

ICMMB 2026 Scientific Program

Tuesday, 6 October 2026			
Time	NAK Auditorium	L1-S1	L1-S2
08:30-16:30	Registration		
09:00-09:30	Opening Ceremony		
09:30-10:15	Plenary Lecture 1: Advances in Medical Bionics and Brain-computer Interfaces David B. Grayden Session Chair: Rosa So, A*STAR		
10:15-10:45	Break		
10:45-12:45	Oral Health ACP Special Session (TuA2NAK) Session Chair: Bee Tin Goh, National Dental Centre Singapore; Christina Sim, National Dental Centre Singapore	Cell Mechanics, Confinement & Mechanotransduction (TuA2L1S1) Session Chair: Andrew Holle, NUS	Neuroengineering & BCI I: Control, Detection & Neural Interfaces (TuA2L1S2) Session Chair: Brian Premchand, A*STAR
Keynote	Smart Piezoelectric 3D-printed Bioresorbable Scaffolds for Bone Tissue Engineering Swee Hin Teoh Low Frequency Ultrasound Treatment of Age-related Maladies Linda J Kenney	Compression-induced Mechanical Memory in Progression of Breast Cancer Sarah Boyle	
12:45-14:00	Lunch		
14:00-14:45	Plenary Lecture 2: Eavesdropping on Human Behaviors: From Electrophysiology to Motion and Interaction Rosa Chan Session Chair: Swee Lan See, IEEE EMBS SG		
14:45-16:00	Tissue Mechanics & Cardiac Aging (TuP1NAK) Session Chair: Zhong Liang, SingHealth Duke-NUS AMC	Engineered Tissue Microenvironments & Mechanobiology (TuP1L1S1) Andrew Holle, NUS Session Chair: Andrew Holle, NUS	Sports, Gait & Musculoskeletal Biomechanics (TuP1L1S2) Session Chair: Rosa So, A*STAR
Keynote	Imaging for Ageing So That Future Tools Make Sense: The Cardiovascular Perspective Angela Koh	Mechanics and Materials: Integrated Roles in Metastatic Cancer Shreya Raghavan	
16:00-16:30	Break		
16:30-17:15	Plenary Lecture 3: MitoCharge Magnetic Muscle – Mitochondria Activation and Healthy Longevity Ivan Goh Session Chair: Benjamin Lee, Singapore Polytechnic		
17:15-18:15	Poster Session 1		

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09:30–10:15	Plenary Lecture 1	Room: NAK Auditorium
Plenary	Advances in Medical Bionics and Brain-computer Interfaces Speaker: David B. Grayden Affiliation: University of Melbourne, Australia	
10:45–12:45	Oral Health ACP Special Session (TuA2NAK)	Room: NAK Auditorium
Keynote	Smart Piezoelectric 3D-printed Bioresorbable Scaffolds for Bone Tissue Engineering Speaker: Swee Hin Teoh Affiliation: Distinguished Changjiang Chair Professor and Director, Centre for Advanced Medical Engineering, Hunan University, China; Emeritus Professor, Nanyang Technological University, Singapore	
Keynote	Low Frequency Ultrasound Treatment of Age-related Maladies Speaker: Linda J Kenney Affiliation: President, Mechanobiologics, Inc., USA; Adjunct Professor, National Dental Centre Singapore, Singapore	
	From Surface Topography to Regenerative Devices: AI-Guided Bioengineering for Oral Tissue Regeneration Speaker: Hemant Vijaykumar Unadkat Affiliation: National Dental Research Institute Singapore and National Dental Centre Singapore; Academic Clinical Program in Oral Health, Duke-NUS Medical School	
	D-IONIC (Dental-IONIC) – A Novel Conductive Microneedle Patch for Modulating the Oral Tissue Microenvironment for Accelerated Drug Diffusion across Oral Mucosa and Bone Speaker: Zayim Razina Affiliation: Senior Research Fellow, National Dental Research Institute Singapore and National Dental Centre Singapore	
	Application of Tissue Engineering Concepts in Medical Devices: A Decade of Experience Speaker: Lim Yujing Affiliation: Chief Executive Officer and Chief Technology Officer, Osteopore International; Adjunct Assistant Professor, NUS Biomedical Engineering	
	Digital Dentures: From Design to Future Speaker: Juha Song Affiliation: School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University, Singapore	
	Bioelectronics Interface for Tissue Engineering Speaker: Wai Yee Yeong Affiliation: School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore	

