



abc10 

**10<sup>th</sup> australasian biomechanics conference**  
December 4<sup>th</sup> - 6<sup>th</sup> 2016 Melbourne, Australia



# 'MECHANOBIOLOGY ACROSS THE SCALES'

Showcasing the latest in Biomechanics Research

## PROGRAM



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THE UNIVERSITY OF  
**MELBOURNE**

## PROGRAM at a glance

	DAY 1		DAY 2	DAY 3	
	Sunday 4 <sup>th</sup> December		Monday 5 <sup>th</sup> December	Tuesday 6 <sup>th</sup> December	
8:00am	REGISTRATION		ANZSB New Investigator Award	ISB & ANZSB Young Investigator Award	
9:00am		WORKSHOP: CLINICAL GAIT BIOMECHANICS			
10:00am					Morning Tea
10:30am	Morning Tea		Session 3 MECHANOBIOLOGY	Session 5 BIOMECHANICS: HUMAN MOVEMENT	
11:00am	REGISTRATION	WORKSHOP: CLINICAL GAIT BIOMECHANICS			
12:30pm	Lunch				Lunch ANZSB General Assembly
1:30pm	OPENING CEREMONY		Session 4 OTHER TOPICS IN BIOMECHANICS	Session 6 MEDICAL IMAGING	
2:00pm	Session 1 TISSUE ENGINEERING				
3:30pm					Afternoon Tea
4:00pm	Afternoon Tea		POSTER SESSION Including Oral Poster Presentations	Session 7 COMPUTATIONAL MODELLING	
4:30pm	Session 2 CLINICAL & SPORTS BIOMECHANICS				
6:00pm					Free Time
6:30pm	Free Time		CONFERENCE DINNER		
7:00pm	WELCOME RECEPTION & NETWORKING SESSION				
8:00pm					
10:00pm					

