

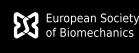
Congress Programme



**8th World Congress
of Biomechanics**
8 - 12 July 2018
Dublin, Ireland

www.wcb2018.com

In conjunction with



Hosted by



THE CONVENTION CENTRE

Floor Plan



Level 03 / 04 / 05
The Auditorium
(Plenary Session, Welcome and Closing Ceremony)

Level 02
Wicklow Halls 1 and 2

Level 01
Liffey A (Posters and Catering)
Liffey B (Plenary Session)
Liffey Halls 1 and 2
Foyer Exhibition

Ground Level Lobby
Registration

Level 02
Ecoem Room
Wicklow Meeting Rooms 1-5

Level 01
Liffey Meeting Rooms 1-5
Liffey Boardrooms 1-4

Ground Floor - The Forum
Exhibition Hall, Posters and Catering

WELCOME from The Congress Chairs

“Céad Míle Fáilte” (a hundred thousand welcomes) to the 8th World Congress of Biomechanics. We are delighted to be hosting this major international celebration of biomechanics and related topics in the historic city of Dublin. The congress takes place every four years and is the largest global forum for research on the mechanics of biological systems, from the cell & molecular level to tissues, organs and the whole body. It has been running for the past 25 years as the leading international event in this multi-disciplinary field. With over 4,000 participants from all corners of the globe, this is one of the largest scientific meetings ever held in Ireland and is indeed one of the largest biomechanics meetings ever held globally.

Ireland is a beautiful island nation located on the western edge of Europe and we encourage delegates from around the globe to enjoy its haunting beauty and pure, unspoiled landscapes. From the drama of the coastline to the urban buzz of the country’s dynamic cities mixed with the magic of thousands of years’ worth of culture and history, Ireland is a country that never fails to surprise. Dublin, Ireland’s capital, was originally founded as a Viking settlement in 988AD and has gone through continual transformation over the centuries. It is now a vibrant modern city and is one of Europe’s leading cities for innovation – building on the foundation of its rich historical past. Though a historical city, it is the youth and vibrancy of the capital which offers so much to its visiting delegates.

WCB2018 will showcase biomechanics research with applications ranging from mechanobiology, locomotion, biomaterials & regenerative medicine to the latest advances in medical devices and technologies. The latter area is a major strength of the Irish economy with the medical device sector employing almost 30,000 people – a very large number in a country with a population of only 4.75 million. As many as 18 of the world’s top 25 medical technology companies have a base in Ireland and 50% of the 450 med-tech companies based here are indigenous. Incredibly, 80% of global stent production and over 33% of the world’s contact lenses are made in Ireland*. We encourage delegates to visit our exhibitors on the ground floor and Level 1, to see the wealth of products on display from our corporate partners and engage with publishers, academic and educational groups.

Working with our Programme Co-Chairs, Prof. Damien Lacroix and Prof. David Vorp, our local organising committee, and thanks to the dedication of our track & session chairs, we have developed an outstanding scientific programme with 11 plenary lectures and 376 invited talks from world leaders in the field. 260 scientific sessions, with a total of 1496 talks and 2086 posters, will see delegates spoilt for choice in terms of the quality of scientific research they will have the opportunity to experience.

We would like to thank the many affiliated societies who have supported WCB2018 including the American Society of Mechanical Engineers - Bioengineering Division, Asian-Pacific Association for Biomechanics, Australia New Zealand Society of Biomechanics, German Society of Biomechanics, International Society of Biomechanics, Japan Society of Mechanical Engineers, Orthopaedic Research Society, Société de Biomécanique, Royal Academy of Medicine in Ireland - Bioengineering Division, Tissue Engineering and Regenerative Medicine International Society, VPH Institute and of course the World Council of Biomechanics – particularly Prof. Dominique Barthes-Biesel & the World Council Executive Committee. We would most especially like to acknowledge the support of both the European Society of Biomechanics and the Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C) who made the decision to forgo their 2018 annual meetings and instead fold them into WCB2018. Their support was critically important in ensuring that WCB2018 is a truly global meeting. Finally we acknowledge the support of all the team at Keynote PCO who have been instrumental in the organisation of the meeting.

Ireland is famous for its hospitality and we have incorporated a superb social programme so that delegates can experience the best of Irish culture and cuisine - showcased by the WCB 2018 conference party which will take place in the famous Guinness Storehouse. Take the opportunity to network alongside your colleagues and enjoy the night’s festivities by availing of the delicious Irish food on offer and raising a pint of the “Black Stuff” and saying “sláinte” in honour of this iconic venue. We would also encourage delegates to visit the many legendary pubs and restaurants that the city has to offer in their own time, feel free to ask any of our volunteers or registration desk staff for recommendations. In addition, the renowned BEDrock band, formed by as a gathering of bioengineers with Rock’n’Roll in their bones will perform their 15th anniversary celebratory concert on July 10th. Don’t miss it!

We wish you a fabulous Irish experience and a truly memorable World Congress of Biomechanics.
Slán go fóill,

* Kelly DJ, O’Brien FJ, Prendergast PJ. A Short History of Bioengineering Research in Ireland. J Biomech Eng. 2018 Feb 1;140(2). doi: 10.1115/1.4038789.

Prof. Fergal O’Brien
Royal College of Surgeons in Ireland

Prof. Danny Kelly
Trinity College Dublin

WELCOME

from the Scientific Programme Chairs

We welcome you to the 2018 World Congress of Biomechanics (WCB 2018), a veritable Olympiad of biomechanics!

Represented in the Congress programme are delegates from 5 continents, 68 different countries, and 13 different formally aligned professional societies. It was truly our pleasure to serve as Co-Programme Chairs for this meeting and thank the World Council of Biomechanics, Chaired by Dr. Dominique Barthes-Biesel, and WCB 2018 Co-Chairs Dr. Danny Kelly and Dr. Fergal O'Brien, for the honor and their trust. We often commented on how they must have known what they were doing since it seemed that when one of us was on travel, up against a major deadline, or otherwise out of commission, the other one was free enough to easily pick up the slack. As we reach the end of our duties, we wonder what we and our email in-boxes will do without the tens-of-thousands email messages related to WCB 2018!

By nearly all metrics, the 2018 congress is the largest WCB to be held outside the US, with 4529 abstracts submitted, yielding 1872 podium presentations (including 376 Keynote Speakers) and 2086 poster presentations. With the guidance of the World Council, we have carefully selected the following 11 Plenary Speakers to show the breadth, depth and diversity of biomechanics in the world today:

Toni Arndt

The Swedish School of Sport and Health Sciences, GIH, Sweden

Elazer Edelman

Harvard & MIT, USA

David Elad

Tel Aviv University, Israel

Jay Humphrey

Yale University, USA

Takuji Ishikawa

Tohoku University, Japan

Chwee Teck Lim

National University of Singapore, Singapore

Lori Setton

Washington University in St. Louis, USA

Julie Steele

University of Wollongong, Australia

Merryn Tawhai

University of Auckland, New Zealand

Xavier Trepas

IBEC Barcelona, Spain

Clemens van Blitterswijk

Maastricht University, The Netherlands

We created the WCB 2018 programme in a "two axes" format, whereby topics along a "scale" axis intersected with topics along a "systems" axis to create natural synergies at the intersection points. We selected our Track Chairs who we knew would do (and did!) a wonderful job of engaging the 149 Session Chairs and Co-Chairs and navigating the sometimes complex "two axes" programme format. We relied heavily – sometimes with short notice and with urgency – on the following Track Chairs throughout most of the process of putting this programme together:

Tajji Adachi (Molecular Biomechanics)

Kristen Billiar (Tissue Biomechanics)

Carljin Bouten (Tissue Engineering)

Tamara Reid Bush (Sport Biomechanics, Injury and Rehabilitation)

Tammy Haut Donahue (Musculoskeletal)

Ed Guo (Cell Biomechanics)

Walter Herzog (Locomotion and Human Movement)

Gerard Holzapfel (Cardiovascular)

Peter Hunter (Organ Biomechanics)

Caitriona Lally (Special Sessions)

Tim McGloughlin (Biomechanics Education)

Kristin Myers (Co-Track Chair, Emerging Areas)

Niamh Nowlan (Co-Track Chair, Emerging Areas)

David Steinman (Biofluid and Transport track)

Marie-Christine Ho Ba Tho (Imaging and Devices)

Marco Viceconti (Multiscale Biomechanics)

Michael "Flynnie" Walsh (Societies)

We truly could not have built this Congress programme if it was not for their hard work. They would tell you that they each had a number of Session Chairs/Co-Chairs that also did a lot of work and we certainly can attest to that. We are grateful, too, to Ciaran Simms and the organizers of the 6 workshops, plus those who have organised celebratory sessions, including the 70th birthday celebrations of Dr. Boris Rubinsky and Dr. John Tarbell. Finally, we owe a tremendous amount of gratitude to Dr. Leone Mitchell, Rachel O'Hare and all of the Keynote PCO team, who deftly handled the massive number of abstracts, emails and many programming issues throughout the entire process – many times on weekends and very late or very early in the day.

In closing, we hope that you participate fully in the comprehensive technical sessions, poster sessions, workshops, and other events that we have built into the WCB 2018 programme, as well as take advantage of the opportunity to interact with your colleagues from academia and industry. Please do not forget to enjoy all the great things that Dublin and Ireland in general have to offer.

Sláinte,

Dr. Damien Lacroix, University of Sheffield

Dr. David Vorp, University of Pittsburgh

WCB 2018 Co-Programme Chairs

CONTENTS

01

Welcome World Council

03

Programme at a Glance

07

Social Events and Tours

15

Plenary Speakers

32

Scientific Programme

47

Industry Sessions

51

ASME Awards
& Committee Meetings

61

Sponsors

02

Membership

05

General Information

11

Thank You to Session Chairs

17

Invited Speakers

43

Poster Listing

50

European Society of Biomechanics

59

Exhibitors

62

Exhibitors Listing



8th World Congress
of Biomechanics
8 - 12 July 2018
Dublin, Ireland

WELCOME

from the World Council of Biomechanics

The World Council for Biomechanics (WCB) was created in 1990. After over 30 years of operation as an informal Council, it was incorporated as a not-for-profit corporation registered in the Netherlands in 2015. The Council has 45 members, representing various aspects of biomechanics and coming from all continents. The primary objective of the Council is to provide permanence and stability for the meetings of the World Congress of Biomechanics. Correspondingly, WCB helps define the general scientific programme of the Congress and selects the plenary speakers.