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10:45–12:45	Cell Mechanics, Confinement & Mechanotransduction (TuA2L1S1)	Room: L1-S1
Keynote 10:45–11:15	Compression-induced Mechanical Memory in Progression of Breast Cancer Speaker: Sarah Boyle Affiliation: Centre for Cancer Biology, SA Pathology and Adelaide University, Australia	
43 11:15–11:30	Confined migration drives fibroblast state transition Authors: Yeji Chang, Nicole Jia Wen Lee, Jin Zhu, Matthew Ackers-Johnson and Andrew Holle	
48 11:30–11:45	The role of spatial confinement in primordial germ cell migration and fate specification. Authors: Malhar Sojwal Chitnis, Jia Wen Nicole Lee, Yeji Chang, Harini Rajendiran, Hui Ting Ong, Sudipto Roy and Andrew William Holle	
14 11:45–12:00	Sonomechanobiology: A New Field of High Frequency Cell Mechanostimulation Authors: Lizebona August Ambattu and Leslie Yeo	

10:45–12:45	Neuroengineering & BCI I: Control, Detection & Neural Interfaces (TuA2L1S2)	Room: L1-S2
24 10:45–11:00	Stimulation Parameters and Computational Volume Estimates Correlate with Motor Outcomes in Deep Brain Stimulation for Parkinson's Disease Authors: Kezia Tanesha Susanto, Brian Premchand, Fatimah Misbaah, Kai Rui Wan and Rosa So	
85 11:00–11:15	Comparison of Motor Execution and Motor Imagery Brain Activation Patterns Using Functional Near-Infrared Spectroscopy for Potential BCI applications Authors: Janani A and Sasikala M	
98 11:15–11:30	Development of an EEG Framework for Parkinson's Disease Detection Using Grey Wolf-Optimized Random Forest Classification Authors: Renu Deepthi A and Kavitha G	
69 11:30–11:45	EEG-Based Grip Type and Motor Phase Classification Using a Hybrid Stacking Ensemble of Machine Learning and Deep Learning Models Authors: S. Pravin Kumar, Saranya S, Kavitha A, Harshadha V K and Ananya Sriram	
116 11:45–12:00	Cross-Session EEG Biometric Identification Using Mel-Spectrograms and Hybrid CNN-Transformer Architectures Authors: Chetan Tanaji Rakshe and Jac Fredo Agastinose Ronickom	

14:00–14:45	Plenary Lecture 2	Room: NAK Auditorium
Plenary	Eavesdropping on Human Behaviors: From Electrophysiology to Motion and Interaction Speaker: Rosa Chan Affiliation: Department of Electrical Engineering, City University of Hong Kong, Hong Kong	

14:45–16:00	Tissue Mechanics & Cardiac Aging (TuP1NAK)	Room: NAK Auditorium
Keynote 14:45–15:15	Imaging for Ageing So That Future Tools Make Sense: The Cardiovascular Perspective Speaker: Angela Koh Affiliation: National Heart Centre Singapore, Singapore	
87 15:15–15:30	Beyond Passive Mechanics: The Poynting Effect, Cell Viability, and Bioelectricity in Brain and Aortic Tissue Authors: Mina Khalaj, Gerhard Sommer, Gerhard. A. Holzapfel and Christian Baumgartner	
92 15:30–15:45	Extracellular matrix structure-stiffness relationships in cardiac aging Authors: Md Faris H. Ramli, Ranmadusha M. Hengst, Huan Ting Ong, Avery R. Sun, Shen Xingyu, Kevin Nicholas, Gianluca Grenzi and Jennifer Young	

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14:45–16:00	Engineered Tissue Microenvironments & Mechanobiology (TuP1L1S1)	Room: L1-S1
Keynote 14:45–15:15	Mechanics and Materials: Integrated Roles in Metastatic Cancer Speaker: Shreya Raghavan Affiliation: <i>Department of Biomedical Engineering, Texas A&M University, USA</i>	
26 15:15–15:30	A deep learning and biophysical approach to study impaired ovulation during ageing. Authors: <i>Jake Turley, Tobias Kiehnopf, Ling Wang, Ranmadusha Merengha Hengst, Yuting Lou, Apoorva Shivankar, Jennifer Lauren Young, Robert Prevedel, Alexander Mietke and Chii Jou Chan</i>	
53 15:30–15:45	Microfluidic platform reveals the novel role of mechanical confinement in tendon homeostasis and disease Authors: <i>Sriram Muthukumar</i>	
97 15:45–16:00	Actin-dependent mechanotransduction controls nucleocytoplasmic partitioning of DNMT3a through ERK1/2 signaling during cutaneous wound healing Authors: <i>Johan Ajnabi, Binita Dam, Ekta Gupta, Tirthankar Saha, Abhik Dutta, Saurav Kumar, Ashish Gupta, Dasaradhi Palakodeti and Colin Jamora</i>	

