced Studies Department of Biomedical Engineering, Zhejiang University, ³Qiushi Academy for Advanced Studies Department of Biomedical Engineering, Zhejiang University</p>

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16:30 - 16:45	507 - Sleep deprivation affects cerebral autoregulation as evaluated through physical activities using a wearable fNIRS device <i>Teemu Myllylä¹, Hany Ferdinando¹, Sadegh Moradi¹, Hugo Herráiz-Ballesteros², Raquel Faubel²</i> ¹ University of Oulu, ² Universitat de València
16:45 - 17:00	732 - Brain Tissue-on-a-chip: spatiotemporal regulation of the cell-to-organ level communication for neurodegeneration modeling <i>Ann Na Cho</i> University of Sydney
18:30 - 22:00	WeN4 - Gala Dinner @ Marina Bay Sands Expo and Convention Centre

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08:30 - 09:15	Session PL7 - Plenary Lecture - LT7A Chair: Andy Tay, National University of Singapore
08:30 - 09:15	797 - Designed Synthesis and Assembly of Inorganic Nanomaterials for Medical and Healthcare Applications <i>Taeghwan Hyeon</i> Seoul National University
09:15 - 10:45	Session ThA1: Special Symposium - Immunoengineering 3 - LT7A Chair: Andy Tay, National University of Singapore
09:15 - 09:45	676 - KN: Engineering programmable nanoscale tools to manipulate cells <i>Nicolas H Voelcker</i> Monash University
09:45 - 10:00	541 - Macrophage engineering to target cancer and beyond <i>Rio Sugimura</i> University of Hong Kong
10:00 - 10:15	768 - Engineered Extracellular Vesicles for Therapeutic Applications <i>Natalia Higuera-Castro</i> The Ohio State University
10:15 - 10:30	656 - Integrating functional cancer-associated fibroblasts and tumor-associated macrophages into a vascularized pancreatic tumor-on-a-chip to study the immunomodulatory role of interleukin-17A <i>Giulio Giustarini¹, Nabilah Hussein Izzah¹, Basil Kuok Zi Xi¹, Jiyeon Sung¹, Kok Siong Ang², Wei Wu¹, Jinmiao Chen³, Paola Cappello⁴, Giulia Adriani¹</i> ¹ A*STAR Singapore Immunology Network, ² A*STAR Bioinformatics Institute (BII), ³ Centre for Computational Biology, Duke-NUS, ⁴ Department of Molecular Biotechnology and Health Sciences, University of Turin
09:15 - 10:45	Session ThA2: Special Symposium - Bioelectronics 3 - Engineering Auditorium Chair: Yiyuan Yang, National University of Singapore
09:15 - 09:45	745 - KN: Wrapping Bio-interfaced Electronics <i>Xiaodong Chen</i> Nanyang Technological University
09:45 - 10:00	596 - Body Temperature-Responsive Intravenous Needle with Irreversible Softening and On-Site Temperature Sensing <i>Jae-Woong Jeong</i> Korea Advanced Institute of Science and Technology (KAIST)
10:00 - 10:15	570 - Stealthy Neural recorder for primates <i>Kyung-In Jang</i> DGIST
10:15 - 10:30	743 - Self-Powered, Bioresorbable Optoelectronic Platforms for Electrotherapy and Drug Delivery <i>Yamin Zhang</i> National University of Singapore
11:00 - 12:30	Session ThA3: Oral Session - Global Health & Frugal Innovation - EA-02-11 Chair: Leandro Pecchia, Universita' Campus Bio-Medico di Roma Co-Chair: Raye Yeow, National University of Singapore
09:15 - 09:45	781 - KN: Biomedical Engineering from biology and medicine to sustainable Global Health <i>Leandro Pecchia</i> University Campus Bio Medico of Rome
09:45 - 10:00	131 - Affordable Arduino-Based Automation for Conventional Microscopes: A Modular Solution for Whole Slide Imaging <i>Krishna Kiran¹, Prarthana Raghuram¹, Pooja P Jain²</i> ¹ IIT Kharagpur, ² Indian Institute of Technology Kharagpur

