ICMMB 2026
24th International Conference on Mechanics in Medicine and Biology
SINGAPORE • 6-8 October 2026

# 24th International Conference on Mechanics in Medicine and Biology (ICMMB 2026)

## 6 to 8 October 2026

## Academia @ SGH, Singapore

# PROGRAM

### SPONSORS

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SingHealth DukeNUS Academic Medical Centre – Musculoskeletal Sciences

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### ORGANIZERS

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SingHealth Academy | College of Healthcare Engineering

### SUPPORTING ORGANIZERS

Agency for Science, Technology and Research, Singapore

Singapore Polytechnic

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# General Chairs' Welcome

It is our great pleasure to welcome you to the 24th International Conference on Mechanics in Medicine and Biology (ICMMB 2026), held from 6–8 October 2026 at SingHealth Academia in Singapore.

Mechanics provides a lens through which we understand biology and medicine - from the behaviour of cells and tissues to the function of organs and whole-body systems. At the same time, advances in engineering, computational modelling and artificial intelligence are opening new possibilities for translating this understanding into better predictive diagnostics, therapies and other healthcare solutions.

ICMMB 2026 brings together researchers, clinicians, engineers, students and industry partners from across these diverse fields. Our programme reflects the breadth and evolving nature of the discipline, spanning fundamental mechanobiology and biomechanics, computational and AI-driven approaches, medical imaging and measurement, rehabilitation and human movement, neuroengineering and brain-computer interfaces, biorobotics, and translational research and clinical applications. Beyond sharing scientific discoveries, we hope ICMMB 2026 will create opportunities for meaningful conversations across disciplines and across the research-to-application continuum. Some of the most exciting advances in medicine and biology emerge when ideas, methods and perspectives come together in unexpected ways.

We are especially delighted to welcome the ICMMB community to Singapore. As a hub for biomedical research, healthcare innovation and technology in Asia, Singapore provides a fitting setting for a conference dedicated to connecting fundamental science with engineering and clinical translation. We would like to thank our invited speakers, authors, reviewers, session chairs, sponsors and partners, as well as the many members of the organising and scientific committees whose contributions have made this conference possible. Most importantly, we thank all of you for being part of the ICMMB community and for bringing your ideas, expertise and enthusiasm to Singapore.

We hope that ICMMB 2026 will be a stimulating forum for scientific exchange, a place to forge new collaborations and friendships, and a catalyst for moving scientific discoveries towards meaningful impact in medicine and society.

We warmly welcome you to ICMMB 2026 and wish you a productive, inspiring and memorable conference.



**Liang ZHONG**

*SingHealth Duke-NUS AMC*
**ICMMB 2026 General Chair**



**Rosa SO**

*A*STAR*
**ICMMB 2026 General Co-Chair**



**Andrew HOLLE**

*National University of Singapore*
**ICMMB 2026 General Co-Chair**

# ORGANIZING COMMITTEE

| | |
|---|---|
| **General Chair & Sponsorship Co-Chair** | **Liang ZHONG**<br>*SingHealth Duke-NUS AMC* |
| **General Co-Chair & Finance Co-Chair** | **Rosa SO**<br>*A*STAR* |
| **General Co-Chair & Program Chair** | **Andrew HOLLE**<br>*National University of Singapore* |
| **Finance Chair & Sponsorship Chair** | **Kenneth CHEONG**<br>*H&H Group* |
| **Program Co-Chair & Paper Review / Poster Competition Co-Chair** | **Benjamin LEE**<br>*Singapore Polytechnic* |
| **Program Co-Chair & Paper Review / Poster Competition Chair** | **Brian PREMCHAND**<br>*A*STAR* |
| **Paper Review / Poster Competition Co-Chair** | **Jaichandar KULANDAIDAASAN SHEBA**<br>*Singapore Polytechnic* |
| **Local Logistics Chair & Publicity Co-Chair** | **Swee Lan SEE**<br>*IEEE EMBS SG* |
| **Local Logistics Chair & Publicity Co-Chair** | **Meng Jiao HU**<br>*A*STAR* |
| **Publicity Chair** | **Nan LIU**<br>*SingHealth Duke-NUS AMC* |
| **Publicity Chair** | **Serim KIM**<br>*Duke-NUS Medical School* |