## PROGRAM

DAY 1		Sunday 4 <sup>th</sup> December 2016
8:00am - 12:30pm	<b>REGISTRATION at the Woodward Conference Centre</b>	
9:00am - 10:30am	<b>WORKSHOP PART 1: FROM MODELS TO DECISIONS:</b> <b>Translating biomechanics research to the clinical setting</b> <i>Organisers: Morgan Sangeux (Murdoch Childrens Research Institute), Anna Murphy (Monash Health)</i>	
9:00am	INTRODUCTION & OBJECTIVES: BIOMECHANICS DRIVEN CLINICAL DECISIONS <i>Morgan Sangeux, Murdoch Childrens Research Institute</i>	
9:20am	BIOMECHANICS ANALYSIS CAN ASSIST RETURN TO SPORT DECISIONS IN ELITE ATHLETES <i>Jodie McClelland, La Trobe University</i>	
9:32am	KINEMATICS AND KINETICS DURING STAIR ASCENT IN INDIVIDUALS WITH SYMPTOMATIC GLUTEAL TENDINOPATHY <i>Kim Allison, University of Melbourne</i>	
9:44am	CHARACTERISATION OF LOWER LEG MUSCLE MORPHOLOGY AND FUNCTION: IMPLICATIONS FOR MEDIAL TIBIAL STRESS SYNDROME - WORK IN PROGRESS <i>Josh Mattock, University of Wollongong</i>	
9:56am	DOES FRONTAL PLANE KNEE MOTION INFLUENCE OSTEOARTHRITIS TREATMENT OUTCOMES? EXPLORATORY ANALYSES FROM THE INTENSIVE DIET AND EXERCISE FOR ARTHRITIS (IDEA) TRIAL <i>Michelle Hall, University of Melbourne</i>	
10:08am	Panel discussion on biomechanics informed clinical decisions	
10:30am - 11:00am	Morning Tea	
11:00am - 12:30pm	<b>WORKSHOP PART 2: FROM MODELS TO DECISIONS:</b> <b>Translating biomechanics research to the clinical setting</b> <i>Organisers: Morgan Sangeux (Murdoch Childrens Research Institute), Anna Murphy (Monash Health)</i>	
11:00am	OBJECTIVES: DATA-INFORMED CLINICAL DECISIONS AND CLINICAL MEASUREMENTS <i>Anna Murphy, Monash Health</i>	
11:15am	DATA-DRIVEN MODEL TO IMPROVE DECISION-MAKING IN AFO PRESCRIPTION AND DESIGN FOR CHILDREN WITH CEREBRAL PALSY: A PRELIMINARY STUDY <i>Julie Choisine, Auckland University</i>	
11:27am	HOW CAN THE GAIT PATTERNS OF CHILDREN WITH CHARCOT-MARIE-TOOTH DISEASE DETERMINE THE DESIGN REQUIREMENTS OF 3D PRINTED ANKLE FOOT ORTHOSES <i>Elizabeth Wojciechowski, Sydney Children's Hospitals Network</i>	
11:39am	Panel discussion on data-driven clinical decisions	
11:51am	MEASURING PELVIC TILT IN FEMOROACETABULAR IMPINGEMENT USING AN ACCELEROMETER <i>Joe Lynch, Australian National University</i>	
12:03pm	TESTING THE TEKSCAN 9833E PRESSURE SENSOR SYSTEM FOR MEASUREMENT OF PRESSURE DISTRIBUTION DELIVERED BY LYMPHOEDEMA COMPRESSION SLEEVES <i>Daniel Hageman, University of New South Wales</i>	
12:15pm	CUSTOMISING OPENSIM MODELS USING THE MUSCULOSKELETAL ATLAS PROJECT <i>Thor Besier, University of Auckland</i>	
12:30pm - 1:30pm	Lunch	
1:30pm - 2:00pm	<b>OPENING CEREMONY at the Woodward Conference Centre</b> Moderated by Dr. Tam Nguyen, St Vincent's Hospital Hon. Frank McGuire, Parliamentary Secretary for Medical Research; A/Prof. Peter Pivonka, ABC10 Chair & Dr. Elizabeth Clarke, ANZSB President	