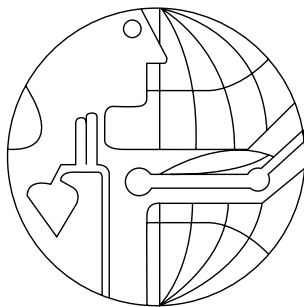
Now that the World Council for Biomechanics is incorporated and has some available funds, it has been able to actively promote the development of biomechanics worldwide. The Council has thus given travel awards to selected biomechanists who had completed their training (to PhD level or equivalent) and were practicing in world regions that traditionally have been underrepresented in biomechanics. WCB has also funded bursaries for students based in institutions within regions from where the cost of travel to Ireland was high.

The World Council for Biomechanics thanks you for joining us in Dublin and hopes that you will enjoy the great scientific and social programme offered at the Congress. It looks forward welcoming you again for the 9th World Congress of Biomechanics, Taipei, July 2022.

Dominique Barthes-Biesel

Chair of the World Council of Biomechanics

<https://wc-biomechanics.org>



MEMBERSHIP

World Council of Biomechanics

EXECUTIVE COMMITTEE (August 2014 - July 2018)

Chair

Dominique Barthes-Biesel, France

Vice-Chair

Peter Hunter, New Zealand

Secretary

Susan S. Margulies, USA

Treasurer

Keita Ito, The Netherlands

Immediate Past Chair

Geert W. Schmid-Schönbein, USA

CURRENT MEMBERS

Term ends in 2018

Dan Bader, United Kingdom
Ross Ethier, USA
Edward Guo, USA
Marie-Christine Hobatho, France
Jay Humphrey, USA
Roger Kamm, USA
Gon Khang, South Korea
Johan Van Leeuwen, Netherlands
Arthur Mak, Hong Kong China
Erich Müller, Austria
Geert W. Schmid-Schönbein, USA
Andrey Tsaturyan, Russia
Jennifer S. Wayne, USA

Term ends in 2022

Taiji Adachi, Japan
Dominique Barthes-Biesel
Lynne Bilston, Australia
Manuel Doblare, Spain
Daniel Isabey, France
Keita Ito, The Netherlands
Oliver Jensen, United Kingdom
Zong-Lai Jiang, China

Chwee Teck Lim, Singapore
Frantisek Marsik, Czech Republic
Takeo Matsumoto, Japan
Tim McGloughlin, Ireland
Nikos Stergiopoulos, Switzerland
Takashi Ushida, Japan
Marco Vaz, Brazil
Fergal O'Brien, Ireland
Daniel Kelly, Ireland

Term ends in 2026

Amit Gefen, Israel
Gerhard Holzapfel, Austria
Takuji Ishikawa, Japan
Sung Jae Lee, Korea
Susan Margulies, USA
Andrew McCulloch, USA
Marjolein van der Meulen, USA
Julie Steele, Australia
Fong-Chin Su, Taiwan
Merryn Tawhai, New Zealand
David A. Vorp, USA
Shigeo Wada, Japan
Ming Zhang, China
Peter Hunter, New Zealand

NEW MEMBERS

(Present - 2030)

Noor Azuan Abu Osman, Malaysia
Gerard Ateshian, USA
Anthony Bull, UK
Adam Engler, USA
Junghwa Hong, Korea
Daniel Hurtado, Chile
Natalya Kizilova, Ukraine/Poland
Ellen Kuhl, USA
Damien Lacroix, UK
Toshiro Ohashi, Japan
Nico Verdonschot, The Netherlands
Marco Viceconti, UK
Jaw-Lin Wang, Taiwan
Beth Winkelstein, USA
Tung-Wu Lu, Taiwan

PROGRAMME AT A GLANCE

SUNDAY 8th July 2018		MONDAY 9th July 2018		TUESDAY 10th July 2018			
		08:20 - 09:00	Opening Ceremony		08:30 - 09:15	ASME Lissner Award	ESB Perren Award
		09:00 - 09:45	Invited Plenary Lori Setton USA	Invited Plenary Takuji Ishikawa Japan	09:20 - 10:50	Scientific Sessions	
		09:55 - 11:25	Scientific Sessions			10:50 - 11:20	Refreshment Break and Poster Session GROUP 2
		11:30 - 12:00	Refreshment Break and Poster Session GROUP 1		11:20 - 12:50	Scientific Sessions	
		12:00 - 13:30	Scientific Sessions				
13:30 - 19:00	Registration Opens	13:30 - 15:00	Lunch and Poster Session GROUP 1		12:50 - 14:20	Lunch and Poster Session GROUP 2	
14:30 - 16:00	Scientific Sessions	15:00 - 16:30	Scientific Sessions		14:20 - 15:05	Invited Plenary Xavier Trepas Spain	ESB Best Thesis Award
16:00	Refreshment Break				15:10 - 16:40	Scientific Sessions	
16:30 - 18:00	Scientific Sessions	16:30 - 17:00	Refreshment Break and Poster Session GROUP 1		16:40 - 17:10	Refreshment Break and Poster Session GROUP 2	
18:00 - 18:45	Invited Plenary Jay Humphrey USA	Invited Plenary Toni Arndt Sweden	17:00 - 18:30	Scientific Sessions	17:10 - 18:40	Scientific Sessions	
		18:30 - 20:00	Welcome Reception The CCD		19:00 - 22:30	BEDRock Concert The Academy	

PROGRAMME AT A GLANCE

WEDNESDAY 11th July 2018			THURSDAY 12th July 2018		
08:30 - 09:15	Invited Plenary Chwee Teck Lim Singapore	Invited Plenary Merryn Tawhai New Zealand			
09:20 - 10:50	Scientific Sessions		08:30 - 10:00	Scientific Sessions	
10:50 - 11:20	Refreshment Break and Poster Session GROUP 3		10:00 - 10:30	Refreshment Break and Poster Session GROUP 4	
11:20 - 12:50	Scientific Sessions and Industry Sessions		10:30 - 12:00	Scientific Sessions and Industry Sessions	
12:50 - 14:20	Lunch and Poster Session GROUP 3		12:00 - 13:30	Lunch and Poster Session GROUP 4	
			13:30 - 14:15	Invited Plenary Julie Steele Australia	Invited Plenary David Elad Israel
14:20 - 15:05	Invited Plenary Elazer Edelman USA	Invited Plenary Clemens van Blitterswijk The Netherlands	14:20 - 15:50	Scientific Sessions	
15:10 - 16:40	Scientific Sessions and Industry Sessions		15:50 - 16:20	Refreshment Break and Poster Session GROUP 4	
16:40 - 17:10	Refreshment Break and Poster Session GROUP 3		16:20 - 17:50	Scientific Sessions	
17:10 - 18:40	Scientific Sessions and Industry Sessions		18:00 - 18:30	Closing Ceremony	
20:00 - Late	Congress Party The Guinness Storehouse				



GENERAL INFORMATION

REGISTRATION DESK HOURS

The registration desk will be located in the ground floor lobby for the duration of the congress. Below are the following opening times.

Sunday, 8th July	13:30 – 19:00
Monday, 9th July	07:30 – 18:30
Tuesday, 10th July	08:00 – 18:30
Wednesday, 11th July	08:00 – 18:30
Thursday, 12th July	08:00 – 17:00

SPEAKER PRESENTATIONS

All presentations must be dropped to the speaker ready room, Liffey Meeting Room 5 on Level 1. Presentations should be supplied to the AV technician in the room as soon as possible but a minimum of 24 hours before your presentation time apart from speakers on Sunday and Monday morning who should adhere to the timetable below. We request that speakers presenting later in the week do not upload their presentations on Sunday afternoon to allow Sunday/Monday morning presenters access to the Speaker Ready room.

For speakers presenting on Sunday, 8th July at 14:30 – please drop your presentations to the Speaker Ready room between 12:30 – 14:00.

For speakers presenting on Sunday, 8th July at 16:30 – please drop your presentations to the Speaker Ready room between 14:30 – 16:00.

For speakers presenting on Monday, 9th July at 09:55 – please drop your presentations to the Speaker Ready room on Sunday between 16:30 – 18:30.

Please note, it is not possible to load the presentations in the meeting rooms, they must be brought to the speaker ready room to be loaded centrally.

SPEAKER READY ROOM OPENING HOURS

The speaker ready room will be open for the following hours:

Sunday, 8th July	12:30 – 19:00
Monday, 9th July	07:00 – 18:30
Tuesday, 10th July	07:30 – 18:30
Wednesday, 11th July	07:30 – 18:30
Thursday, 12th July	07:30 – 16:30

EXHIBITION OPEN HOURS - GROUND FLOOR

The exhibition will be open for the following hours:

Monday, 9th July	10:00 – 20:00
Tuesday, 10th July	08:00 – 19:00
Wednesday, 11th July	08:00 – 19:00
Thursday, 12th July	08:00 – 16:20

WCB2018 APP AND DETAILED PROGRAMME

To view the detailed Congress programme and access abstracts, please download the Congress App or view the online programme at www.wcb2018.com. To download the app, please search WCB2018 with your app provider.

CATERING

Please note that all meat in the Convention Centre Dublin is Halal.

CLOAKROOM

A cloakroom is available on the ground floor of the CCD.

Sunday, 8th July	13:30 – 19:00
Monday, 9th July	08:00 – 20:00
Tuesday, 10th July	08:00 – 19:00
Wednesday, 11th July	08:00 – 19:00
Thursday, 12th July	08:00 – 18:30

INTERNET ACCESS

WI-FI access is available throughout the Convention Centre Dublin.

Delegates should select the CCDGuest option, open their browser and hit "Connect". You may be disconnected after 1-2 hours, to keep the signal available for those using it currently. If disconnected, you may use the same instructions to reconnect.

PLENARY PRESENTATIONS

Please note that the plenary sessions will also be relayed into the following rooms should overflow space be required: Auditorium will be relayed into Liffey Hall 1 (Level 1)

Liffey B will be relayed into Liffey Hall 2 (Level 1)

POSTER PRESENTATIONS

Posters will be on display each day, and rotated daily, from Monday – Thursday in The Forum, Ground Floor and Liffey Hall A on Level 1. You can find a list of posters in this book from page 43. Complete poster abstracts are available on the congress website and App.

GENERAL INFORMATION

Other details

BANKING

Bank opening hours are generally from 10:00 – 16:00. There are numerous ATMs located within walking distance of the CCD. The closest ATM is located on Mayor Street, in both MACE and Spar retail outlets, and both stores are open between 07:00 and 22:00 daily. Visa and MasterCard are accepted in almost all restaurants, bars, cafes and shops.