# INTERNATIONAL SCIENTIFIC COMMITTEE

| | |
|---|---|
| **Ivan CORAZZA** | *Università di Bologna* |
| **Bernardo INNOCENTI** | *École polytechnique de Bruxelles* |
| **A. KAVITHA** | *SSN Institutions* |
| **Pui Wah KONG** | *National Institute of Education* |
| **Dhanjoo N. GHISTA** | *University 2020 Foundation* |
| **Chengyu LIU** | *Southeast University* |
| **Yin Kwee NG** | *Nanyang Technological University* |
| **Salah RAMTANI** | *Université Sorbonne Paris Nord* |
| **Fong-Chin SU** | *National Cheng Kung University* |
| **Shanbao TONG** | *Shanghai Jiaotong University* |

# Practical Information

## SG Arrival Card (SGAC):

All travellers are required to submit the SG Arrival Card within three (3) days (including the day of arrival) before arriving in Singapore.

## Venue

Academia, SGH Campus, Singapore
20 College Rd, Singapore 169856

Directions: https://icmmb2026.org/venue/

## Badges & Information Desk

Badges must be worn at all times for entry to sessions and social functions.

The Registration Desk also serves as the Information Point for general enquiries, lost & found, and on-site assistance.

## Internet Access

Free WIFI Network Name: Quickconnect
No password required

## Meals & Refreshments

Morning and afternoon coffee/tea breaks, as well as daily lunches, are included in the registration. These will be served in the foyer area, providing opportunities for networking.

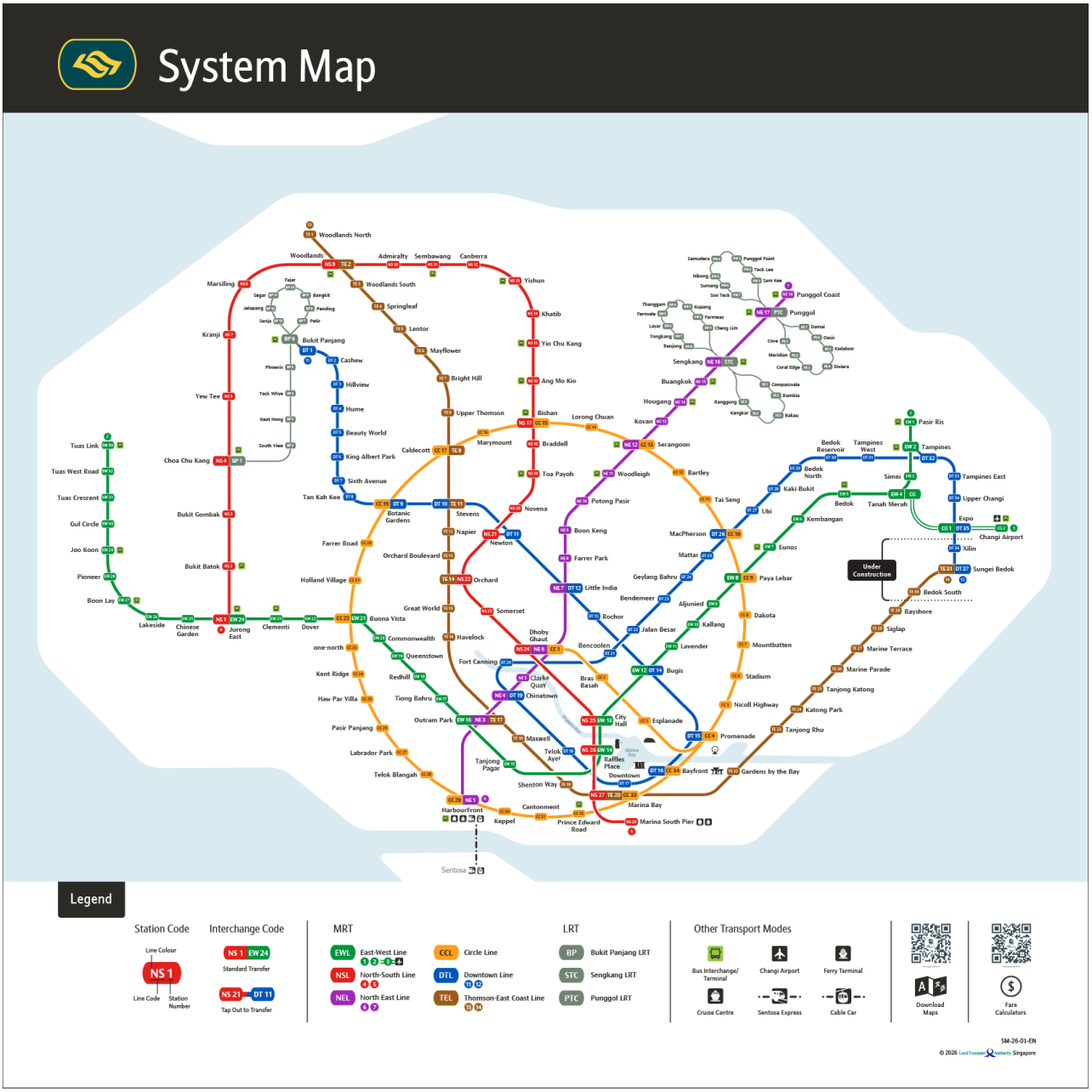
The Banquet is also part of the official program and tickets are included for full registrants.