<b>DAY 1</b>	<b>Sunday 4<sup>th</sup> December 2016 (continued)</b>
2:00pm – 4:00pm	<b>Session 1 · TISSUE ENGINEERING</b> <i>Chairs: Peter Pivonka (University of Melbourne), Peter Lee (University of Melbourne)</i>
2:00pm KEYNOTE SPEAKER	ADVANCED LIMB RECONSTRUCTION: PIECING IT TOGETHER <i>Professor Peter Choong, University of Melbourne</i>
2:30pm INVITED SPEAKER	EXPERIMENTAL AND NUMERICAL INVESTIGATION OF STRAIN-RATE DEPENDENT MECHANICAL PROPERTIES OF SINGLE LIVING CELLS <i>YuanTong Gu, Queensland University of Technology</i>
2:45pm	OPTIMIZED SELECTION OF 3D CERAMIC SCAFFOLDS FOR LARGE SEGMENTAL BONE DEFECTS BASED ON MECHANICAL AND FLUID DYNAMICAL CHARACTERIZATION – APPLICATION TO BAGHDADITE SCAFFOLDS <i>Romane Blanchard, University of Melbourne</i>
3:00pm	MECHANICAL PROPERTIES OF LATTICE STRUCTURES FOR IMPLANT APPLICATIONS MANUFACTURED BY SELECTIVE LASER MELTING <i>Martin Leary, RMIT University</i>
3:15pm	TAILORING THE MECHANICAL PROPERTIES OF HYDROGELS FOR CARTILAGE TISSUE ENGINEERING <i>Cathal O'Connell, University of Wollongong</i>
3:30pm	DAMAGE AND FRACTURE EVALUATION OF BIOLOGICAL SOFT TISSUE BY BALL INDENTATION TECHNIQUE <i>Atsushi Sakuma, Kyoto Institute of Technology</i>
3:45pm	EXPERIMENTAL AND NUMERICAL INVESTIGATIONS OF FRACTURE BEHAVIORS OF CERAMIC TISSUE SCAFFOLDS <i>Ali Entezari, University of Sydney</i>
4:00pm – 4:30pm	Afternoon Tea
4:30pm – 6:30pm	<b>Session 2 · CLINICAL &amp; SPORTS BIOMECHANICS</b> <i>Chairs: Morgan Sangeux (Murdoch Childrens Research Institute), Adam Bryant (University of Melbourne)</i>
4:30pm KEYNOTE SPEAKER	YOUNG PEOPLE WITH OLD KNEES: BIOMECHANICS OF KNEE JOINT DEGENERATION FOLLOWING ACL RECONSTRUCTION <i>Associate Professor Adam Bryant, University of Melbourne</i>
5:00pm	VALIDITY AND RELIABILITY OF TRIAXIAL ACCELEROMETERS DURING RUNNING <i>Suzi Edwards, University of Newcastle</i>
5:15pm	VALIDATION OF IMU SPRINT DATA: REASSESSING THE ACCELERATION PHASE OVER THE FIRST 30M <i>Ethan Moore, Swinburne University / University of Adelaide</i>
5:30pm	TIME TO STABILISATION DURING SINGLE LIMB LANDING IS SHORTER IN PATIENTS WITH ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION <i>Jodie McClelland, La Trobe University</i>
5:45pm	PELVIS BIOMECHANICS ARE ALTERED DURING STEP ASCENT IN SYMPTOMATIC FEMOROACETABULAR IMPINGEMENT <i>Laura Diamond, Griffith University</i>
6:00pm	MUSCLE CONTRIBUTIONS TO KNEE JOINT MOMENTS IN CHILDREN WITH CEREBRAL PALSY: A TWIN CASE STUDY <i>Giorgio Davico, Griffith University</i>
6:15pm	SIMULATING THE EFFECT OF MUSCLE WEAKNESS AND CONTRACTURE ON NEUROMUSCULAR CONTROL OF NORMAL GAIT IN TYPICALLY DEVELOPING CHILDREN <i>Aaron Fox, University of Queensland</i>
6:30pm – 7:00pm	Free Time
7:00pm – 8:30pm	<b>WELCOME RECEPTION &amp; NETWORKING SESSION at Melbourne Town Hall</b>