CURRENCY

The currency in Ireland is Euro (€). Most Banks offer a foreign exchange facility and generally offer the best exchange rates. It is important to remember that traveller's cheques are not generally accepted for everyday transactions so we recommend cashing them at the beginning of your trip.

ELECTRICITY SUPPLY

Throughout Ireland 220V is the standard supply. Flat three-pin plugs are used.

EMERGENCY CONTACT DETAILS

During the conference, in case of an emergency of any kind, please contact the registration desk located on the ground floor foyer near the Exhibition Hall. If you require medical services while residing in your hotel/accommodation, please contact your hotel/accommodation front desk who will be able to arrange a doctor on call. Please ensure to pay attention to any hotel alarms and announcements.

Fire/Ambulance and Emergency Number in Ireland is 999

FACILITIES

The venue is fully accessible for delegates - If you have any particular requirements, please advise any of the staff who will be able to make appropriate arrangements. There is a Nursing room for mothers & babies and also a prayer room available for delegates. Should you require access to these private spaces, please come to the onsite registration desk where a member of staff will assist you.

LOST AND FOUND

During the congress any lost property should be turned in to the registration desk. All unclaimed items at the end of the week will be turned over to CCD Security.

PARKING

There are 321 low-ceiling underground public car parking spaces on The CCD site. Spaces can be reserved directly with the operators Park Rite by telephone on **+353 (0) 1 542 5600**. If the public car park below the CCD is full, the nearest car park is located at the National College of Ireland, approximately a two-minute drive away and the Irish Financial Services Centre (IFSC) is about a five-minute drive away.

Access: On Guild Street (coming from Samuel Becket Bridge) take the first right turn and then right turn down the ramp to the car park under the Convention Centre building. Along North Wall Quay past the front of the Convention Centre and take the next left turn, take the next left and then left turn down the ramp to the car park.

PHOTOGRAPHY AND RECORDING

No photography, videotaping or recording is allowed in oral sessions or in the poster-exhibition hall except by the official society photographer or society approved audio visual vendor. This includes cameras, cell phones and all other devices. All congress attendees acknowledge and consent that pictures will be taken by the official society photographer and may be used for society purposes such as marketing.

SMOKING POLICY

Smoking is not permitted in Ireland in any building and there is no smoking allowed in any of the meeting rooms or public spaces. There are designated smoking areas outside buildings and delegates are requested not to litter in these areas. The smoking ban applies to all restaurants, bars, cafes and all public venues in Ireland.

SHOPPING

Shops in Ireland are generally open from 09:00 - 18:00 on Monday-Saturdays with later hours on Thursday evenings. Most major stores/shops open on Sunday – some with reduced opening times from 12:00 – 18:00.

TIPPING

It is generally customary to leave a small gratuity for services in restaurants if good service is provided. Tips for taxis and any porter service are at your discretion.



SOCIAL EVENTS AND TOURS



WELCOME RECEPTION

The Convention Centre Dublin
Monday 9th July 2018
18:30 – 20:00
Smart /Casual

The welcome reception will take place in The Convention Centre Dublin. Delegates will enjoy refreshments while networking with their new colleagues. Ticket price is included in the registration fee.



BEDrock CONCERT

The Academy,
57 Middle Abbey Street, Dublin 1
Tuesday 10th July 2018
19:00 – 23:00
Casual

BEDrock formed in 2003 as a gathering of bioengineers with rock'n'roll in their blood and bones. They have provided rousing entertainment for their colleagues at various bioengineering conferences, including a memorable show at the House of Blues during the World Congress of 2014 in Boston. Bring your dancing shoes for this 15th anniversary celebration! Tickets must have been booked at the time of registration and are packed into the delegate badge holder. Please note that space is limited in the main concert hall so delegates are advised to arrive early but there is an overflow bar available for delegates who wish to mingle with colleagues and enjoy the atmosphere.

If you no longer wish to attend this event, please return your ticket to the registration desk as there is a wait list in operation.

***Strictly Over 18s Only**

****Tickets are sold out and entry will be to ticket holders only.**

BEDrock T-SHIRTS

Official BEDrock T-Shirts are available to purchase from the onsite registration desk from Monday, 9th July from 16:30 and throughout the Congress. (subject to availability). T-Shirts are priced at €20.

SOCIAL EVENTS AND TOURS



CONGRESS PARTY

The Guinness Storehouse
St. James's Gate, Dublin 8
Wednesday 11th July 2018
20:00 – 00:00
€95 inclusive of VAT

19:30 Bus Transfer from the CCD and official Congress Hotels: please see the departure schedule on the notice board in the Ground Floor Lobby.

00:00 Return from Guinness Storehouse to City Centre and official congress hotels

The WCB 2018 conference party will take place in the famous Guinness Storehouse. The Guinness Storehouse sits in the middle of Dublin City in the legendary St. James Gate Brewery, home of Guinness since 1759. In days gone by it was a fermentation plant but today it has been transformed into Ireland's number one international tourist attraction and a world class prestigious event destination.

With seven stories intertwining up through the centre of the building, you will be greeted with a sense of the past, present and future of the Guinness Industry. Take the opportunity to network alongside your colleagues and enjoy the nights festivities by eating the delicious food on offer and raising a pint of the "Black Stuff" in honour of this iconic venue.

*** Strictly Over 18s Only**

****A limited number of tickets are still available from the congress registration desk (Finance Desk)**



SOCIAL EVENTS AND TOURS



HOP ON/HOP OFF BUS

€23 student ticket

€25 adult ticket (includes two child passes)

Explore Dublin City with the iconic red buses. Enjoy the open top "Hop On / Hop Off" bus tour of Dublin and stop at all of Dublin city's great attractions, plus get great discounts at some of Dublin's most loved sights, shops, pubs and cafés

DUBLIN WALKING TOUR



Monday 9th July 2018

€30 per person

09:30 - 12:30

Get to know Dublin city on foot! Your guide will walk you through Dublin, showing you the key sights and imparting their knowledge on the history of Ireland. The group will be met and brought into the city where they will discover the best of Dublin, enjoy intriguing history, architecture, events and stories right back to its Viking & medieval origins.

Dublin has so many great places to see, all with their own fascinating stories and history. Please note this tour is a walking tour so please wear appropriate footwear and ensure to have a rain mac or umbrella!

**This is a half day tour



NEWGRANGE AND HILL OF TARA

Tuesday 10th July 2018

€45 per person, includes, coach, entry into locations with guided tour.

09:30- 17:00

Approximately 5000 years old, Newgrange, located in the Boyne Valley is one of an exclusive group of monuments known and recognised worldwide. A UNESCO World Heritage listed site, Newgrange is a Neolithic Ritual Centre and Passage Tomb, home to some of the greatest pieces of art of the European Neolithic, Ireland's most significant prehistoric monument and among the world's earliest great pieces of architecture. Lunch is at the delegates own expense.

SOCIAL EVENTS AND TOURS



GLENDALOUGH & POWERSCOURT HOUSE & GARDENS

Wednesday 11th July 2017

€50 per person, Includes, coach, entry into Glendalough and Powerscourt House & Gardens with guided tours.

08:30 - 17:30

Guests on this tour will enjoy stunning scenery and a glimpse of Ireland's monastic past at Glendalough in Co. Wicklow, one of Ireland's most popular tourist attractions. Founded in the 6th century by St Kevin, Glendalough (meaning glen of two lakes) is a former glacial valley renowned for its early medieval monastic settlement. For thousands of years people have been drawn to Glendalough for its spectacular scenery, rich history, archaeology and abundant wildlife.

The Glendalough Valley is located in the Wicklow Mountains National Park and has many attractions to entice, entertain and enthral visitors, from its world famous Monastic Site with Round Tower to its scenic lakes and valleys. From the gentle wilds of Glendalough, guests are then taken to the beautiful grounds of Powerscourt House & Gardens. Powerscourt House and Gardens is one of Europe's great treasures and Ireland's most famous estate. Gracing the foothills of the Wicklow mountains, the 18th century mansion was partially destroyed by fire in 1974. A long restoration project ensued and an exhibition now brings its rich history to life. Also onsite is Ireland's premier shopping emporium, Avoca Handweavers. Lunch is at the delegates own expense.

MALAHIDE CASTLE AND COSTAL TOUR

Thursday 12th July 2018

€40 per person includes: Coach, entry into locations with guided tour.

09:00- 14:00

Participants will be collected and brought along the north shore of Dublin, where a view of Howth Head, Bull Island Bird Sanctuary and other sights can be seen. Guests will have time to explore the beautiful gardens surrounding the castle and AVOCA, one of Ireland's most exciting retail and food stores, before they visit Malahide Castle. Malahide Castle is one of the oldest castles in Ireland, set on 260 acres, this magnificent & historic 12th century castle has been home to the Talbot family for over 800 years (1185 to 1975).

Highlights of the tour are the beautiful reception rooms, The Oak Room, The Small & Large Drawing Rooms and the Great Hall, home to the original Battle of the Boyne painting – (currently on loan to the National Gallery of Ireland.) The Castle is adorned with beautiful period furniture and an extensive collection of paintings from the National Gallery of Ireland.

**This is a half day tour

EPIC – THE IRISH EMIGRATION MUSEUM

EPIC The Irish Emigration Museum is an interactive experience located in the Chq Building, a short walk from the CCD, along the River Liffey. The museum will guide you to uncover the dramatic and inspiring stories of the Irish who travelled the world, from early times to the modern day. The world's only fully digital museum features 1500 years of Irish history and relives some of the greatest achievements in music, literature, sport, politics, fashion and science.

EPIC is 2nd on TripAdvisor's Top 10 Museums in Ireland, and was recently described by National Geographic Travel as "A high-tech treasure...simply too good of a story to miss".

If you have Irish ancestry and are interested in exploring your Irish roots, spend some time in the Irish Family History Centre at the end of your tour, and delve into your family tree. EPIC are offering a discount on Adult Tickets to any WCB 2018 delegates who book tickets online using this code in the checkout: WCB2018.

GENERAL TOURIST INFORMATION

For more information on visiting Ireland please visit www.discoverireland.ie.