## Local Information

October in Singapore is warm and humid, with daytime temperatures typically ranging from 27–32°C. Light, breathable clothing and comfortable shoes are recommended for your visit. As occasional rain showers are common, you may also wish to carry an umbrella. The venue is easily accessible by public transport and taxi.

## Local Transportation

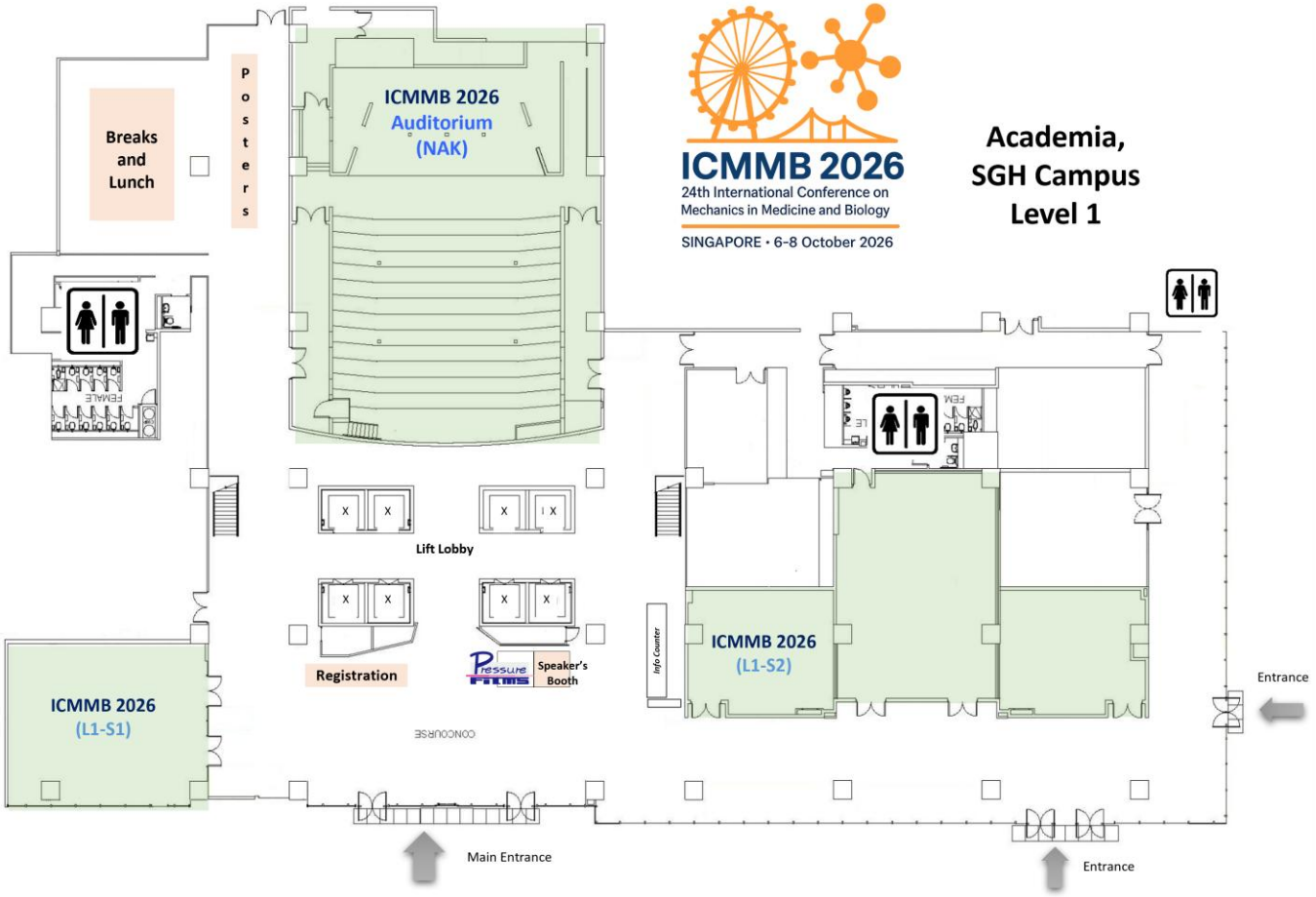
Singapore's public transport system is efficient and affordable. The Mass Rapid Transit (MRT) and bus networks provide easy access to most parts of the city, including the conference venue. The EZ-Link card or contactless credit/debit cards can be used for travel on both MRT and buses. Taxis and ride-hailing services such as Grab are also widely available. Travel time from Changi Airport to the city is approximately 25 minutes by taxi or 40 minutes by MRT.