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10:00 - 10:15	737 - Towards a More Sustainable Future in Biomedical Engineering <i>Yitian Ding</i> National University of Singapore
10:15 - 10:30	332 - Bactericidal ability and sample temperature distribution in low-temperature cooking using dielectric heating <i>Kei Imai, Yuuki Furuyama, Kouji Kuramochi, Takahiko Yamamoto</i> Tokyo University of Science
09:15 - 10:45	Session ThA4: Oral Session - AI in Healthcare 2 - EA-06-02 Chair: Yang Liu, Tsinghua University Co-Chair: Ajinkya Bhat, National University of Singapore
09:15 - 09:45	668 - KN: Agent Hospital: A Simulacrum of Hospital with Evolvable Medical Agents <i>Junkai Li, Siyu Wang, Meng Zhang, Weitao Li, Yunghwei Lai, Xinhui Kang, Weizhi Ma, Yang Liu</i> Tsinghua University
09:45 - 10:00	758 - UltraFAV: Neighborhood Connectivity Regularized Multi-Receptive Field Network for Arteriovenous Segmentation in Ultra-Wide-Field Fundus Imaging <i>Lei Mou, Yitian Zhao, Leilei Yuan, Yuanyuan Gu</i> Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences
10:00 - 10:15	170 - Development of a pressure injury prediction model at admission for intensive care unit patients using large-scale electronic health record data <i>Miyako Muta¹, Toshiaki Takahashi², Gojiro Nakagami¹</i> ¹ Department of Gerontological Nursing/Wound Care Management, Graduate School of Medicine, The University of Tokyo, ² The University of Tokyo
10:15 - 10:30	405 - Image Matching methods on Laparoscopic images and their impact on Pose estimation and 3D reconstruction <i>Ying Zhen Tan, Eng Tat Khoo, Mohammed Shaheryar Furqan, Yujia Gao</i> National University of Singapore
09:15 - 10:45	Session ThA5: Oral Session - Flexible Electronics & Wearable Technologies 2 - EA-06-03 Chair: Lim Wei Yap, The University of Sydney Co-Chair: Hong ZHU, Temasek Polytechnic, School of Engineering, Healthcare Engineering Centre
09:15 - 09:30	787 - Nanomaterial-based Wireless Smart Wearable Cardiac Sensing System <i>Lim Wei Yap¹ and Wenlong Cheng²</i> ¹ The University of Sydney, ² University of Sydney
09:30 - 09:45	740 - Systematic selection of wearable devices for continuous monitoring in community-dwelling adults <i>Jessica Lu, Weilan Wang, Jorming Goh, Andrea Maier</i> National University of Singapore Yong Loo Lin School of Medicine
09:45 - 10:00	784 - Pd-conformally coated, one-end-embedded gold nanowire percolation network for intrinsically stretchable, epidermal tattoo fuel cell <i>Yan Lu and Wenlong Cheng</i> University of Sydney
10:00 - 10:15	201 - An Artificial Intelligence Enabled Wearable TCM Pulse Analyser for Heart Failure Detection <i>Hong Zhu¹, Liutong Lin¹, Jui Pin Er¹, James Wong¹, Lingling Sun¹, Chwee Teck Lim², Liang Zhong³</i> ¹ Temasek Polytechnic, ² National University of Singapore, ³ Duke-NUS Medical School
09:15 - 10:45	Session ThA6: Oral Session - Biomedical & Clinical Imaging - EA-06-04 Chair: Chi Shu, National University of Singapore Co-Chair: Kai Long, National University of Singapore
09:15 - 09:45	564 - KN: Addressing Optical Imaging Challenges For Biomedical Research <i>Kanyi Pu</i> Nanyang Technological University

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09:45 - 10:00	<p>185 - Function-structure reorganizations of white matter after stroke and during recovery <i>Kexu Zhang¹, Li Ding², Xu Wang¹, Jinyang Zhuang², Shanbao Tong¹, Jie Jia², Xiaoli Guo¹</i> ¹School of Biomedical Engineering Shanghai Jiaotong University, ²Department of Rehabilitation Medicine Huashan Hospital Fudan University</p>
10:00 - 10:15	<p>249 - 3D label-free ultrasound imaging of cultured cancer spheroids <i>Kazuyo Ito, Yuta Iijima, Daisuke Yoshino</i> Tokyo University of Agriculture and Technology</p>
10:15 - 10:30	<p>267 - The quantity of myelin in the stroke-unaffected region as a predictive factor of stroke prognosis at 3 months <i>Cheol-Woon kim¹, Dohyeon Kim¹, Jonghun Lee¹, Do Yeon Kim², Joon Yul Choi¹</i> ¹Department of Biomedical Engineering, Yonsei University, ²Department of Neurology and Cerebrovascular Center, Seoul National University Bundang Hospital, Seoul National University College of Medicine</p>
10:30 - 10:45	<p>408 - Optofluidic imaging of circulating platelets for evaluating the effect of antithrombotic treatments on thrombosis patients <i>Hongqian Zhang¹, Yuqi Zhou¹, Masako Nishikawa², Junyu Chen¹, Huidong Wang¹, Chuiming Kong¹, Yuanyue Chen³, Yutaka Yatomi⁴, Keisuke Goda⁵</i> ¹Department of Chemistry, the University of Tokyo, ²Department of Clinical Laboratory Medicine, Graduate School of Medicine, the University of Tokyo, ³Keio University, ⁴Department of Clinical Laboratory Medicine, Graduate School of Medicine, the University of Tokyo; International University of Health and Welfare Graduate School, ⁵Department of Chemistry, the University of Tokyo; CYBO, Inc; Institute of Technological Sciences, Wuhan University; Department of Bioengineering, University of California, Los Angeles</p>
10:45 - 11:00	ThN1 - Coffee Break @ EA Level 1 Foyer
11:00 - 11:45	<p>Session PL8 - Plenary Lecture - LT7A Chair: Yueming Jin, National University of Singapore</p>
11:00 - 11:45	<p>799 - AIEgen-based Photodynamic Therapy <i>Bin Liu</i> National University of Singapore</p>
11:45 - 12:00	Session CC - Awards and Closing Ceremony - LT7A