THANK YOU

to our Session Chairs

Abdominal aortic aneurysms 1 & 2

Elena DiMartino, Thomas Christian Gasser

Advanced bioimaging 1

Ralph Mueller, Xiaowei Sherry Liu

Advanced bioimaging 2

Françoise Peyrin, Steven Boyd

Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance

Frans Steenbrink, Adam Booth

Airway flows and lung transport 1 & 2

Cahit Evrensel, Mihai Mihaescu

Amputee biomechanics 1 & 2

Anthony Bull, Hannah Jarvis, Anne Silverman

Analytical tools for nanoscale force transduction

Deborah Leckband, Jie Han, Sanjeevi Sivasankar, Hu Chen

Arterial pulse wave mechanics and ventriculo-arterial interaction

Patrick Segers, Jonathan Mynard

Arterial stiffness and disease

Steven Greenwald, Lucas H. Timmins

Asian-Pacific Association for Biomechanics: The Yamaguchi Medal for Young Investigators

Takeo Matsumoto, Kyeihan Rhee

ASME: Biomechanics at the Cell, Tissue and Multiscale Level

Alisa Morse Clyne, Kristin Miller

ASME: Biotransport, Cryopreservation and Cardiovascular Modelling

Choon Hwai Yap, Anita Penkora

ASME: Cardiovascular Imaging and Modelling

Elaheh Rahbar, Christof Karmonik

ASME: Cardiovascular Mechanics and Cell Biomechanics

Chiara Bellini, Ali Akyildiz

ASME: Musculoskeletal Mechanics

Brendon Baker, Mariana Kersh

ASME: Sports Biomechanics

Carrie Peterson, Ken Monson

Atherosclerotic plaque: Mechanism and modelling

Jacques Ohayon, Myriam Cilla Hernandez

Automotive safety biomechanics 1 & 2

Francisco Valdez, Philippe Vezin, Jason Kerrigan

Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics

Frans van de Vosse, Irene Vignon Clementel

Biofabrication and bioreactors for functional tissue systems 1 & 2

Monica Soncini, Sharan Ramaswamy

Biofabrication for musculoskeletal tissue engineering

Jason Malda, Vivian Mouser

Biocomotion and flows

Josue Sznitman, Megan Leftwich

Biomechanical microengineering of tissue mimics for human disease modelling

Ruogang Zhao, Yanan Du

Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact

Luca Cristofolini, Michele Marino

Biomechanics in nature I: a tribute to Professor R. McNeill Alexander

Johan van Leeuwen, Thomas Daniel

Biomechanics in nature II: a tribute to Professor R. McNeill Alexander

Graham Askew, Johan van Leeuwen

Biomechanics of cardiovascular tissues 1, 2 & 3

Jay Humphrey, Jacopo Ferruzzi

Biomechanics of heart valve tissue engineering

Carlijn Bouten, Claire Brougham

Biomechanics of muscle, tendon and ligament tissue engineering

James Goh, Zong Ming Li

Biomechanics of musculoskeletal development

Niamh Nowlan, Joel Boerckel

Biomechanics of ocular pathologies 1

Andrew Feola, Jonathan Vande Geest

Biomechanics of ocular pathologies 2

Andrew Feola, Rouzbeh Amini

Biomechanics of pelvic floor / bladder engineering

Theo Smit, Katrina Knight

Biomechanics of soft tissue by Elastography (MRI, US)

Sabine Bensamoun, Jean-Marc Constans

Biomechanics of sports: surfing to soccer

Kim Bigelow, Max Paquette

Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)

Keefe Manning, Ajit Yoganathan

Biomechanics of the Central Nervous System

Knight Martin, Vartan Kurtcuogly

Biomechanics of vascular tissue engineering

Anne Robertson, Joshua Hutcheson

Biomedical engineering education 1

Tim McGloughlin, James Goh

Biomedical engineering education 2

William H. Guilford, Michelle Grimm

Biomedical engineering research and education in Africa

Thomas Franz, Mazin Sirry

Biomimetic implants for articular cartilage repair / regeneration

Clark Hung, Rhima Coleman

Biotransport diagnostics and therapeutics

Rupak Banerjee, Liang Zhu

Bone fracture mechanics (in vitro and in vivo) 1 & 2

David Mitton, Sebastien Laporte

Bone fracture mechanics (in vitro and in vivo) 3

David Mitton, Emile de Broesses

Bone fracture mechanics (in vitro and in vivo) 4

Sebastien Laporte, Hélène Follet

Bone marrow properties and mechanobiology

Glen Niebur, Maureen Lynch

Bone-cartilage cross-talk

Oran Kennedy, Mitch Schaffler

Brain biotransport

Zhepneng Qin, Ailing Zhang

Brain injury mechanics 1 & 2

Songbai Ji, Steven Rowson

Breast health biomechanics

Julie Steele, Prasad Gamage

Cancer microenvironments and tumour transport

Nichole Rylander, Joanna Dahl

Cardiac growth and remodelling mechanics

Theo Arts, Vicky Wang

Cardiac mechanics and heart modelling 1 & 2

Daniel Hurtado Sepulveda, Serdar Goktepe, Manuel Rausch

THANK YOU

to our Session Chairs

Cardiac regeneration and healing

Glenn Gaudette, Kareen L. K. Coulombe

Cardiovascular cell mechanics and its role in human disease

Roger Kamm, Beth Pruitt

Cardiovascular cell mechanics, adhesion and mechanotransduction

Roland Kaunas, Brent Hoffman

Cardiovascular development

Patrick Alford, Victor Varner

Cardiovascular imaging 1 & 2

Elisa E. Konofagou, Spyretta Golemati

Cardiovascular mechanobiology and molecular mechanisms

W. David Merryman, Heather Hayenga

Cartilage tribology

Markus Wimmer, Sophie Williams

Cell biomechanics and oncology 1 & 2

Claudia Fischbach, Ovijit Chaudhuri

Cell deformation and cell signalling

X. Edward Guo, Hui Ye

Cell interaction with microenvironment 1 & 2

Fan Yuan, Lance Munn

Cerebral aneurysms 1 & 2

M. L. Suresh Raghavan, Kristian Valen-Sendstad

Challenges of thrombosis modelling

Danny Bluestein, Alberto Redaelli

Challenges of working across scales in patient- and animal-specific cardiovascular modelling

C. Alberto Figueroa, Patrick Segers

Computational challenges in multiscale modelling in biomechanics

Alfons Hoekstra, Andrew Svitenkov

Computational joint mechanics 1, 2 & 3

Jennifer Wayne, Joseph Iaquinio

Computational methods in cell mechanics 1 & 2

Hans Van Oosterwyck, Bart Smeets

Computer models of growth and remodelling 1 & 2

C.C. Donkelaar, Petri Tanska

Congenital heart defects and paediatric cardiology applications 1 & 2

Keefe Manning, David Frakes

Connecting molecular interactions and mechanosensing to cell behaviours

Taeyoon Kim, Zhangli Peng

Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)

Charles Lee Rafael Davalos

Deformable (statistical and analytical) shape and appearance models in biomechanics 1 & 2

Valerie Burdin, Thor Besier

Digital volume correlation strain measurements in biological tissues and biomaterials

Stephane Avril, Gianluca Tozzi

Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries

Thomas Buckley, Cailbhe Doherty, Fionn Cleirigh-Buttner

Dynamic medical imaging techniques for biomechanics systems 1 & 2

Kevin Mattheus Moerman, Niccolo Fiorentino

ESB Clinical Biomechanics award finalists

Hanna Isakkson, Luca Cristofolini

ESB Student Award finalists

Hanna Isakkson, Jérôme Noailly

ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients

Peter Augat, Caitlyn Collins

Falls - prediction and prevention 1 & 2

Kenton Kaufman, Jeremy Crenshaw

Flow-mediated cellular biomechanics 1 & 2

Cecile Perrault, Abdul Barakat

Fluid-structure interactions in cardiovascular mechanics 1 & 2

Francesco Migliavacca, Pant Sanjay

From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1 & 2

Julie Choisine, Elyse Passmore

From physiology to clinics: Clinical applications of multiscale modelling of the heart

Natalia Trayanova, Joost Lumens

From the microcirculation to large artery flows: Challenges for clinical applications

Anne-Virginie Salsac, Takjui Ishikawa

Functional bone and cranio-facial tissue engineering

Laoise McNamara, Joel Boerckel

Functional tissue engineering of articular cartilage and fibrocartilage

Kathryn Stok, Matthew Fisher

Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1 & 2

Kaat Desloovere, Marjolein Vander Krogt

General musculoskeletal biomechanics

Deepak Vashishth & Blaine Christiansen

General tissue engineering

Sandra Hofmann

German Society of Biomechanics session: Experimental Biomechanics

Markus Heller, Christof Hurschler

Hand and wrist biomechanics 1 & 2

Ken Fischer, Angela Kedgley, Trey Crisco and Ukadike Chris Ugbole.