DAY 2	Monday 5 <sup>th</sup> December 2016
8:00am - 10:00am	<b>ANZSB New Investigator Award</b> <i>Chairs: Romane Blanchard (University of Melbourne), Michelle Hall (University of Melbourne)</i>
8:00am	IMAGE-BASED METHOD TO ASSESS CHANGES IN LOCAL CORTICAL THICKNESS IN THE MOUSE TIBIA LOADING MODEL <i>Silvia Trichilo, University of Melbourne</i>
8:10am	ESTIMATION OF PERMEABILITY OF POROUS MATERIALS BASED ON VOLUME OF FLUID METHOD AND NUMERICAL UPSCALING - APPLICATION TO PERIODIC ARRAYS OF SPHERES AND 3D SCAFFOLDS <i>Christian Daish, RMIT University / University of Melbourne</i>
8:20am	METHODS FOR VALIDATING 3D MUSCLE ARCHITECTURE MEASUREMENTS FROM DIFFUSION TENSOR IMAGES IN HUMAN SKELETAL MUSCLE - WORK IN PROGRESS <i>Arkiev D'Souza, Neuroscience Research Australia</i>
8:30am	AGREEMENT BETWEEN MICROSOFT KINECT V2 AND VICON FOR 3D MARKER TRACKING <i>Alessandro Timmi, University of Melbourne</i>
8:40am	THE EFFECT OF FEMORAL AND TIBIAL TORSION ON MUSCLE AND JOINT FUNCTION DURING WALKING <i>Elyse Passmore, University of Melbourne</i>
8:50am	DIFFERENCES IN IA-AFFERENT EXCITABILITY AND ITS RELATIONSHIP TO ANKLE INSTABILITY: A PRELIMINARY STUDY <i>Cassandra Thompson, Western Sydney University</i>
9:00am	EFFECT OF INCREASING HEIGHT VS BODYWEIGHT ON LOWER LIMB JOINT WORK DISTRIBUTION AND MUSCLE-TENDON INTERACTION DURING JUMPING <i>Logan Wade, University of Queensland</i>
9:10am	THREE-DIMENSIONAL DEFORMATION OF THE ACHILLES TENDON DURING LOAD IN PEOPLE WITH UNILATERAL MID-PORTION ACHILLES TENDINOPATHY <i>Leila Nuri, Griffith University</i>
9:20am	KINEMATIC RISK FACTORS IN JUNIOR FAST BOWLERS AND LUMBAR SPINE INJURY <i>Andrew Schaefer, Charles Sturt University</i>
9:30am	VALIDATION OF WEARABLE TECHNOLOGIES TO MEASURE GOAL-KICKING BIOMECHANICS IN AUSTRALIAN RULES FOOTBALL <i>Stephanie Blair, Victoria University</i>
9:40am	DYNAMIC HIP COORDINATION STRATEGIES OF ELITE AND SUB-ELITE RACE WALKERS <i>Amy Waters, Australian Institute of Sport</i>
10:00am - 10:30am	Morning Tea
10:30am - 12:30pm	<b>Session 3 · MECHANOBIOLOGY</b> <i>Chairs: Peter Pivonka (University of Melbourne), Ralph Müller (ETH Zürich)</i>
10:30am KEYNOTE SPEAKER	BONE SYSTEMS MECHANOBIOLOGY USING LIVE IMAGING <i>Professor Ralph Müller, ETH Zürich</i>
11:15am INVITED SPEAKER	UNRAVELING MULTISCALE MECHANOBIOLOGY USING COUPLED IMAGING AND MODELING APPROACHES: FROM STEM CELLS TO MULTIFUNCTIONAL TISSUE ARCHITECTURES TO SMART MATERIALS <i>Melissa Knothe Tate, University of New South Wales</i>
11:30am	CORTICAL BONE'S ADAPTIVE RESPONSE TO MECHANICAL LOADING IS REGULATED LOCALLY: A COMBINED BONE IMAGING - MICRO FINITE ELEMENT ANALYSIS <i>Peter Pivonka, University of Melbourne</i>
11:45am	STRESS-DEPRIVING TENDONS IN VITRO: DISTINCT BIOMECHANICAL AND BIOCHEMICAL CHANGES SEEN IN FUNCTIONALLY DIFFERENT TENDONS <i>Rachel Choi, University of Sydney</i>
12:00pm	KNEE INJURY MECHANISMS DIFFERENTIALLY AFFECT BIOMECHANICS AND OSTEOARTHRITIS DEVELOPMENT IN MICE <i>Carina Blaker, University of Sydney</i>
12:15pm	EFFECTS OF PHYSICAL ACTIVITY ON INTERVERTEBRAL DISKS AND VERTEBRAL BODY MARROW <i>Timo Rantalainen, Deakin University</i>
12:30pm - 1:30pm	Lunch / <b>ANZSB General Assembly 2016</b>