14:45–16:00	Sports, Gait & Musculoskeletal Biomechanics (TuP1L1S2)	Room: L1-S2
10 14:45–15:00	Relationship Between Inter-Segmental Coordination of the Instep Kick and General Coordination Abilities in Experienced Soccer Athletes Authors: <i>Liwen Zhang, Meizhen Zhang and Hui Liu</i>	
21 15:00–15:15	Effects of External Load and Different Slopes on Hamstring Muscle Function during the Nordic Hamstring Exercise Authors: <i>Samatchai Chamnongkich, Aatit Paungmali, Cheng-Feng Lin and Amornthep Jankaew</i>	
23 15:15–15:30	Influence of EMG-Informed Muscle Activation on Medial–Lateral Knee Contact Force Distribution During Walking in Patients with Knee Osteoarthritis Authors: <i>Momoko Yamagata, Masashi Taniguchi, Masahide Yagi, Shogo Okada, Sayaka Okada, Yoshiki Motomura, Masashi Kobayashi and Noriaki Ichihashi</i>	
34 15:30–15:45	Computational study on the evolution of cross-shear ratio as function of flexion angle and total knee arthroplasty size Authors: <i>Gusztav Dr. Fekete</i>	
33 15:45–16:00	Cane-handling strategy alters hip loading and gait performance in preoperative hip osteoarthritis Authors: <i>Yuta Chujo, Ryo Kubota, Kimihiko Mori, Shunsuke Kimura, Sota Takehara, Ryota Egashira, Kimitaka Hase and Hirokazu Iida</i>	

16:30–17:15	Plenary Lecture 3	Room: NAK Auditorium
Plenary	MitoCharge Magnetic Muscle – Mitochondria Activation and Healthy Longevity Speaker: Ivan Goh Affiliation: <i>QuantumTX, Singapore</i>	

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17:15–18:15	Poster Session 1	Outside NAK
112	Investigating the Effects of IL-11 Neutralising Antibody on Attenuating Smooth Muscle Cell Activation for Potential Stent Eluting against In-Stent Restenosis <i>Authors: Ethen Seah, Yan Jie Yang, Nathanael YJ Koh, Wei Wen Lim and Sheng Jie Lu</i>	
64	Post-Exercise Blood Lactate Recovery Profiles are Independent of Skeletal Muscle Oxygenation Kinetics <i>Authors: Violet Man-Chi Ko, Pui Wah Kong, Chor Hiong Tee, Alfredo Franco-Obregón, Jing Rong Tay, Xin Yue Chong and Stephen Francis Burns</i>	
41	Mechanical Interactions of Granulosa Cells and Their Role in Follicle Growth <i>Authors: Yiwen Tang, Jue Yu Kelly Tan, Kim Whye Leong, Yuting Lou and Chii Jou Chan</i>	
73	A bioengineering approach to investigate age-associated mechanical reprogramming of ovarian macrophages during follicular atresia <i>Authors: Neha Paddillaya, Apoorva Shivankar and Chii Jou Chan</i>	
62	Uncertainty-Aware Machine Learning for ADMET Prediction to Accelerate Clinically-Relevant Drug Development <i>Authors: Shamieraah Jamal, Tingyang Wei, Paul Ongkowidjaja, Angela Huiyun Moh, Janice Jia Ni Goh, Zhao Wei and James Lu</i>	
42	Application of Patient Journey Prediction Using an Object Tracking System Based on Transformer <i>Authors: Yuya Gushiken, Reiya Shimura, Takenobu Ike, Ryogo Suzuki, Koya Takahashi and Noriko F. Hiroi</i>	
40	Characterisation of metal-oxidisation bacterial cytochrome for the search of new candidates of conductive materials <i>Authors: Masato Kanzaki, Soya Kakizaki, Sora Endo, Katsunmasa Kamiya and Noriko F. Hiroi</i>	
106	Provisional Stenting: Side Branch Ostia Opening or Not? <i>Authors: Shaoliang Shawn Lian, Pawel Gasior, Jaryl Ng, Wojciech Wojakowski, Nicholas Fion, Hui Ying Ang and Shengjie Lu</i>	
61	Peak Power Output During a 30-second Wingate Cycling Sprint is Correlated with the Change in Skeletal Muscle Oxygen Saturation <i>Authors: Pui Wah Kong, Violet Man-Chi Ko, Chor Hiong Tee, Alfredo Franco-Obregón, Jing Rong Tay, Xin Yue Chong and Stephen Francis Burns</i>	
20	Associations between hamstring mechanical properties and muscle recruitment during jumping in male athletes <i>Authors: Amornthep Jankaew, Yih-Kuen Jan and Cheng-Feng Lin</i>	
36	Evaluating the effect of varying pinhole configuration in unicompartmental knee arthroplasty: A finite element study <i>Authors: Hongxuan Lyu, Pivatidevi Pareatumbbee, Andy Yew, Siaw Meng Chou, Sheng Xu, Hee Nee Pang, Lincoln Liow, Seng Jin Yeo and Eric Liu</i>	
44	Establishment of Maxillary Basal Arch Three-Dimensional Norms in Taiwanese Young Adults: A Cone-Beam Computed Tomography Study <i>Authors: Chih-Yu Chang, Jian-Hong YU and Jui-Ting Hsu</i>	
54	Investigating the Effect of Confinement on Cell Cycle <i>Authors: Hannah A. Yuson and Andrew Holle</i>	