## Emergency Contacts

In case of emergency, please dial 995 for ambulance/fire or 999 for police. For urgent assistance during the conference, contact the Secretariat at the registration desk

# FLOORPLAN


ICMMB 2026
24th International Conference on Mechanics in Medicine and Biology
SINGAPORE • 6-8 October 2026
Academia,
SGH Campus
Level 1
Breaks and Lunch
Posters
ICMMB 2026
Auditorium
(NAK)
Lift Lobby
Registration
Speaker's Booth
ICMMB 2026
(L1-S1)
ICMMB 2026
(L1-S2)
Info Counter
Entrance
Main Entrance
Entrance

# Program Overview

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

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

| 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)**<br>Moderators: Joyce Koh, Singapore General Hospital; Andy Yew, Singapore General Hospital | **Clinical Devices & Mechanobiological Tools (ThA1L1S1)**<br>Session Chair: Benjamin Lee, Singapore Polytechnic | **Physiological Signals, Speech & Respiratory Modeling (ThA1L1S2)**<br>Session Chair: Liu Nan, SingHealth Duke-NUS AMC |
| Keynote | | **Soft Robotic Technologies for Safe Interaction with Human Tissue**<br>Amy Kyungwon Han | |
| 11:00-11:30 | Break | | |
| 11:30-12:15 | **Plenary Lecture 7: Probing Subnuclear Deformation in Cancer Cells**<br>**Wenting Zhao**<br>Session Chair: Andrew Holle, NUS | | |
| 12:15-12:30 | **Closing & Award Presentation Ceremony** | | |
| 12:30-13:30 | **Lunch** | | |
| 13:30 | **Social Program**<br>Free and Easy to Gardens by the Bay | | |

# Program Details

## Tuesday, 6 October 2026

| 09:30–10:15 | **Plenary Lecture 1**<br>**Session Chair: Rosa So, A*STAR** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Advances in Medical Bionics and Brain-computer Interfaces**<br>**Speaker:** David B. Grayden<br>**Affiliation:** *University of Melbourne, Australia* | |