Head impact biomechanics and head protection 1 & 2

Michael Gilchrist, Aisling Ní Annaidh

High rate injury biomechanics 1, 2 & 3

Duane Cronin, Spyros Masourous

Human locomotion in diseased/injured populations - osteoarthritis

Kenton Kaufman, Eng Kuan Moo

Human locomotion in diseased/injured populations - post-stroke

Lanie Gutierrez Farewik, Heiko Wagner, Robert Rieger

Human spine, characterization and modelling 1

Hans-Joachim Wilke, Fabio Galbusera

Human spine, characterization and modelling 3

Hans-Joachim Wilke, Stephen Ferguson

Human spine, characterization and modelling 2

Fabio Galbusera, Wafa Skalli

Hyperthermia and heat-mediated transport

Chris Rylander, Lyle Hood

Image-based multiscale modelling of fibrous tissues - tools and theories

Daniela Valdez-Jasso Georges Limbert

Imaging and device biomechanics: Modelling, diagnosis, rehabilitation

TBC

In vivo bone remodelling mechanics

Karen Troy, Brent Edwards

Incorporating in vivo load variability in modelling

Markus Heller, Friedl DeGroot

Injuries and tissue mechanics in the lower abdomen

Sara Roccabianca, Alejandro Roldan-Alzate



THANK YOU

to our Session Chairs

Integrated approaches for reproductive biomechanics

Raffaella DeVita, Steven Abramowitch

Intercellular and subcellular force transmission

Shigenobu Yonemura, Koichiro Maki

ISB Session 1: Computer simulation of human movement

Dario Cazzola, Michael Anderson

ISB Session 2: Footwear biomechanics

Mark Lake, Karen Mickle

IVD degeneration / regeneration / repair mechanobiology 1 & 2

Keita Ito, Grace O'Connell

Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 1, 2 & 3

Thor Besier, Fulvia Taddei

JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME

Marie Oshima, Ken-ichi Tsubota

Locomotion and falling in the elderly 1

Mark Grabiner, Claudine Lamoth

Locomotion and falling in the elderly 2

Hanna Isaksson, Paul DeVita

Locomotion and human movement energetics in sports 1

Brian Umberger, Kirsty McDonald, Allison Gruber

Locomotion and human movement energetics in sports 2

Brian Umberger, Kirsty McDonald, Jessica Selinger

Lung biomechanics

Merryn Tawhai, Hari Arora

Mechanical circulatory support

Amy Throckmorton, Katharine Fraser

Mechanical issues in interfacial tissue engineering

Matthew Kipper, Simin Li

Mechanical regulation of stem cells

Gwendolen Reilly, Stephen Thorpe

Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke

Matt Gounis, Maeve Holian

Mechanics of cell motility 1 & 2

Sean Sun, Charles Wolgemuth

Mechanics of musculoskeletal growth and adaptation 1 & 2

Matthew Fisher, Megan Killian

Mechanics of passive muscle and connective tissue 1 & 2

Ciaran Simms, Markus Boel

Mechanobiology and embryogenesis 1 & 2

Jianping Fu, Karen Kasza

Mechanobiology and tissue engineering of skin

Fergal O'Brien, Alexandra Marques

Mechanobiology and tissue engineering of the respiratory tract

Samir Ghadiali, Rebecca Heise

Mechanobiology of cellular actomyosin systems

Shinji Deguchi, Taeyoon Kim

Mechanobiology of engineered soft tissue growth and remodelling

Rudolph Gleason, Sandra Loerakker

Mechanobiology of heart valves

Jonathan Butcher, Balachandran Kartik

Mechanobiology of tissue development on a chip

Kit Parker, Brangwynne Cliff

Mechanogenetics for cell therapy

Yingxiao Wang, Jie Sun

Mechanosensing in injury and pain

Beth Ann Winkelstein, Devina Purmessur

Mechanotransduction in engineered tissue

Roland Kaunas, Chelsey Simmons

Medical device - soft tissue interaction

Jérôme Molimard, Bou-Said Benyebka

Meniscal mechanics

Tammy Donahue, Lin Han

Microbial biomechanics

Christopher Hernandez, Jens Moller

Microfluidics

Shannon Stott, Reategui Eduardo

Micromechanics of cardiovascular tissues

Kewei Li, Estefania Pena

Mobile monitoring of biomechanical phenomena 1 & 2

Claudia Mazzà, Silvia Del Din

Modelling of biofluid transport 1 & 2

Malisa Sarntinoranont, Lynne Bilston

Modelling uncertainty and propagation of data for biomechanics systems

Tien-Tuan Dao, Miguel Angel Gonzalez Ballester

Molecular dynamics simulation

Mohammad R. K. Mofrad, Wonmuk Hwang

Molecular force transduction

Pere Roca-Cusachs, Ada Cavalcanti-Adam

Motor control 1

Walter Herzog, Paola Contessa

Motor control 2

Jim Richards, Robert Gregg

Motor control 3

Ton van den Bogert, Walter Herzog

Motor control 4

Paola Contessa, Jim Richards

Multiscale biomechanics and modeling of engineered tissues

Victor Barocas, Edward Sander

Multiscale biomechanics of age-related bone fractures

Tony Keaveny, Eve Donnelly

Multiscale biomechanics of articular degenerative diseases

Yasin Dhaher, Rami Korhonen

Multiscale biomechanics of paediatric musculoskeletal diseases

Anthony Bull, Xinshan Li

Multiscale biomechanics of scaffolds 1 & 2

Nicholas Dunne, Tanya Levingstone

Multiscale biomechanics of sport and sport injuries

Dario Cazzola, Mark Robison

Multiscale cancer mechanobiology and biomechanics

Philippe Buchler, Daniel Ablter

Multiscale mechanics of cardiovascular materials and structures

Victor Barocas, Shayn Peirce-Cottler

Multiscale mechanobiology of vascularisation and atherosclerosis

Kim Van Der Heiden, Frank Gijzen

Multiscale modeling of vascular and neurovascular diseases

Yiannis Ventikos, Nenad Filipovic, Malebogo Ngoepe, Antonis Sakellarios

Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention

Katherine Yanhang Zhang, Daniela Valdez-Jasso

Multiscale models of the cardiopulmonary system

Lik Chuan, Martin Genet

Musculoskeletal biomechanics across the scales

Bart Bolsterlee and Elizabeth Clarke

THANK YOU

to our Session Chairs

Musculoskeletal interfaces

Brendan Harley, Julianne Holloway

Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems 1 & 2

Karim El Kirat, Philipp J. Thurner

Nanotherapeutics and nanoparticle transport

Xiaoming He, Netanel Korin

National Science Foundation / The Summer Biomechanics, Bioengineering & Biotransport Conference (SB3C) Undergraduate Design Competition

TBC

Next generation tissue mechanic approaches: In situ and in patients to self-assembling materials

Lynne Bilston, Curtis Johnson

Non-equilibrium biomechanics - from molecules to cells

Daisuke Mizuno, Etienne Fodor

Ocular biomechanics of aging and disease

Matthew Reilly, Jonathan Vande Geest

Ocular trauma

Vicky Nguyen, Amit Gefen

Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention

Oran Kennedy, Farshid Guilak

Paediatric injury

Michele Grimm, Anita Singh

Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues

Rosaire Mongrain, Eoghan Cunnane

Physical regulators and transport cues in tissue engineering

Alicia El Haj, Yvonne Reinwald

Population based approaches to computational musculoskeletal modelling

Justin Fernandez, Alex Dickinson

Predictive human movement simulation 1 & 2

Matthew Millard, Scott Delp

Prenatal cardiovascular fluid mechanics and flow mechanobiology

Kerem Pekkan, Choon Hwai Yap

Prosthetic heart valves

Lakshmi Prasad Dasi, Chung Lee

Public engagement with biomechanics

Sarah Shultz, Laura-Anne Furlong

Quantitative outcome assessment in orthopaedic trials

Boyko Gueorguiev, Benedikt Braun

Rehabilitation methods, tools, and devices for ankle/foot 1 & 2

Elizabeth Hsiao-Weckslar, Karl Zelik

Rehabilitation methods, tools, and devices for hand/wrist

Rita Patterson, Sam Leikam

Rehabilitation methods, tools, and devices for shoulder

Wendy Murray, Carrie Peterson

Running Injuries 1 & 2

Joe Hamill, Steffen Willwacher

Sensorimotor function and neuromechanics of joints

Trent Guess, Prakash Jayabalan

Shoulder biomechanics 1 & 2

Philippe Favre, Andreas Kontaxis

Skeletal muscle properties and function during human movement (in vivo muscle properties)

Vasilios Baltzopoulos, Heiliane de Brito Fontana

Société de Biomécanique session: Christian Oddou Award lecture and Young Investigator Awards

Jacques Ohayon, Laurence Chêze

Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities.

Dan Bader, Cees Oomens

Stenting within the cardiovascular system 1 & 2

Abdul Barakat, Sean McGinty

Synergy of image-based modelling and model-based imaging for probing biological systems

Corey Neu, David Pierce

Technologies for validation in space and time of multiscale models of tissue engineering

Liesbet Geris, Yann Guyot

Technology innovation in medical devices 1

Suresh Ragavhan, Christopher Rylander

Technology innovation in medical devices 2

Ethan Kung, Rouzbeh Amini

Technology innovation in medical devices 3

Martin Tanaka, Alan Eberhardt

Technology innovation in medical devices 4

Ted Conway, Joseph Iaquinto

Tendon, ligament and enthesis biomechanics 1 & 2

Steve Thomopoulos, Spencer Lake

TERMIS session: Biomaterials and biomechanics 1

Rui Reis, Markus Buehler

TERMIS session: Biomaterials and biomechanics 2

Anthony Weiss, Nasim Anabi

The biomechanics of pregnancy and parturition

Kristin Miller, Edoardo Mazza

The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programmes

Ilse Yonkers, Giordano Valente

Thoracic aortic aneurysms and aortic dissection 1 & 2

Richard L. Leask, Chiara Bellini

Total joint replacements

Claire Brockett and Elise Pegg

Traumatic loading of the spine and/or spinal cord injury

Christian Puttlitz, Nicole Ramo

USNCB - Cell mechanosignaling in immunological diseases

Scott Simon, Sriram Neelamegham

USNCB Global women's health biomechanics

Kristin Myers, Michelle Oyen, Helen Feltovich

USNCB Neuromechanics: Integrating across spatial and temporal scales

Susan Margulies, David Camarillo

Vascular growth and remodelling mechanics

Rudolph Gleason, Anne Robertson

Vascular, lymphatic, and ocular transport

Brittany Coats, Brandon Dixon

Verification, validation and uncertainty quantification in cardiovascular CFD

Alison Marsden, Daniele Schiavazzi

VPH Institute session: 25 years of Physiome

Liesbet Geris, Aurélie Carlier



PLENARY SPEAKERS



PROFESSOR

JAY HUMPHREY

Sunday, 8th July 2018

18:00 - 18:45

Auditorium - Level 3

Yale University

USA

**Vascular mechanics and
mechanobiology in health and disease**



PROFESSOR

TAKUJI ISHIKAWA

Monday, 9th July 2018

09:00 - 09:45

Liffey B - Level 1

Tohoku University

Japan

**Biomechanics can provide a new
perspective on microbiology**



PROFESSOR

TONI ARNDT

Sunday, 8th July 2018

18:00 - 18:45

Liffey B - Level 1

ISB sponsored Plenary Session Speaker

The Swedish School of Sport and Health

Sciences, GIH

Sweden

**The intricacy of a biological structure:
An exploration of the load and
deformation characteristics of the
human Achilles tendon**