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Wednesday, 7 October 2026			
Time	NAK Auditorium	L1-S1	L1-S2
08:30-16:15	Registration		
09:00-10:30	Assistive Robotics & Neurorehabilitation (WeA1NAK) Session Chair: Jaichandar Kulandaiaasan Sheba, Singapore Polytechnic	Computational Tools, AI/ML & Biomedical Data (WeA1L1S1) Session Chair: Liu Nan, SingHealth Duke-NUS AMC	Neuroengineering & BCI II: Cognitive, Psychiatric & Developmental Signals (WeA1L1S2) Session Chair: Mengjiao Hu, A*STAR
Keynote	Soft Robotics Meets Human Biomechanics Raye Yeow		
10:30-11:00	Break		
11:00-11:45	Plenary Lecture 4: Brain Cancer Chip for Precision Medicine Metin Akay Session Chair: Rosa So, A*STAR		
11:45-13:00	Bone & Musculoskeletal Mechanobiology (WeA2NAK) Session Chair: Benjamin Lee, Singapore Polytechnic	Cardiovascular Modeling & Mechanics (WeA2L1S1) Session Chair: Mengjiao Hu, A*STAR	
Keynote	Carpal Tunnel Mechanics and Clinical Applications Zong-Ming Li	AI-Enhanced Cardiac Digital Twins: From Mechanistic Modeling to Personalized Healthcare Lei Li	
13:00-14:00	Lunch		
14:00-14:45	Plenary Lecture 5: Advancing Neuroengineering with Electroceuticals and Neuromorphic Twins Michela Chiappalone Session Chair: Brian Premchand, A*STAR		
14:45-15:45	Developmental & Reproductive Tissue Microenvironments (WeP1NAK) Session Chair: Swee Lan See, IEEE EMBS SG	Translational Clinical Engineering & Rehabilitation (WeP1L1S1) Session Chair: Jaichandar Kulandaiaasan Sheba, Singapore Polytechnic	Disease & Immune Mechanobiology (WeP1L1S2) Session Chair: Kenneth Cheong, H&H Group
Keynote	Living Under Pressure: From Force Sensing to Force Survival Yao Wang	Engineering Living Muscles for Biohybrid Robots: From Tissue Training to High-Performance Locomotion Yu Jun Tan	
15:45-16:15	Break		
16:15-17:00	Plenary Lecture 6: Mechanobiology of Apoptosis and Tissue Turnover in Aging Yusuke Toyama Session Chair: Andrew Holle, NUS		
17:00-18:00	Poster Session 2		
18:30-21:00	Banquet Chui Huay Lin Club, Level 2		

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09:00–10:30	Assistive Robotics & Neurorehabilitation (WeA1NAK)	Room: NAK Auditorium
Keynote 09:00–09:30	Soft Robotics Meets Human Biomechanics Speaker: Raye Yeow Affiliation: <i>Department of Biomedical Engineering, National University of Singapore, Singapore</i>	
75 09:30–09:45	Effect of Hip Abduction Assistance on Hip Joint Contact Force During Walking: A Pilot Study Authors: <i>Linghui Xu and Elena Gutierrez Farewik</i>	
78 09:45–10:00	Ankle Exoskeleton Assistance for Walking Economy and Knee Joint Load Reduction Authors: <i>Yuanyang Zhang, Israel Luis Pena and Elena Gutierrez Farewik</i>	
102 10:00–10:15	Toward Closed-Loop VR Neuro-Rehabilitation: A Pace-Adaptive Mirror Therapy System with EEG-Based Engagement Monitoring Authors: <i>Tharun R. Ragav, Che-Wei Lin and Kavitha Anandan</i>	
82 10:15–10:30	TremorSense: An Intelligent and Adaptive Glove for Speech-Guided Tremor Suppression in Parkinson's Disease Authors: <i>Hareesh Karthikeyan G, Nitiswaar S, Shanmuga Priya J, Dr. Kavitha G and Renu Deepthi A</i>	