| 10:45–12:45 | **Oral Health ACP Special Session (TuA2NAK)**<br>**Session Chair(s): Bee Tin Goh, National Dental Centre Singapore; Christina Sim, National Dental Centre Singapore** | **Room: NAK Auditorium** |
|---|---|---|
| **Keynote** | **Smart Piezoelectric 3D-printed Bioresorbable Scaffolds for Bone Tissue Engineering**<br>**Speaker:** Swee Hin Teoh<br>**Affiliation:** *Distinguished Changjiang Chair Professor and Director, Centre for Advanced Medical Engineering, Hunan University, China; Emeritus Professor, Nanyang Technological University* | |
| **Keynote** | **Low Frequency Ultrasound Treatment of Age-related Maladies**<br>**Speaker:** Linda J Kenney<br>**Affiliation:** *President, Mechanobiologics, Inc., USA; Adjunct Professor, National Dental Centre Singapore* | |
| | **From Surface Topography to Regenerative Devices: AI-Guided Bioengineering for Oral Tissue Regeneration**<br>**Speaker:** Hemant Vijaykumar Unadkat<br>**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**<br>**Speaker:** Zayim Razina<br>**Affiliation:** *Senior Research Fellow, National Dental Research Institute Singapore and National Dental Centre Singapore*<br><br>**Application of Tissue Engineering Concepts in Medical Devices: A Decade of Experience**<br>**Speaker:** Lim Yujing<br>**Affiliation:** *Chief Executive Officer and Chief Technology Officer, Osteopore International; Adjunct Assistant Professor, NUS Biomedical Engineering* | |
| | **Digital Dentures: From Design to Future**<br>**Speaker:** Juha Song<br>**Affiliation:** *School of Chemistry, Chemical Engineering and Biotechnology, Nanyang Technological University* | |
| | **Bioelectronics Interface for Tissue Engineering**<br>**Speaker:** Wai Yee Yeong<br>**Affiliation:** *School of Mechanical and Aerospace Engineering, Nanyang Technological University* | |

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

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

| 14:00–14:45 | **Plenary Lecture 2**<br>**Session Chair: Swee Lan See, IEEE EMBS SG** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Eavesdropping on Human Behaviors: From Electrophysiology to Motion and Interaction**<br>**Speaker:** Rosa Chan<br>**Affiliation:** *Department of Electrical Engineering, City University of Hong Kong* | |

| 14:45–16:00 | **Tissue Mechanics & Cardiac Aging (TuP1NAK)**<br>**Session Chair: Zhong Liang, SingHealth Duke-NUS AMC** | **Room: NAK Auditorium** |
|---|---|---|
| **Keynote**<br>14:45–15:15 | **Imaging for Ageing So That Future Tools Make Sense: The Cardiovascular Perspective**<br>**Speaker:** Angela Koh<br>**Affiliation:** *National Heart Centre Singapore, Singapore* | |
| **87**<br>15:15–15:30 | **Beyond Passive Mechanics: The Poynting Effect, Cell Viability, and Bioelectricity in Brain and Aortic Tissue**<br>**Authors:** *Mina Khalaj, Gerhard Sommer, Gerhard. A. Holzapfel and Christian Baumgartner* | |

| 14:45–16:00 | Tissue Mechanics & Cardiac Aging (TuP1NAK)<br>Session Chair: Zhong Liang, SingHealth Duke-NUS AMC | Room: NAK Auditorium |
|---|---|---|
| 92<br>15:30–15:45 | **Extracellular matrix structure-stiffness relationships in cardiac aging**<br>**Authors:** *Md Faris H. Ramli, Ranmadusha M. Hengst, Huan Ting Ong, Avery R. Sun, Shen Xingyu, Kevin Nicholas, Gianluca Grenci and Jennifer Young* | |

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

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

| 16:30–17:15 | Plenary Lecture 3<br>Session Chair: Benjamin Lee, Singapore Polytechnic | Room: NAK Auditorium |
|---|---|---|
| Plenary | **MitoCharge Magnetic Muscle – Mitochondria Activation and Healthy Longevity**<br>**Speaker:** Ivan Goh<br>**Affiliation:** *QuantumTX, Singapore* | |

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

# Wednesday, 7 October 2026

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

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

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

| 11:00–11:45 | **Plenary Lecture 4**<br>**Session Chair: Rosa So, A*STAR** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Brain Cancer Chip for Precision Medicine**<br>**Speaker:** Metin Akay<br>**Affiliation:** *Department of Biomedical Engineering, University of Houston, USA* | |