PROFESSOR

XAVIER TREPÂT

Tuesday, 10th July 2018

14:20 - 15:05

Auditorium - Level 3

IBEC Barcelona

Spain

**Forces driving migration, division
and folding in epithelial sheets**



PROFESSOR

LORI SETTON

Monday, 9th July 2018

09:00 - 09:45

Auditorium - Level 3

Washington University in St Louis

USA

**The stressful life and death of the
Intervertebral disc cell**



PROFESSOR

CHWEE TECK LIM

Wednesday, 11th July 2018

08:30 - 09:15

Auditorium - Level 3

National University of Singapore

Singapore

**Cell mechanics and applications in
disease diagnosis and therapy**

PLENARY SPEAKERS



PROFESSOR

MERRYN TAWHAI

Wednesday, 11th July

08:30 – 09:15

Liffey B – Level 1

University of Auckland

New Zealand

A personal digital lung to model lung structure-function over the adult lifespan



PROFESSOR

JULIE STEELE

Thursday, 12th July 2018

13:30 – 14:15

Auditorium – Level 3

University of Wollongong

Australia

Biomechanics of building better bras for breast cancer survivors



PROFESSOR

ELAZER EDELMAN

Wednesday, 11th July

14:20 – 15:05

Auditorium – Level 3

Harvard-MIT Biomedical Engineering

Center

USA

Biomechanics: Unifying force advancing science and health



PROFESSOR

DAVID ELAD

Thursday, 12th July 2018

13:30 – 14:15

Liffey B – Level 1

Tel Aviv University

Israel

Biomechanics of the female reproductive tract



PROFESSOR

CLEMENS VAN BLITTERSWIJK

Wednesday, 11th July

14:20 – 15:05

Liffey B – Level 1

Maastricht University

The Netherlands

Orchestrating life: Building from cell to tissue, organ and early “organism”



INVITED SPEAKERS

No	Title	Presenting	Session	Session Time	Room
O0001	Where to step? Mediolateral foot placement for balance control in young and old adults	Jaap van Dieën	Locomotion and falling in the elderly 1	Sunday 8th July, 14:30 - 16:00	Auditorium
O0002	Human Movement Variability and Falls in the Elderly	Nick Stergiou	Locomotion and falling in the elderly 1	Sunday 8th July, 14:30 - 16:00	Auditorium
O0008	A Proposed Road Map for Studying Location- and Severity-Specific Brain Injury	King Yang	Brain injury mechanics 1	Sunday 8th July, 14:30 - 16:00	Liffey Hall 1
O0009	Brains, Strains, and Automobiles: Concussion Biomechanics and Instrumentation	Stefan Duma	Brain injury mechanics 1	Sunday 8th July, 14:30 - 16:00	Liffey Hall 1
O0015	Fluid-structure interaction in cardiovascular biomechanics: yes (because) we can ?	Patrick Segers	Biomechanics of cardiovascular tissues 1	Sunday 8th July, 14:30 - 16:00	Liffey Hall 2
O0016	Towards patient-specific fluid solid growth simulations for pediatric applications	Alison Marsden	Biomechanics of cardiovascular tissues 1	Sunday 8th July, 14:30 - 16:00	Liffey Hall 2
O0022	Obtaining biomechanical properties of corneal tissue in-vivo using a non-contact method	Ahmed Elsheikh	Ocular biomechanics of aging and disease	Sunday 8th July, 14:30 - 16:00	Liffey MR1
O0023	The relationship between tensile strain and connective tissue architecture in the optic nerve head (ONH) of human eyes	Crawford Downs	Ocular biomechanics of aging and disease	Sunday 8th July, 14:30 - 16:00	Liffey MR1
O0029	Operating length and velocity of vastus lateralis muscle in human jumping and steady state locomotion	Adamantios Arampatzis	Skeletal muscle properties and function during human movement (in vivo muscle properties)	Sunday 8th July, 14:30 - 16:00	Liffey MR2
O0030	Muscle shape changes and the role of intramuscular springs.	Thomas Roberts	Skeletal muscle properties and function during human movement (in vivo muscle properties)	Sunday 8th July, 14:30 - 16:00	Liffey MR2
O0036	Focal Therapies: Evolving Thermal, Chemical and Electrical Approaches	John Bischof	Hyperthermia and heat-mediated transport	Sunday 8th July, 14:30 - 16:00	Liffey MR3
O0037	Minimal invasive thermo-immune therapy of metastatic cancer	Lisa Xu	Hyperthermia and heat-mediated transport	Sunday 8th July, 14:30 - 16:00	Liffey MR3
O0043	Big Data and machine learning to create physics-based personalised computational neuromusculoskeletal models	David Lloyd	Population based approaches to computational musculoskeletal modelling	Sunday 8th July, 14:30 - 16:00	Ecocem
O0044	Form and Function: The Gait Adaptation of Chinese Bound Foot	Yaodong Gu	Population based approaches to computational musculoskeletal modelling	Sunday 8th July, 14:30 - 16:00	Ecocem
O0050	Do Pre-Clinical Tools for Evaluation of TKR Mechanics Predict in vivo Performance?	Paul Rullkoetter	Computational joint mechanics 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 2A
O0051	Fibril-reinforced poroelastic finite element models of knee joint mechanics and adaptation	Rami Korhonen	Computational joint mechanics 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 2A
O0057	Tendon enthesis development and regeneration	Stavros Thomopoulos	Mechanics of musculoskeletal growth and adaptation 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 2B
O0058	Role of Estrogen Signaling in Skeletal Mechanobiology	Marjolein van der Meulen	Mechanics of musculoskeletal growth and adaptation 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 2B
O0064	Coordinated oscillations of confined epithelial tissues.	Joseph d'Alessandro	Mechanics of cell motility 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 1
O0065	Mesoscale substrate curvatures overrule nanoscale contact guidance to direct mesenchymal stem cell migration	Maike Werner	Mechanics of cell motility 1	Sunday 8th July, 14:30 - 16:00	Wicklow Hall 1

No	Title	Presenting	Session	Session Time	Room
O0071	Computational modeling inspired design enables long term in vivo functionality of living engineered heart valves	Frank Baaijens	Biomechanics of heart valve tissue engineering	Sunday 8th July, 14:30 - 16:00	Wicklow MR1
O0072	Using simulations to find the achievable range of heart valve tissue emulating behaviors	Michael Sacks	Biomechanics of heart valve tissue engineering	Sunday 8th July, 14:30 - 16:00	Wicklow MR1
O0078	Integration of statistical shape models of the knee with finite element simulations	Clare Fitzpatrick	Deformable (statistical and analytical) shape and appearance models in biomechanics 1	Sunday 8th July, 14:30 - 16:00	Wicklow MR2
O0079	Entering the statistical domain: Do we understand the risk and liabilities of using Deformable Statistical Shapes in biomechanics?	Bhushan Borotikar, Tinashe Mutsvangwa	Deformable (statistical and analytical) shape and appearance models in biomechanics 1	Sunday 8th July, 14:30 - 16:00	Wicklow MR2
O0085	Assessing the Tensional State of Fibronectin Fibers at the Organ Level: Healthy Tissues versus Tumor Stroma	Viola Vogel	Next generation tissue mechanic approaches: In situ and in patients to self-assembling materials	Sunday 8th July, 14:30 - 16:00	Wicklow MR3
O0086	Imaging inhomogeneous mechanical properties with MR Elastography	Matthew McGarry	Next generation tissue mechanic approaches: In situ and in patients to self-assembling materials	Sunday 8th July, 14:30 - 16:00	Wicklow MR3
O0092	Transport through biomimetic NPCs: Insights from coarse-grained molecular dynamics simulations	Patrick Onck	Molecular dynamics simulation	Sunday 8th July, 14:30 - 16:00	Wicklow MR4
O0093	Modeling cell-matrix interactions at the molecular scale: From in silico predictions to in vivo consequences	Krystyn Van Vliet	Molecular dynamics simulation	Sunday 8th July, 14:30 - 16:00	Wicklow MR4
O0105	The contribution of axial stretch to the function of the proximal descending thoracic aorta.	Chiara Bellini	Challenges of working across scales in patient- and animal-specific cardiovascular modelling	Sunday 8th July, 16:30 - 18:00	Liffey B
O0106	Subject-specific arterial blood flow modelling using reduced-order formulations	Jordi Alastruey	Challenges of working across scales in patient- and animal-specific cardiovascular modelling	Sunday 8th July, 16:30 - 18:00	Liffey B
O0121	A structural constitutive model for smooth muscle contraction: Application to arteries	Raffaella De Vita	Biomechanics of cardiovascular tissues 2	Sunday 8th July, 16:30 - 18:00	Liffey Hall 2
O0122	Multiscale and multiaxial mechanics of vascular smooth muscle contractility	Sae-Il Murtada	Biomechanics of cardiovascular tissues 2	Sunday 8th July, 16:30 - 18:00	Liffey Hall 2
O0128	Scaling experimental models of ocular blast trauma across species and to humans	Britany Coats	Ocular trauma	Sunday 8th July, 16:30 - 18:00	Liffey MR1
O0129	Eye Injury Risk and Modeling, Past Present and Future	Joel Stitzel	Ocular trauma	Sunday 8th July, 16:30 - 18:00	Liffey MR1
O0135	Musculoskeletal simulation: A Swiss Army knife for the movement sciences	Brian Umberger	ISB Session 1: Computer simulation of human movement	Sunday 8th July, 16:30 - 18:00	Liffey MR2
O0136	Goal-oriented human movement simulation: applications in predicting subject-specific balance recovery	Jeffrey A. Reinbolt	ISB Session 1: Computer simulation of human movement	Sunday 8th July, 16:30 - 18:00	Liffey MR2
O0142	Isochoric freezing in relation to biological matter.	Boris Rubinsky	Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)	Sunday 8th July, 16:30 - 18:00	Liffey MR3
O0143	Is it possible to incorporate the effect of blood perfusion in apparent thermophysical properties for estimation of freezing in tissues?	Hiroshi Takamatsu	Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)	Sunday 8th July, 16:30 - 18:00	Liffey MR3
O0149	Towards a simulation-based understanding of musculoskeletal deformity and their therapeutic remediation in children with cerebral palsy.	Ilse Jonkers, Lorenzo Pitto, Antoine Mottet Dit Falisse, Guy Molenaerts, Friedl De Groote	Multiscale biomechanics of paediatric musculoskeletal diseases	Sunday 8th July, 16:30 - 18:00	Ecocem
O0183	Computational model-driven design of tissue engineered vascular grafts	Jay Humphrey	Mechanobiology of engineered soft tissue growth and remodelling	Sunday 8th July, 16:30 - 18:00	Wicklow MR1
O0184	A novel time-evolving model for the in-vivo maturing pulmonary artery conduit	Michael Sacks	Mechanobiology of engineered soft tissue growth and remodelling	Sunday 8th July, 16:30 - 18:00	Wicklow MR1
O0199	An automated computational biomechanics workflow for improving breast cancer diagnosis and treatment	Martyn P. Nash	Breast health biomechanics	Sunday 8th July, 16:30 - 18:00	Wicklow MR3
O0200	Breasts biomechanics and upper torso structure and function	Deirdre McGhee	Breast health biomechanics	Sunday 8th July, 16:30 - 18:00	Wicklow MR3