09:00–10:30	Computational Tools, AI/ML & Biomedical Data (WeA1L1S1)	Room: L1-S1
31 09:00–09:15	A Modular Audio Forensic Pipeline for Deepfake Detection, Speaker Impersonation, and Tampering Localisation Authors: <i>Ebenezer Priya, Aditi Sagesh, Harees Raja M B and Harini Sri R</i>	
46 09:15–09:30	Domain-Aware Deepfake Detection: A Lightweight Heterogeneous Ensemble Approach for Generative Artifacts Authors: <i>Priya E, Praveen V, Muthu Selvan V and Vijay Srinivas R V</i>	
7 09:30–09:45	MatRad-OIDS: an open-source tool for segmenting microscopy 3D images and extracting IBSI-compliant radiomic features Authors: <i>Mariachiara Stellato, Giovanni Pasini, Elisa Missori, Daniel Remondini, Marco Calvaruso, Jae-Chul Pyun, Gastone Castellani, Alessandro Stefano and Filippo Piccinini</i>	
90 09:45–10:00	An Optimized Hybrid Deep Learning Framework for Automated Acute Lymphocytic Leukemia Detection with Twin-SVM Classification Authors: <i>Alagu S and Thamil Selvi J</i>	
104 10:00–10:15	Automated Multi-Contrast Thigh MRI Phenotyping with IMAT and IMF Quantification Using 2.5D Deep Learning Authors: <i>Arvind Channarayapatna Srinivasa, Erwan Lecesne, Choo Yu Liang, Sai Sriya Poluri, Jia Qian Chia, Jordan Sim Zheng Ting, Wee Shiong Lim and Justin Chew Linghui</i>	
121 10:15–10:30	Analysis of Morphological Changes in Precancerous Cervical Cells Using Segment Anything Model Approaches Authors: <i>Praveen Kumar Govarthan, Deeksha Sivakumar, Saiyugan Jegan, Nithiyasri Chakravarthy, Keerthana Kumar, Sakthi Pugazhendhi, Gunasekaran Kamalakaran, Arun Vishal Prabakaran and Ramakrishnan Swaminathan</i>	

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09:00–10:30	Neuroengineering & BCI II: Cognitive, Psychiatric & Developmental Signals (WeA1L1S2)	Room: L1-S2
9 09:00–09:15	Multidomain EEG Biomarker Analysis for Major Depressive Disorder Detection <i>Authors: Ahana Priyanka, Sneka Nandhini Ramesh, Neeraja R and Kavitha Ganesan</i>	
118 09:15–09:30	Characterization of Autism Spectrum Disorder with Graph-Theoretical Metrics from Positive Sparsified DTI Networks <i>Authors: Ravi Ratnaik, Lavanya Selvaganesh and Jac Fredo Agastinose Ronickom</i>	
68 09:30–09:45	Scalogram-based Deep Learning Approach for Classification of Low and High Functioning Autism <i>Authors: Divya B, David Belo, Kavitha A and Udayakumar N</i>	
70 09:45–10:00	VR Buddy - Virtual Reality for Enhancing Learning in Specially Abled Children <i>Authors: Kavitha A, Pravin Kumar S, Divya B and Dyanesh Kannan N</i>	
77 10:00–10:15	Electroencephalographic Comparison of Fatigue-Induced Cognitive Effects Across Age Groups <i>Authors: Kavitha A, S. Pravin Kumar, Shravan Kumar Subbaraman and Sujay Arjunan</i>	
2 10:15–10:30	Real-time Implementation of an EEG-based MI BCI System for Wheelchair Control for People with Physical Challenges <i>Authors: Mahmud Khalil Rabby, Nazmus Sakib and Md Kafiul Islam</i>	

11:00–11:45	Plenary Lecture 4	Room: NAK Auditorium
Plenary	Data-Driven Neural Biomarkers for Chronic Pain Speaker: Metin Akay <i>Affiliation: Department of Biomedical Engineering, University of Houston, USA</i>	

11:45–13:00	Bone & Musculoskeletal Mechanobiology (WeA2NAK)	Room: NAK Auditorium
Keynote 11:45–12:15	Carpal Tunnel Mechanics and Clinical Applications Speaker: Zong-Ming Li <i>Affiliation: Departments of Orthopaedic Surgery and Biomedical Engineering, University of Arizona, USA</i>	
25 12:15–12:30	Bone mineral density prediction in transfemoral amputee using different type of prosthetic interfaces <i>Authors: Isna Riski Safira, Spyros Masouros and Anthony MJ Bull</i>	
94 12:30–12:45	Osteoporotic deterioration induces mechanical transition of the trabecular bone microenvironment under physiological gait loading <i>Authors: Yan Wang and Qiang Chen</i>	
95 12:45–13:00	Prediction of Pivot Shift Grade Using In-Vivo Ultrasound Bone Tracking During Sit-Stand-Sit <i>Authors: Jiya Dutta, Isaac Tay, Kah Weng Lai, Jeremy Lim and Zi Yang Chia</i>	