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

| 11:45–13:00 | **Cardiovascular Modeling & Mechanics (WeA2L1S1)**<br>**Session Chair: Mengjiao Hu, A*STAR** | **Room: L1-S1** |
|---|---|---|
| **Keynote**<br>11:45–12:15 | **AI-Enhanced Cardiac Digital Twins: From Mechanistic Modeling to Personalized Healthcare**<br>**Speaker:** Lei Li<br>**Affiliation:** *Department of Biomedical Engineering, National University of Singapore, Singapore* | |
| **13**<br>12:15–12:30 | **Subrenal abdominal aortic aneurysms: a new approach, beyond old beliefs**<br>**Authors:** *Ivan Corazza, Tania Menghi, Pier Luca Rossi, Laura Bondioli and Romano Zannoli* | |
| **100**<br>12:30–12:45 | **Continuous Hemodynamic Risk Stratification in Cardiogenic Shock Using a Latent ODE Competing-Risks Model: A Multi-Center Validation Study**<br>**Authors:** *Min Wan, Liang Zhong and Hao Xu* | |
| **56**<br>12:45–13:00 | **Patient-Specific Digital Twin Modeling of Wall Stress Superior Biomechanical Stratification of Dilated Cardiomyopathy**<br>**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**<br>**Session Chair: Brian Premchand, A*STAR** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Advancing Neuroengineering with Electroceuticals and Neuromorphic Twins**<br>**Speaker:** Michela Chiappalone<br>**Affiliation:** *University of Genoa, Italy* | |

| 14:45–15:45 | **Developmental & Reproductive Tissue Microenvironments (WeP1NAK)**<br>**Session Chair: Swee Lan See, IEEE EMBS SG** | **Room: NAK Auditorium** |
|---|---|---|
| **Keynote**<br>14:45–15:15 | **Living Under Pressure: From Force Sensing to Force Survival**<br>**Speaker:** Yao Wang<br>**Affiliation:** *School of Biomedical Engineering, University of Sydney, Australia* | |
| **55**<br>15:15–15:30 | **Critical phenomenon underlies de novo luminogenesis and control of mammalian follicle development**<br>**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**<br>15:30–15:45 | **Mechano-chemical feedback regulates mammalian ovarian follicle growth competition**<br>**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)**<br>**Session Chair: Jaichandar Kulandaidaasan Sheba, Singapore Polytechnic** | **Room: L1-S1** |
|---|---|---|
| **Keynote**<br>14:45–15:15 | **Engineering Living Muscles for Biohybrid Robots: From Tissue Training to High-Performance Locomotion**<br>**Speaker:** Yu Jun Tan<br>**Affiliation:** *Department of Mechanical Engineering, National University of Singapore, Singapore* | |
| **50**<br>15:15–15:30 | **A Multimodal Framework Combining MFCC and Articulatory Dynamics for Disordered Speech Analysis**<br>**Authors:** *Sunantha Sri B, Dhanalakshmi Munirathnam and Anitha G* | |
| **117**<br>15:30–15:45 | **Effect of Guolin Qigong on Quality of Life in Rehabilitative Breast Cancer Survivors: A Longitudinal Study**<br>**Authors:** *Bing Wang, XueTong Wang, Hao Yuan, Xuan Wang, Shuai Chang and Xinbo Qi* | |

| 14:45–15:45 | **Disease & Immune Mechanobiology (WeP1L1S2)**<br>**Session Chair: Kenneth Cheong, H&H Group** | **Room: L1-S2** |
|---|---|---|
| **57**<br>14:45–15:00 | **Sustained confinement modulates macrophage ability to clear cellular corpses during aging**<br>**Authors:** *Jessica Evangeline T. Kabigting, Mei Shan Cheam, Yuan Bin Lim, Tetsuya Hiraiwa, Daan Vorselen, Andrew William Holle and Yusuke Toyama* | |
| **15**<br>15:00–15:15 | **Mechanical Signaling Protects Astroglia from Toxic α-Synuclein Aggregates and Facilitates Formation of Tunneling Nanotubes**<br>**Authors:** *Sangeeta Nath, Suchana Chatterjee, Ashok Ravula, Anirudh Sreenivas BK, Abinaya Raghavan, Sivaraman Padavattan and Sreenath Balakrishnan* | |
| **47**<br>15:15–15:30 | **Mechanical confinement programs cytotoxic T cell adaptation for enhanced anti-tumor activity**<br>**Authors:** *Fang ZHOU and Andrew Holle* | |
| **101**<br>15:30–15:45 | **Age-related cardiac stiffness regulates tissue resident macrophage phenotype**<br>**Authors:** *Kottpalli Vidhipriya, LIM Yuan Bin, Jin ZHU, Yusuke TOYAMA and Jennifer L. YOUNG* | |