No	Title	Presenting	Session	Session Time	Room
O0206	Biophysical control of cell form and function by single actomyosin stress fibers	Sanjay Kumar	Mechanobiology of cellular actomyosin systems	Sunday 8th July, 16:30 - 18:00	Wicklow MR4
O0207	Mechanics of Cellular Contractility	Margaret Gardel	Mechanobiology of cellular actomyosin systems	Sunday 8th July, 16:30 - 18:00	Wicklow MR4
O0224	Multiscale Biomechanics and Plaque Rupture: what should we be looking out for?	Frank Gijzen	Multiscale mechanobiology of vascularisation and atherosclerosis	Monday 9th July, 09:55 - 11:25	Liffey B
O0225	Discovering the relationship between NF- κ B and shear stress in cardiovascular disease	Y Ventikos	Multiscale mechanobiology of vascularisation and atherosclerosis	Monday 9th July, 09:55 - 11:25	Liffey B
O0230	Rate- and gender-based properties of the human tissues with a focus on the spine	Narayan Yoganandan	High rate injury biomechanics 1	Monday 9th July, 09:55 - 11:25	Liffey Hall 1
O0231	Neurotrauma at the Crossroads	Cameron Bass	High rate injury biomechanics 1	Monday 9th July, 09:55 - 11:25	Liffey Hall 1
O0246	Mechanoregulation of Intraocular Pressure by Nitric Oxide	Darryl Overby	Biomechanics of ocular pathologies 1	Monday 9th July, 09:55 - 11:25	Liffey MR1
O0247	In Vivo Extraction of the Biomechanical Properties of Human Optic Nerve Head Tissues in Healthy, Ocular Hypertensive, and Glaucoma Eyes using a Custom Virtual Fields Method	Michael Girard	Biomechanics of ocular pathologies 1	Monday 9th July, 09:55 - 11:25	Liffey MR1
O0253	How sensitive are predicted knee contact forces to the muscle recruitment criterion formulation?	Michael Skipper Andersen	Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 1	Monday 9th July, 09:55 - 11:25	Wicklow Hall 2B
O0254	Loading on the anterior cruciate ligament during a side-cut	Trent Guess	Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 1	Monday 9th July, 09:55 - 11:25	Wicklow Hall 2B
O0260	Targeted Drug Delivery under Physiological Flow in Real Sized Artery Stenosis Models	Netanel Korin	Nanotherapeutics and nanoparticle transport	Monday 9th July, 09:55 - 11:25	Liffey MR3
O0261	Combinatorial nanoconstructs for imaging and treating cancer and inflammatory diseases	Paolo Decuzzi	Nanotherapeutics and nanoparticle transport	Monday 9th July, 09:55 - 11:25	Liffey MR3
O0267	Multiscale bone mechanobiology in aging	Ralph Müller	Multiscale biomechanics of age-related bone fractures	Monday 9th July, 09:55 - 11:25	Ecocem
O0268	A 3D Rigid-Registration Approach for the Quantification of Bone Periosteal and Endosteal Changes over Time from HRpQCT Images	Bert van Rietbergen	Multiscale biomechanics of age-related bone fractures	Monday 9th July, 09:55 - 11:25	Ecocem
O0283	Novel approaches to the production of hard/soft tissue interfaces	Liam Grover	Musculoskeletal interfaces	Monday 9th July, 09:55 - 11:25	Liffey MR2
O0284	Precision engineering of biomimetic bone-cartilage interfaces via stereolithography-based 3D printing	Virginia Ferguson	Musculoskeletal interfaces	Monday 9th July, 09:55 - 11:25	Liffey MR2
O0290	The role of mechanics in individual and collective cell migration: a computer-based study	José Manuel García-Aznar	Computational methods in cell mechanics 1	Monday 9th July, 09:55 - 11:25	Wicklow Hall 1
O0291	Phase-field model of obstacle-mediated chemotaxis	Hector Gomez	Computational methods in cell mechanics 1	Monday 9th July, 09:55 - 11:25	Wicklow Hall 1
O0302	Measuring the full-field deformation response of the optic nerve head to controlled pressurization	Thao (Vicky) Nguyen	Digital volume correlation strain measurements in biological tissues and biomaterials	Monday 9th July, 09:55 - 11:25	Wicklow MR2
O0303	Geometry, Material, and Function Guided Digital Volume Correlation for Biomaterials Applications	Brian Bay	Digital volume correlation strain measurements in biological tissues and biomaterials	Monday 9th July, 09:55 - 11:25	Wicklow MR2
O0309	Engineering a highly elastic and adhesive surgical sealant	Nasim Annabi	TERMIS session: Biomaterials and biomechanics 1	Monday 9th July, 09:55 - 11:25	Wicklow MR3
O0310	New approaches including high-throughput for the engineering of musculoskeletal tissues	Rui L. Reis	TERMIS session: Biomaterials and biomechanics 1	Monday 9th July, 09:55 - 11:25	Wicklow MR3
O0316	Simulating cell migration mechanics	David Odde	Connecting molecular interactions and mechanosensing to cell behaviours	Monday 9th July, 09:55 - 11:25	Wicklow MR4
O0317	Mechanosensitive Behaviors of the Actin Cytoskeleton	Taeyoon Kim	Connecting molecular interactions and mechanosensing to cell behaviours	Monday 9th July, 09:55 - 11:25	Wicklow MR4
O0318	Morphologies of cross-linked actin filament networks in confinement	Dimitrios Vavylonis	Connecting molecular interactions and mechanosensing to cell behaviours	Monday 9th July, 09:55 - 11:25	Wicklow MR4

No	Title	Presenting	Session	Session Time	Room
O0319	Structural-elastic determination of the lifetime of biomolecules under force	Jie Yan	Connecting molecular interactions and mechanosensing to cell behaviours	Monday 9th July, 09:55 - 11:25	Wicklow MR4
O0325	The interplay between gait variability, falls and cognitive function: evidence from dual-tasking, imaging, and a multi-modal intervention	Jeffrey M. Hausdorff	Falls – prediction and prevention 1	Monday 9th July, 12:00 - 13:30	Auditorium
O0326	Performance-based biomarkers for prediction and prevention of falls	Mark D Grabiner	Falls – prediction and prevention 1	Monday 9th July, 12:00 - 13:30	Auditorium
O0332	Effect of Materials on Stent Deployment	Georgia Karanasiou	Multiscale modeling of vascular and neurovascular diseases	Monday 9th July, 12:00 - 13:30	Liffey B
O0333	Big whorls have little whorls: Implications of multiscale flow in monoscale vessels	David Steinman	Multiscale modeling of vascular and neurovascular diseases	Monday 9th July, 12:00 - 13:30	Liffey B
O0348	Elasticity models for dispersion in fibrous soft biological tissues	Ray Ogden	Micromechanics of cardiovascular tissues	Monday 9th July, 12:00 - 13:30	Liffey Hall 2
O0349	A validated computational model for vascular growth and remodeling with maturation, low oscillatory shear stress and increased arterial stiffness.	Rudolph Gleason	Micromechanics of cardiovascular tissues	Monday 9th July, 12:00 - 13:30	Liffey Hall 2
O0373	Cell-cell junction dynamics and their role in tumor cell transendothelial migration	Roger D. Kamm	Cancer microenvironments and tumour transport	Monday 9th July, 12:00 - 13:30	Liffey MR3
O0374	Bone mineral matrix: a potential regulator of breast cancer skeletal metastasis	Claudia Fischbach	Cancer microenvironments and tumour transport	Monday 9th July, 12:00 - 13:30	Liffey MR3
O0380	Are changes in Joint Contact Mechanics related to the Progression of Joint Degeneration?	Suzanne Maher	Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention	Monday 9th July, 12:00 - 13:30	Ecocem
O0381	Bone microdamage and repair, old and new links with joint injury and disease	Mitchell Schaffler	Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention	Monday 9th July, 12:00 - 13:30	Ecocem
O0387	Non-linear dynamics of the intervertebral disc	Stephen Ferguson	Human spine, characterization and modelling 1	Monday 9th July, 12:00 - 13:30	Wicklow Hall 2A
O0388	Barycentremetry and subject specific spine modeling from biplanar X-Rays	Wafa Skalli	Human spine, characterization and modelling 1	Monday 9th July, 12:00 - 13:30	Wicklow Hall 2A
O0394	Modelling articular cartilage as a dynamic tissue	Bruce Gardiner	Multiscale biomechanics of articular degenerative diseases	Monday 9th July, 12:00 - 13:30	Liffey MR2
O0395	Theoretical and Experimental Foundations for Investigating Damage Mechanics in Articular Cartilage	Brandon Zimmerman	Multiscale biomechanics of articular degenerative diseases	Monday 9th July, 12:00 - 13:30	Liffey MR2
O0410	From fluid and structure dynamical behaviors to vascular pathologies	Valérie Deplano	Société de Biomécanique session: Christian Oddou Award lecture and Young Investigator Awards	Monday 9th July, 12:00 - 13:30	Wicklow MR1
O0416	Advanced in vivo bio-imaging of hard tissue.	Steven Boyd	Advanced bioimaging 1	Monday 9th July, 12:00 - 13:30	Wicklow MR2
O0417	Multi-scale and multi-modal cardiac imaging to study the mechanics of heart failure	Martyn P. Nash	Advanced bioimaging 1	Monday 9th July, 12:00 - 13:30	Wicklow MR2
O0423	Leveraging elasticity to accelerate wound repair	Anthony Weiss	TERMIS session: Biomaterials and biomechanics 2	Monday 9th July, 12:00 - 13:30	Wicklow MR3
O0429	Coiled coils as molecular force sensors for the extracellular matrix	Kerstin G. Blank	Analytical tools for nanoscale force transduction	Monday 9th July, 12:00 - 13:30	Wicklow MR4
O0430	Piconewton-sensitive biosensors to investigate molecular forces in cells	Carsten Grashoff	Analytical tools for nanoscale force transduction	Monday 9th July, 12:00 - 13:30	Wicklow MR4
O0431	Munc18-1 and Vps33 catalyze directional SNARE assembly by templating SNARE association	Yongli Zhang	Analytical tools for nanoscale force transduction	Monday 9th July, 12:00 - 13:30	Wicklow MR4
O0432	Rationally designed synthetic protein hydrogels with predictable mechanical properties based on single molecule protein mechanics	Yi Cao	Analytical tools for nanoscale force transduction	Monday 9th July, 12:00 - 13:30	Wicklow MR4
O0449	Multi-scale Mechanics of Extracellular Matrix in the Arterial Wall	Katherine Yanhang Zhang	Multiscale mechanics of cardiovascular materials and structures	Monday 9th July, 15:00 - 16:30	Liffey B
O0450	Multiscale mechanics of cardiovascular tissues: from artery tissues to myocardium to filament networks	Gerhard Holzapfel	Multiscale mechanics of cardiovascular materials and structures	Monday 9th July, 15:00 - 16:30	Liffey B