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11:45–13:00	Cardiovascular Modeling & Mechanics (WeA2L1S1)	Room: L1-S1
Keynote 11:45–12:15	AI-Enhanced Cardiac Digital Twins: From Mechanistic Modeling to Personalized Healthcare Speaker: Lei Li Affiliation: Department of Biomedical Engineering, National University of Singapore, Singapore	
13 12:15–12:30	Subrenal abdominal aortic aneurysms: a new approach, beyond old beliefs Authors: Ivan Corazza, Tania Menghi, Pier Luca Rossi, Laura Bondioli and Romano Zannoli	
100 12:30–12:45	Continuous Hemodynamic Risk Stratification in Cardiogenic Shock Using a Latent ODE Competing-Risks Model: A Multi-Center Validation Study Authors: Min Wan, Liang Zhong and Hao Xu	
56 12:45–13:00	Patient-Specific Digital Twin Modeling of Wall Stress Superior Biomechanical Stratification of Dilated Cardiomyopathy Authors: Daniel Zong, Yiyuan GAO, Wenqi LIU, Shuang LENG, Chengbin HE, Jingjing SHI, Wanzhen LI, Siying MA, Xi HU, Zhan FENG, Youfan ZHAO, Angela Koh, Xiaodan ZHAO, Ru-San TAN, Yunjun YANG, Wenbo XIAO, Hongjie HU, Maosheng XU and Liang Zhong	
14:00–14:45	Plenary Lecture 5	Room: NAK Auditorium
Plenary	Advancing Neuroengineering with Electroceuticals and Neuromorphic Twins Speaker: Michela Chiappalone Affiliation: University of Genoa, Italy	
14:45–15:45	Developmental & Reproductive Tissue Microenvironments (WeP1NAK)	Room: NAK Auditorium
Keynote 14:45–15:15	Living Under Pressure: From Force Sensing to Force Survival Speaker: Yao Wang Affiliation: School of Biomedical Engineering, University of Sydney, Australia	
55 15:15–15:30	Critical phenomenon underlies de novo luminogenesis and control of mammalian follicle development Authors: Kim Whye Leong, Yuting Lou, Jue Yu Kelly Tan, Arikta Biswas, Boon Heng Ng, Zixuan Zhao, Xixun Lu, Xin Ping Joan Teo, Thong Beng Lu, Ling Wang, Carlo Bevilacqua, Isabelle Bonne, Robert Prevedel, Tetsuya Hiraiwa and Chii Jou Chan	
93 15:30–15:45	Mechano-chemical feedback regulates mammalian ovarian follicle growth competition Authors: Kosei Tomida, Yuting Lou, Sukhada Darpe, Hugo Raveton, Apoorva Shivanker, Arikta Biswas, Xiang Teng, Yusuke Toyama and Chii Jou Chan	
14:45–15:45	Translational Clinical Engineering & Rehabilitation (WeP1L1S1)	Room: L1-S1
Keynote 14:45–15:15	Engineering Living Muscles for Biohybrid Robots: From Tissue Training to High-Performance Locomotion Speaker: Yu Jun Tan Affiliation: Department of Mechanical Engineering, National University of Singapore, Singapore	
50 15:15–15:30	A Multimodal Framework Combining MFCC and Articulatory Dynamics for Disordered Speech Analysis Authors: Sunantha Sri B, Dhanalakshmi Munirathnam and Anitha G	
117 15:30–15:45	Effect of Guolin Qigong on Quality of Life in Rehabilitative Breast Cancer Survivors: A Longitudinal Study Authors: Bing Wang, XueTong Wang, Hao Yuan, Xuan Wang, Shuai Chang and Xinbo Qi	

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14:45–15:45	Disease & Immune Mechanobiology (WeP1L1S2)	Room: L1-S2
57 14:45–15:00	Sustained confinement modulates macrophage ability to clear cellular corpses during aging Authors: Jessica Evangeline T. Kabigting, Mei Shan Cheam, Yuan Bin Lim, Tetsuya Hiraiwa, Daan Vorselen, Andrew William Holle and Yusuke Toyama	
15 15:00–15:15	Mechanical Signaling Protects Astroglia from Toxic α-Synuclein Aggregates and Facilitates Formation of Tunneling Nanotubes Authors: Sangeeta Nath, Suchana Chatterjee, Ashok Ravula, Anirudh Sreenivas BK, Abinaya Raghavan, Sivaraman Padavattan and Sreenath Balakrishnan	
47 15:15–15:30	Mechanical confinement programs cytotoxic T cell adaptation for enhanced anti-tumor activity Authors: Fang ZHOU and Andrew Holle	
101 15:30–15:45	Age-related cardiac stiffness regulates tissue resident macrophage phenotype Authors: Kottipalli Vidhipriya, LIM Yuan Bin, Jin ZHU, Yusuke TOYAMA and Jennifer L. YOUNG	
16:15–17:00	Plenary Lecture 6	Room: NAK Auditorium
Plenary	Mechanobiology of Apoptosis and Tissue Turnover in Aging Speaker: Yusuke Toyama Affiliation: National University of Singapore, Singapore	