| 16:15–17:00 | **Plenary Lecture 6**<br>**Session Chair: Andrew Holle, NUS** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Mechanobiology of Apoptosis and Tissue Turnover in Aging**<br>**Speaker:** Yusuke Toyama<br>**Affiliation:** *National University of Singapore, Singapore* | |

| 17:00–18:00 | Poster Session 2 | Outside NAK |
|---|---|---|
| 38 | **Theca cell mechanosensing and regulation of follicular extracellular matrix during ovarian follicle development**<br>**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**<br>**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**<br>**Authors:** *Isaac Yeoh and James Lu* | |
| 22 | **Multiview Clustering and Biomarker Analysis for Differentiating Alzheimer's Disease from Mild Cognitive Impairment**<br>**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**<br>**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**<br>**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**<br>**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**<br>**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**<br>**Authors:** *Mariana Otoya, Chloé TECHENS and Jean-Marc ALLAIN* | |
| 39 | **Tailor-made Analysis of Micro-expression Using Deep Learning**<br>**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**<br>**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**<br>**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**<br>**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**<br>**Authors:** *Dhanalakshmi Munirathnam, Anindhitha Aravind, Faith Evangelin Joel and Durga Rajan* | |

# Thursday, 8 October 2026

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

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

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

| 11:30–12:15 | **Plenary Lecture 7**<br>**Session Chair: Andrew Holle, NUS** | **Room: NAK Auditorium** |
|---|---|---|
| **Plenary** | **Probing Subnuclear Deformation in Cancer Cells**<br>**Speaker:** Wenting Zhao<br>**Affiliation:** *Nanyang Technological University, Singapore* | |

# Social Events

## Banquet

**Date**: Wednesday, 7 October 2026 **Time:** 18:30 - 21:00pm

**Venue:** Chui Huay Lim Club, Level 2 **Address:** 190 Keng Lee Rd, #01-02 Chui Huay Lim Club, Singapore 308409

Transport will be provided from the conference venue to the banquet venue. Participants attending the banquet are requested to gather at the registration area by **18:00 pm.**

## Walking Tour - Gardens by the Bay

**Date**: Thursday, 8 October 2026 **Time:** 13:30

| Time | Activity |
|---|---|
| 1.30pm | Lunch ends; meet at ICMMB 2026 registration area |
| 1.40pm | Walk to Outram Park MRT Station |
| 1.50pm | Take the MRT to Gardens by the Bay MRT Station |
| Approximately 2.15pm | Arrive at Gardens by the Bay; tickets for the Flower Dome and Cloud Forest will be distributed |
| 2.15pm onwards | Explore the Flower Dome and Cloud Forest at your own pace |
| After the visit | Free time for participants to explore the outdoor gardens, visit the Supertree Grove, walk around the Marina Bay area and watch the light and water show* at Marina Bay Sands; sor make their own way back |

Please note:
- This is a free-and-easy social tour; there will be no guided tour. A few volunteers will accompany the group.
- Admission tickets to the Flower Dome and Cloud Forest will be provided.
- Participants should bring an MRT card or another form of payment for their own train fare.
- Please wear comfortable walking shoes, bring an umbrella or raincoat and water bottle for the walk between locations.

**Registration is mandatory to join this tour. Please enquire at the registration desk for more information and to register.**

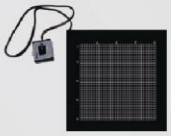
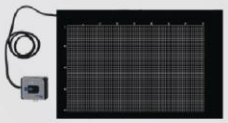
# PRESSURE FILMS
# Seat Back Pressure
## Distribution System

The Human Body Pressure Distribution System, comprising pressure distribution sensors, a data receiver, analisys and data collection software, transmits pressure values and contact area data from each sensing point in real-time via wireless or wired networks, simultaneously calculating average, maximum, and minimum pressure values across the entire sensor array.