<b>DAY 2</b>	<b>Monday 5<sup>th</sup> December 2016 (continued)</b>	
1:30pm - 3:30pm	<b>Session 4 · OTHER TOPICS IN BIOMECHANICS</b> <i>Chairs: Morgan Sangeux (Murdoch Childrens Research Institute), David Ackland (University of Melbourne)</i>	
1:30pm		SYNCHROTRON-LIGHT IMAGING OF THE HUMAN FEMUR MICROSTRUCTURE UNDER LOAD <i>Saulo Martelli, Flinders University</i>
1:45pm		EFFECT OF AGING ON BREAST SKIN THICKNESS AND ELASTICITY: IMPLICATIONS FOR BREAST SUPPORT <i>Celeste Coltman, University of Wollongong</i>
2:00pm		LOAD RESPONSE AND GAP FORMATION IN A NOVEL SINGLE-ROW CRUCIATE SUTURE ROTATOR CUFF REPAIR <i>David Ackland, University of Melbourne</i>
2:15pm		CHARACTERISATION OF COMPRESSION SLEEVE MATERIAL PROPERTIES FOR LYMPHOEDEMA TREATMENT <i>Joanna Ng, University of Wollongong</i>
2:30pm		DOES EXERCISE ALTER KNEE JOINT NEUROMUSCULAR BIOMECHANICS ASSOCIATED WITH KNEE JOINT OSTEOARTHRITIS: A SYSTEMATIC REVIEW <i>Alasdair Dempsey, Murdoch University</i>
2:45pm		CLASSIFYING GAIT PATTERNS IN ADULTS WITH HEREDITARY SPASTIC PARAPLEGIA <i>Corey Joseph, Monash Health</i>
3:00pm		RELIABILITY OF CLINICAL DIRECT KINEMATIC VERSUS INVERSE KINEMATIC MODELS IN CLINICAL GAIT ANALYSIS <i>Chris Carty, Griffith University</i>
3:30pm - 4:00pm	Afternoon Tea	
4:00pm - 6:00pm	<b>Poster Session: ORAL POSTER PRESENTATIONS</b> <b>Posters will also be displayed throughout DAYS 1-3</b> <i>Chairs: Peter Lee (University of Melbourne), Romane Blanchard (University of Melbourne)</i>	
4:00pm	1.	ASSESSING KYPHOSIS AND RANGE OF MOTION IN CYSTIC FIBROSIS USING KINECTV2 - WORK IN PROGRESS <i>Gino Coates, University of Melbourne</i>
4:04pm	2.	HOW DO OSTEOCYTES SHAPE BONE'S MECHANICAL MEMORY? <i>Chloe Lerebours, Monash University</i>
4:08pm	3.	IMPACT OF JOINT TRANSLATIONS ON JOINT POWER ANALYSIS IN RUNNING <i>Bernard Liew, Curtin University</i>
4:12pm	4.	HIGH-RESOLUTION IN VIVO MEASUREMENT OF CHANGES IN ARCHITECTURE OF THE HUMAN MEDIAL GASTROCNEMIUS MUSCLE DURING PASSIVE LENGTHENING <i>Bart Bolsterlee, Neuroscience Research Australia</i>
4:16pm	5.	MULTISCALE IMAGING OF HUMAN BONE <i>Andre Pereira, University of New South Wales</i>
4:20pm	6.	MUSCLE CONTRIBUTION TO TIBIOFEMORAL JOINT CONTACT LOADING DURING RUNNING AND SIDESTEPPING <i>Bryce A Killen, Griffith University</i>
4:24pm	7.	PICK A LEG! DOMINANCE EFFECTS DURING A REACTIVE AGILITY TASK <i>Samantha Birse, La Trobe University</i>
4:28pm	8.	THE EFFECT OF INERTIAL MEASUREMENT UNIT PLACEMENT ON ACCELERATION MEASUREMENTS ON WHEELCHAIRS <i>Amy Lewis, University of Adelaide</i>
4:32pm	9.	USE OF AN OBESE-SPECIFIC MARKER SET IN 3D GAIT ANALYSIS - WORK IN PROGRESS <i>Leanne Purcell, Paediatric Gait Analysis Service of NSW / University of Sydney</i>
4:36pm	10.	HOP-LANDING IN ACL-RECONSTRUCTED KNEES: ALTERED MUSCLE FORCES BUT NOT MUSCLE FUNCTION <i>Prasanna Sritharan, University of Melbourne</i>
4:40pm	Judging panel discussion	
6:00pm - 6:45pm	Free Time	
6:45pm - 10:00pm	<b>CONFERENCE DINNER at Showtime South Wharf</b>	