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17:00–18:00	Poster Session 2	Outside NAK
38	Theca cell mechanosensing and regulation of follicular extracellular matrix during ovarian follicle development Authors: Arikta Biswas, Boon Heng Ng, Kosei Tomida, Kim Whye Leong, Yuting Lou, Chin Hao Lee, Rothswell Lanting, Thong Beng Lu, Ranmadusha Merengha Hengst, Mui Hoon Nai, Isabelle Bonne, Jennifer Lauren Young, Chwee Teck Lim and Chii Jou Chan	
65	Mechanical cues orchestrate granulosa cell dynamics in mammalian folliculogenesis Authors: Kelly Tan, Kim Whye Leong, Arikta Biswas, Xixun Lu, Yuting Lou and Chii Jou Chan	
67	De-risking Drug Development with AI Target Funnel Authors: Isaac Yeoh and James Lu	
22	Multiview Clustering and Biomarker Analysis for Differentiating Alzheimer's Disease from Mild Cognitive Impairment Authors: Ahana Priyanka, Latha Manohar, Muthulakshmi M and Kavitha Ganesan	
8	ViFoSe, a user-friendly open-source post-processing tool for foreground segmentation in time-lapse videos Authors: Filippo Piccinini, Michele Sarneri, Luca Rinaldi, Abdelrahman Abdelaziz Mohamed, Mariachiara Stellato, Jae-Chul Pyun, Misu Lee, Bongseop Kwak, Bosung Ku, Emanuele Domenico Giordano and Gastone Castellani	
76	Deep Learning Architectures and Use of Explainable AI in Interpreting Model Predictions for Classifying Ear Disorders Authors: Kavitha A, S. Pravin Kumar, Sujay Arjunan and Shravan Kumar Subbaraman	
99	Synthesis of Contrast-Enhanced CT Pulmonary Angiograms from Spectral Virtual Non-Contrast CT with Vessel-Aware Evaluation Authors: Hao Xu, Zihao Li, Wenjun Zhang, Yunxin Liu, Min Wan, Liang Zhong and Liang-Geng GONG	
109	Sequence-Based Deep Learning Framework for Automated Obstructive Sleep Apnea Detection from Multimodal Sleep Signals Authors: Febryan Setiawan and Che-Wei Lin	
32	Development of custom indentation and uniaxial traction frameworks for the mechanical characterization of low-density anisotropic collagen hydrogels Authors: Mariana Otoyá, Chloé TECHENS and Jean-Marc ALLAIN	
39	Tailor-made Analysis of Micro-expression Using Deep Learning Authors: Kazuho Narita, Chikara Takeda, Andre Antezana, Keito Kimura, Hidenobu Takao and Noriko F. Hiroi	
45	Sex-Based Mandibular Morphology and BSSO Bad Split Risk in Taiwanese Patients Authors: Meng-Jie Lin, Jui-Ting Hsu, Yuan-Chien Chen and I Chen	
59	Stair Climbing Kinematics Comparing Mechanical and Kinematic alignment in Bilateral TKA Authors: Josephine Lam, Andy Yew, Jason Lim, Seng Jin Yeo, Lincoln Liow and Hee Nee Pang	
96	Multimodal Wearable System for Objective Assessment of Dynamic Rotational Knee Biomechanics Following ACL Injury and Reconstruction Authors: Jiya Dutta, David Tan Yuan Yu, Kah Weng Lai, Jeffrey Zhu and Zi Yang Chia	
115	Cross-Attention Fusion of Time and Frequency Domain sEMG Features for Silent Speech Recognition Authors: Dhanalakshmi Munirathnam, Anindhitha Aravind, Faith Evangelin Joel and Durga Rajan	