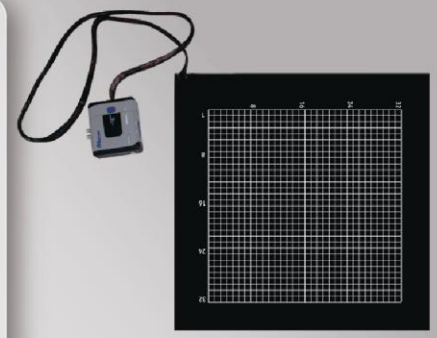
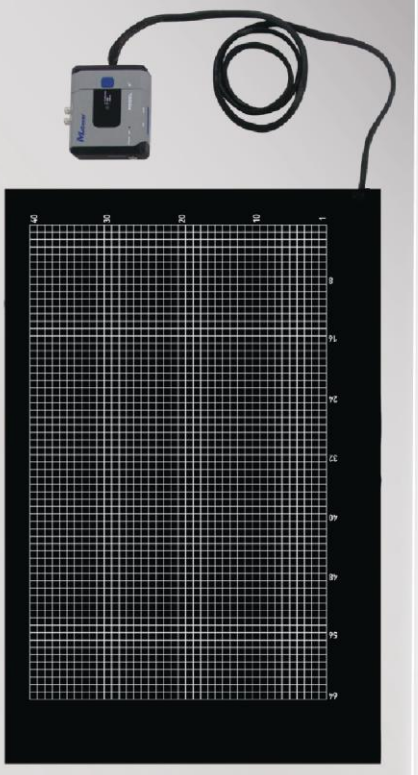



## PRODUCT SPECIFICATIONS

### SENSOR

| Model / Specifications | Seating PF-F64-S5050 | Seat back PF-F64-S5080 |
|---|---|---|
| Overall Size | 600mm*600mm | 600mm*900mm |
| Sensing Size | 500mm*500mm | 500mm*800mm |
| ★ Sensing Units | 4096 （64*64） | 2560 （64*40） |
| Sensing Unit Size | 5mm*5mm（Gap 2.8mm） | 10mm*10mm（Gap 2.5mm） |
| ★ Sensing Density | 1.6/cm$^2$ | 0.64 /cm$^2$ |
| ★ Material | Flexible Fabric with Free-Form Bending Capability | |
| Principle | Resistive | |
| Stretchability | 100% | |
| Lifespan | >150,000 cycles | |
| Thickness | ≤1.5mm | |
| Range | 0-10PSI (0-70Kpa)（customizable)) | |
| Accuracy | ±10%FS | |
| Repeatability | ±2% | |
| Operating Temperature | -30~70℃ | |
| Operating Humidity | 5% RH ~ 95%RH | |

**PRESSURE FILMS INTERNATIONAL LIMITED**
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Web
http://www.pressurefilms.hk/

Email
sales@pressurefilms.hk

TEL
852-69572495



# PRESSURE FILMS
# Research Edition Mattress-Type Pressure Distribution System

The mattress-type pressure distribution sensing system consists of a high-density flexible sensor, a data receiver box, and acquisition & analysis software.

It transmits pressure values and contact area data from each sensing unit in real-time via wired/wireless networks, accurately calculating overall average pressure, maximum/minimum pressure values, and pressure distribution asymmetry, which provides a comprehensive dynamic pressure monitoring solution for both scientific research fields and commercial retail applications.

## PRODUCT SPECIFICATIONS

### SensorProduct Specifications

| | |
|---|---|
| **Model** | PF-F64-S200100 |
| **Overall size** | 2100mm*1100mm |
| **Accuracy** | ±10%FS |
| **Principle** | Resistive |
| **Stretchability** | 110% |
| **Lifespan** | >150,000 cycles |
| **Thickness** | ⩽1.5mm |
| **Material** | Flexible Fabric with Free-Form Bending Capability |

| | |
|---|---|
| ★ Sensing Size | 1900mm*1000mm |
| ★ Sensing Units | 2176 |
| ★ Sensing Unit Size | ~29.7mm*29.7mm(Gap 2.85mm) |
| ★ Sensing Density | 0.1145/cm$^2$ |
| ★ Accuracy Certified by Domestic Third-party Testing Agency | |

| | |
|---|---|
| **Repeatability** | ±2% |
| **Operating Temperature** | -30~70°C |
| **Operating Humidity** | 5% RH ~ 95% RH |

**PRESSURE FILMS INTERNATIONAL LIMITED**
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