DAY 3		Tuesday 6 <sup>th</sup> December 2016
8:00am – 10:00am	<b>ISB &amp; ANZSB Young Investigator Award</b> <i>Chairs: Michelle Hall (University of Melbourne), David Cooper (University of Saskatchewan)</i>	
8:00am	MULTISCALE ASSESSMENT OF CHANGES IN BONE MINERAL DENSITY IN THE HUMAN FEMUR MIDSHAFT WITH AGE <i>Romane Blanchard, University of Melbourne</i>	
8:15am	INVESTIGATING THE EFFECTS OF SKIN ON BREAST BIOMECHANICS <i>Thiranja Babarenda Gamage, University of Auckland</i>	
8:30am	CHARACTERISATION OF A NOVEL LIGHT-ACTIVATED ADHESIVE SCAFFOLD – POTENTIAL FOR WOUND HEALING <i>Morris Ark, University of Sydney</i>	
8:45am	ANKLE MUSCLE COACTIVATION DURING TREADMILL WALKING IN PATIENTS WITH MULTIPLE SCLEROSIS <i>L. Eduardo Cofre' Lizama, University of Melbourne</i>	
9:00am INVITED SPEAKER	REAL-TIME ESTIMATION OF MUSCULOSKELETAL TISSUE LOADING USING AN EMG-INFORMED NEUROMUSCULOSKELETAL MODEL <i>Claudio Pizzolato, Griffith University</i>	
9:15am	HIP MOMENTS ACCORDING TO PAIN SEVERITY IN PEOPLE WITH HIP OSTEOARTHRITIS <i>Michelle Hall, University of Melbourne</i>	
9:30am	EFFECT OF FOOT ORTHOSES ON THE MECHANICAL FUNCTION OF THE SUBTALAR JOINT DURING WALKING <i>Jayishni Maharaj, University of Queensland</i>	
9:45am	THE REPEATED BOUT EFFECT CAN OCCUR WITHOUT A CHANGE IN MUSCLE OPTIMUM LENGTH <i>Patricio Pincheira, University of Queensland</i>	
10:00am – 10:30am	Morning Tea	
10:30am -12:30pm	<b>Session 5 · BIOMECHANICS: HUMAN MOVEMENT</b> <i>Chairs: David Ackland (University of Melbourne), Marcus Pandy (University of Melbourne)</i>	
10:30am KEYNOTE SPEAKER	MUSCLE, LIGAMENT AND JOINT FUNCTION IN HUMAN GAIT <i>Professor Marcus Pandy, University of Melbourne</i>	
11:00am	INCREASED STEP WIDTH DURING PREGNANCY IS RELATED TO INCREASED THIGH GIRTH <i>Wendy Gilleard, Southern Cross University</i>	
11:15am	THE MICROSTRUCTURAL RESPONSE OF PORCINE ANTERIOR CRUCIATE LIGAMENT TO COMPRESSIVE KNEE-JOINT LOADING WITH RESTRICTED VERSUS FREE TIBIAL ROTATION <i>Alex Zhao, University of Auckland</i>	
11:30am	HIP JOINT CONTACT LOADS DURING RECOVERY FROM FORWARD LOSS OF BALANCE IN OLDER ADULTS <i>Chris Carty, Griffith University</i>	
11:45am	JOINT LOADING AND SUBCHONDRAL BONE MICROARCHITECTURE WITH VARYING WALKING PATTERNS IN MEDIAL KNEE OSTEOARTHRITIS <i>Bryan Roberts, Flinders University</i>	
12:00pm	ACL RECONSTRUCTION DOES NOT RESTORE NORMAL CONTACT LOADING AND CARTILAGE STRUCTURE RELATIONSHIPS <i>David Saxby, Griffith University</i>	
12:30pm – 1:30pm	Lunch	