ICMMB 2026 Scientific Program

Thursday, 8 October 2026			
Time	NAK Auditorium	L1-S1	L1-S2
08:30-11:00	Registration		
09:00-11:00	Musculoskeletal Sciences ACP Session (ThA1NAK)	Clinical Devices & Mechanobiological Tools (ThA1L1S1)	Physiological Signals, Speech & Respiratory Modeling (ThA1L1S2)
Keynote		Soft Robotic Technologies for Safe Interaction with Human Tissue Amy Kyungwon Han	
11:00-11:30	Break		
11:30-12:15	Plenary Lecture 7: Probing Subnuclear Deformation in Cancer Cells Wenting Zhao		
12:15-12:30	Closing & Award Presentation Ceremony		
12:30-13:30	Lunch		
13:30	Social Program		

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09:00–11:00	Musculoskeletal Sciences ACP Session (ThA1NAK)	Room: NAK Auditorium
Talk 09:00–09:15	Clinical Biomechanics & the Body's Blueprints: Engineering Better Patient Outcomes Speaker: Denny Lie Affiliation: Senior Consultant, Department of Orthopaedic Surgery, Singapore General Hospital	
Talk 09:15–09:30	Computational Modeling in Biomechanics: Applications and Current Limitations Speaker: Wong Yoke Rung Affiliation: Senior Research Fellow I, Biomechanics Lab, Singapore General Hospital	
Talk 09:30–09:45	The Application of Finite Element Modelling in Orthopaedic Biomechanics Speaker: Pivatidevi Pareatumbbee Affiliation: Principal Research Engineer, Musculoskeletal Sciences ACP, SingHealth Duke-NUS	
Talk 09:45–10:00	The Role of Motion Capture Analysis in Research and Clinical Practice Speaker: Josephine Lam Pei Wen Affiliation: Senior Research Officer, Department of Orthopaedic Surgery, Singapore General Hospital	
Talk 10:00–10:15	Establishing a Baseline in Upper Limb Kinematics in Healthy Individuals Speaker: Chia-Yu Liu Affiliation: Medical Student, Duke-NUS Medical School	
Talk 10:15–10:30	A Closed-Loop System of Patient-Specific Design, Bioresorbable Materials, and Integrated Sensors for Sustainable Bone Repair Speaker: Ardiyansyah Syahrom Affiliation: Director, Medical Devices Technology Centre, Institute of Human Centred Engineering, Universiti Teknologi Malaysia	
Panel 10:30–11:00	Panel Discussion Topic: How can we make biomechanics more accessible to clinicians, researchers, and students? Moderators: Joyce Koh and Andy Yew, Singapore General Hospital Panellists: Denny Lie, Wong Yoke Rung, Pivatidevi Pareatumbbee, Josephine Lam Pei Wen, Chia-Yu Liu and Ardiyansyah Syahrom	

09:00–11:00	Clinical Devices & Mechanobiological Tools (ThA1L1S1)	Room: L1-S1
Keynote 09:00–09:30	Soft Robotic Technologies for Safe Interaction with Human Tissue Speaker: Amy Kyungwon Han Affiliation: Department of Mechanical Engineering, Seoul National University, South Korea	
71 09:30–09:45	Magnetically actuated hydrogels for mechanically stimulating smooth muscle cells Authors: Guillaume Laffite and Chloe Techens	
19 09:45–10:00	BALLOON CATHETER CRIMPING SLEEVE AND CRIMPING PROCESS Authors: Alan Goh	
52 10:00–10:15	A Lightweight GhostNet-SVM and Raspberry Pi-Based Embedded System for Real-Time MRI Diagnosis of Knee Meniscus Injuries Authors: Priya Choudhary, Ayush Kumar Bhanja, Debadutta Dash, Ashish Verma, Shiru Sharma and Neeraj Sharma	

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09:00–11:00	Physiological Signals, Speech & Respiratory Modeling (ThA1L1S2)	Room: L1-S2
74 09:00–09:15	A Frequency-Interval and Neurophysiological Perspective on Vivādi and Non-Vivādi Melakarta Rāgas in Carnatic Music Authors: <i>Harikrishnan Mahesh and Vijayalakshmi P</i>	
120 09:15–09:30	An sEMG-Based Analysis of Malayalam Syllables using Machine Learning Methods Authors: <i>Alfiya Parveen P C, Remya R. Nair and Venugopal G</i>	
108 09:30–09:45	A First Object-Detection Approach to Apnea-Hypopnea Event Estimation from Single-Lead ECG Using 1D DETR Authors: <i>Che-Wei Lin and Febryan Setiawan</i>	
29 09:45–10:00	VOF-CFD Study of Non-Newtonian Mucus Transport in a Patient-Specific Airway Authors: <i>Ruizhi Tao and Yan Cai</i>	

11:30–12:15	Plenary Lecture 7	Room: NAK Auditorium
Plenary	Probing Subnuclear Deformation in Cancer Cells Speaker: Wenting Zhao Affiliation: <i>Nanyang Technological University, Singapore</i>	