<b>DAY 3</b>	<b>Tuesday 6<sup>th</sup> December 2016 (continued)</b>
1:30pm - 3:30pm	<b>Session 6 · MEDICAL IMAGING</b> <i>Chairs: John Clement (University of Melbourne), Kathryn Stok (University of Melbourne)</i>
1:30pm KEYNOTE SPEAKER	TRACKING REMODELING IN CORTICAL BONE: DEVELOPMENT OF IN VIVO ANIMAL MODELS AT THE CANADIAN LIGHT SOURCE SYNCHROTRON <i>Associate Professor David Cooper, University of Saskatchewan</i>
2:15pm	IMAGING ARTHRITIS IN WHOLE-JOINT AND TISSUE STRUCTURES IN PRECLINICAL AND CLINICAL MODELS USING MICRO COMPUTED TOMOGRAPHY <i>Kathryn Stok, ETH Zürich / University of Melbourne</i>
2:30pm	VISCOELASTIC PROPERTIES OF HUMAN SKELETAL MUSCLE DURING DEVELOPMENT <i>Lynne Bilston, Neuroscience Research Australia</i>
2:45pm	ACCURATE INERTIA TENSOR ESTIMATION OF BIOLOGICAL SPECIMEN BY MERGING DUAL-ENERGY X-RAY ABSORPTIOMETRY AND THREE-DIMENSIONAL MESH DATA <i>Marcel Mourao Rossi, University of Western Australia</i>
3:00pm	CHANGES IN BRAIN TISSUE MECHANICAL PROPERTIES DURING HYDROCEPHALUS DEVELOPMENT IN ADULT AND YOUNG RATS ARE DIFFERENT <i>Lynne Bilston, Neuroscience Research Australia</i>
3:10pm	MEASURING LOWER LIMB TORSION IN THE CLINICAL SETTING: EVALUATION OF EOS, 3D ULTRASOUND AND PHYSICAL EXAMINATION AGAINST CT <i>Morgan Sangeux, Royal Children's Hospital Melbourne</i>
3:20pm	THE IMAGING AND MEDICAL BEAMLINE AT THE AUSTRALIAN SYNCHROTRON <i>Chris Hall, Australian Synchrotron</i>
3:30pm - 4:00pm	Afternoon Tea
4:00pm - 6:00pm	<b>Session 7 · COMPUTATIONAL MODELLING</b> <i>Chairs: Saulo Martelli (Flinders University), Qing Li (University of Sydney)</i>
4:00pm KEYNOTE SPEAKER	BIOMECHANICAL ROLES OF SOFT TISSUES IN ORTHODONTICS AND DENTOFACIAL ORTHOPAEDICS <i>Professor Qing Li, University of Sydney</i>
4:30pm	A CUSTOMISED 3D-PRINTED PROSTHETIC JOINT REPLACEMENT FOR THE TREATMENT OF TEMPOROMANDIBULAR JOINT OSTEOARTHRITIS: FROM IMPLANT DESIGN TO IMPLANTATION <i>David Ackland, University of Melbourne</i>
4:45pm	NUMERICAL STUDIES OF FLUID-PARTICLE PHASE FLOW IN THE SYSTEM OF CORONARY ARTERIES WITH STENOSIS <i>Benchawan Wiwatanapataphee, Curtin University</i>
5:00pm	VERTEBRAL STRENGTH PREDICTION FROM BI-PLANAR DUAL ENERGY X-RAY ABSORPTIOMETRY UNDER ANTERIOR COMPRESSIVE FORCE USING A FINITE ELEMENT MODEL <i>Julie Choise, Auckland Bioengineering Institute</i>
5:15pm	VALIDATION OF MRI AS AN ALTERNATIVE MODALITY TO CT IMAGING TO QUANTITATIVELY ASSESS THE POSITION OF BONE TUNNELS IN ACL RECONSTRUCTED KNEES - WORK IN PROGRESS <i>Samuel Grasso, University of Sydney</i>
5:30pm	INVESTIGATION OF RED BLOOD CELL MEMBRANE ELASTICITY USING AFM INDENTATION AND THE COARSE-GRAINED PARTICLE METHOD - WORK IN PROGRESS <i>Sarah Barns, Queensland University of Technology</i>
5:45pm	DEVELOPMENT OF SUBJECT-SPECIFIC MUSCULOSKELETAL MODELS TO IDENTIFY MAJOR RISK FACTORS FOR RECURRENT PATELLAR DISLOCATION IN CHILDREN AND ADOLESCENTS <i>Martina Barzan, Griffith University</i>
6:00pm - 6:30pm	<b>AWARDS &amp; CLOSING CEREMONY at the Woodward Conference Centre</b> Moderated by Dr. Tam Nguyen, St Vincent's Hospital Dr. Elizabeth Clarke, ANZSB President; Prof. Rob Herbert, ANZSB President-elect & A/Prof. Peter Pivonka, ABC10 Chair

## POSTERS ON DISPLAY

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| 11. | VALIDATION OF INERTIAL SENSOR USE FOR MEASUREMENT OF THORAX-PELVIS SEPARATION ANGLE IN THE DISCUS THROW - WORK IN PROGRESS<br><i>Sara Brice, James Cook University</i>                    |
| 12. | DEVELOPMENT OF A MARKERLESS OPTICAL MOTION CAPTURE SYSTEM FOR DAILY USE OF TRAINING IN SWIMMING<br><i>Ferryanto Ferryanto, Tokyo Institute of Technology / Institut Teknologi Bandung</i> |
| 13. | DEVELOPMENT OF NEW 3D PRINTED HYBRID CARBON MATERIAL FOR ORTHOPAEDIC APPLICATIONS - WORK IN PROGRESS<br><i>Aaqil Rifai, Royal Melbourne Institute of Technology RMIT University</i>       |
| 14. | SURFACE ROUGHNESS OF SELECTIVE LASER MELTING (SLM)<br><i>Avik Sarker, Royal Melbourne Institute of Technology RMIT University</i>   |
| 15. | COMPARISON OF BALL AND FOOT POSITIONING OF TENPIN BOWLERS OF VARIOUS SKILL LEVEL DURING DELIVERY<br><i>Lindsay Welch, James Cook University</i>   |
| 16. | FOOT BIOMECHANICS IN PEOPLE WITH DIABETIC NEUROPATHY<br><i>Aaron Melrose, Victoria University</i>   |
| 17. | IS ARM SWING AN EFFECTIVE FACTOR ON PLANTAR PRESSURE?<br><i>N. Ekin Akalan, Istanbul University</i>   |
| 18. | DOES KINEMATIC GAIT ASYMMETRY EXIST IN ABLE-BODIED CHILDREN OF VARYING BODY MASS?<br><i>Sarah Shultz, Massey University</i>   |
| 19. | THE EFFECT OF RE-DISTRIBUTING BODY-BORNE LOAD ON JOINT MOMENTS AND KNEE JOINT CONTACT FORCES - WORK IN PROGRESS<br><i>Gavin Lenton, Griffith University</i>                               |
| 20. | AN ONLINE REPOSITORY OF BODY SEGMENT PARAMETER MODELS<br><i>Will Robertson, University of Adelaide</i>  |
| 21. | MARKERLESS SAGITTAL SKELETAL KINEMATICS ESTIMATION FROM UNCALIBRATED IMAGES USING MIXTURE OF PARTS CLASSIFICATION<br><i>Ami Drory, Australian National University</i>                     |
| 22. | THE MEASUREMENT OF BRAIN TUMOR VISCO-ELASTICITY USING A HANDY DEVICE BY IMITATING PALPATION<br><i>Shigeto Hayashi, Kyoto Institute of Technology</i>                                      |

END OF PROGRAM