No	Title	Presenting	Session	Session Time	Room
O0465	Medical Device Development for Acute Ischemic Stroke: An Industry Perspective	John Daniel	Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke	Monday 9th July, 15:00 - 16:30	Liffey Hall 2
O0466	Evolution of Mechanical Thrombectomy in Stroke and Current Clinical Challenges	Ian Rennie	Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke	Monday 9th July, 15:00 - 16:30	Liffey Hall 2
O0472	Biomechanical Simulations of Progressing Osteoarthritis: Experiments, Theory, Finite Elements, and Preliminary Results	David M. Pierce	Computer models of growth and remodelling 1	Monday 9th July, 15:00 - 16:30	Liffey MR1
O0473	Growth and remodeling of human aortic and pulmonary heart valves	Sandra Loerakker	Computer models of growth and remodelling 1	Monday 9th July, 15:00 - 16:30	Liffey MR1
O0488	A microfluidic model of endothelial metabolism in flow	Alisa Clyne	Microfluidics	Monday 9th July, 15:00 - 16:30	Liffey MR3
O0489	Microfluidic technologies for modelling and monitoring biomechanical tissue and organ systems	Craig Simmons	Microfluidics	Monday 9th July, 15:00 - 16:30	Liffey MR3
O0495	Laboratory based quantitative outcome assessment in orthopaedic trials	Peter Augat	Quantitative outcome assessment in orthopaedic trials	Monday 9th July, 15:00 - 16:30	Ecocem
O0496	Free field based quantitative outcome assessment in orthopaedic trials.	Bernd Grimm	Quantitative outcome assessment in orthopaedic trials	Monday 9th July, 15:00 - 16:30	Ecocem
O0511	What Have In Vivo Knee Contact Force Measurements Taught Us about Neuromusculoskeletal Modeling?	B.J. Fregly	Incorporating in vivo load variability in modelling	Monday 9th July, 15:00 - 16:30	Liffey MR2
O0512	From human motion to bone strains: the effect of intra- and inter-subject load variability and how to take it into account.	Fulvia Taddei	Incorporating in vivo load variability in modelling	Monday 9th July, 15:00 - 16:30	Liffey MR2
O0518	Differential roles of Nck1 and Nck2 in shear stress-induced proinflammatory signaling	Wayne Orr	Flow-mediated cellular biomechanics 1	Monday 9th July, 15:00 - 16:30	Wicklow Hall 1
O0519	Fluid shear flow with spatial gradient regulates vascular endothelial mechanoresponses	Daisuke Yoshino	Flow-mediated cellular biomechanics 1	Monday 9th July, 15:00 - 16:30	Wicklow Hall 1
O0525	25 years of physiome: the clinical translation and the Virtual Physiological Human	Marco Viceconti	VPH Institute session: 25 years of Physiome	Monday 9th July, 15:00 - 16:30	Wicklow MR1
O0526	Reflecting on 25 years of the Physiome Project	Peter Hunter	VPH Institute session: 25 years of Physiome	Monday 9th July, 15:00 - 16:30	Wicklow MR1
O0540	Designing mechanically heterogeneous scaffolds for cardiovascular tissue engineering	Jane Grande-Allen	Biomechanics of vascular tissue engineering	Monday 9th July, 15:00 - 16:30	Wicklow MR3
O0541	Retention of seeded mesenchymal stem cells within an implanted elastomeric vascular scaffold	David Vorp	Biomechanics of vascular tissue engineering	Monday 9th July, 15:00 - 16:30	Wicklow MR3
O0547	Nanoscale architecture of cadherin-based cell adhesions	Pakorn Kanchanawong	Intercellular and subcellular force transmission	Monday 9th July, 15:00 - 16:30	Wicklow MR4
O0548	Mechanics of cell contacts during tissue morphogenesis	Pierre-François Lenne	Intercellular and subcellular force transmission	Monday 9th July, 15:00 - 16:30	Wicklow MR4
O0549	Isometric contractile properties of individual stress fibers	Shinji Deguchi	Intercellular and subcellular force transmission	Monday 9th July, 15:00 - 16:30	Wicklow MR4
O0550	Mechanics of chromatin in situ	Kris Dahl	Intercellular and subcellular force transmission	Monday 9th July, 15:00 - 16:30	Wicklow MR4
O0555	Evaluating and interpreting patient-specific neuromuscular control in cerebral palsy	Mike Schwartz	Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1	Monday 9th July, 17:00 - 18:30	Auditorium
O0556	Evaluating and interpreting patient specific mechanical muscle properties in cerebral palsy	Glen Lichtwark	Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1	Monday 9th July, 17:00 - 18:30	Auditorium
O0562	Cellular response to changes in interfacial energy at the alveolar level	Daniel Isabey	Multiscale models of the cardiopulmonary system	Monday 9th July, 17:00 - 18:30	Liffey B
O0563	Mechanisms of damage and prevention of pulmonary atelectrauma at the cellular level.	Donald Gaver	Multiscale models of the cardiopulmonary system	Monday 9th July, 17:00 - 18:30	Liffey B
O0564	Interactions between organs via the autonomic nervous system	Peter Hunter	Multiscale models of the cardiopulmonary system	Monday 9th July, 17:00 - 18:30	Liffey B

No	Title	Presenting	Session	Session Time	Room
O0565	Hierarchical modeling of the heart within the circulation and cardiopulmonary systems	Dominique Chapelle	Multiscale models of the cardiopulmonary system	Monday 9th July, 17:00 - 18:30	Liffey B
O0569	Inflammation and Structural Changes in the Initiation and Healing of Painful Intervertebral Disc Degeneration in a Rat In Vivo Model	James Iatridis	Mechanosensing in injury and pain	Monday 9th July, 17:00 - 18:30	Liffey Hall 1
O0570	Regulating Redundant Mechanical and Thermal Sensitization Pathways in Discogenic Pain	Robby Bowles	Mechanosensing in injury and pain	Monday 9th July, 17:00 - 18:30	Liffey Hall 1
O0576	Role of microcalcifications in atherosclerotic plaque rupture: evolution of a longstanding paradigm	Luis Cardoso	Atherosclerotic plaque: Mechanism and modelling	Monday 9th July, 17:00 - 18:30	Liffey Hall 2
O0577	A novel apparatus for the multifaceted evaluation of human brachial artery functions through transmural pressure manipulation: Toward early-stage diagnosis of atherosclerosis	Takeo Matsumoto	Atherosclerotic plaque: Mechanism and modelling	Monday 9th July, 17:00 - 18:30	Liffey Hall 2
O0592	Generating Subject-specific Predictions of Human Movement	B.J. Fregly	Predictive human movement simulation 1	Monday 9th July, 17:00 - 18:30	Wicklow Hall 2B
O0593	Computationally efficient simulations of human movement to study the interaction between motor control and musculoskeletal dynamics	Friedl De Groot	Predictive human movement simulation 1	Monday 9th July, 17:00 - 18:30	Wicklow Hall 2B
O0599	The Futile Pursuit of Truth in the Lymphatic System	James Moore	Vascular, lymphatic, and ocular transport	Monday 9th July, 17:00 - 18:30	Liffey MR3
O0600	A New Ex Vivo Glaucoma Model Showing Reduced Trabecular Meshwork Cellularity and Impaired Fluid Drainage from the Eye	C. Ross Ethier	Vascular, lymphatic, and ocular transport	Monday 9th July, 17:00 - 18:30	Liffey MR3
O0606	Improvement of screw anchorage by augmentation, from macroscopic to nanoscopic level	Werner Schmoelz	ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients	Monday 9th July, 17:00 - 18:30	Ecocem
O0607	Current Achievements in Hierarchical Bone Biomechanics - the Engineering Mechanics Perspective	Christian Hellmich	ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients	Monday 9th July, 17:00 - 18:30	Ecocem
O0622	Time-lapsed in vivo imaging of bone adaptation and regeneration	Ralph Müller	In vivo bone remodelling mechanics	Monday 9th July, 17:00 - 18:30	Liffey MR2
O0623	Osteocytes, Microdamage and Bone Remodeling - Messages from Within	Mitchell Schaffler	In vivo bone remodelling mechanics	Monday 9th July, 17:00 - 18:30	Liffey MR2
O0638	In-silico observation of bone metabolism and remodeling based on mechano-biochemical coupling models	Taiji Adachi	JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME	Monday 9th July, 17:00 - 18:30	Wicklow MR1
O0639	Emerging Functions of Electrically-induced Bubbles	Yoko Yamanishi	JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME	Monday 9th July, 17:00 - 18:30	Wicklow MR1
O0646	Biomechanics of soft tissue by MR elastography	Armando Manduca	Biomechanics of soft tissue by Elastography (MRI, US)	Monday 9th July, 17:00 - 18:30	Wicklow MR2
O0647	The Impact of Active and Passive Forces on Cancer Cell Proliferation and Metastatic Processes: What can Elasticity Imaging add?	Ralph Sinkus	Biomechanics of soft tissue by Elastography (MRI, US)	Monday 9th July, 17:00 - 18:30	Wicklow MR2
O0653	Tissue engineering strategies inspired by evolution	Celeste Nelson	Mechanobiology and tissue engineering of the respiratory tract	Monday 9th July, 17:00 - 18:30	Wicklow MR3
O0654	Cell-Matrix mechanotransduction in lung remodeling and fibrosis	Thomas Barker	Mechanobiology and tissue engineering of the respiratory tract	Monday 9th July, 17:00 - 18:30	Wicklow MR3
O0660	Mechanical phase transitions and anomalous stress in extracellular matrices	Fred MacKintosh	Non-equilibrium biomechanics - from molecules to cells	Monday 9th July, 17:00 - 18:30	Wicklow MR4
O0661	Role of bond reversibility in biopolymer network elasticity, fracture and plasticity	Gijsje Koenderink	Non-equilibrium biomechanics - from molecules to cells	Monday 9th July, 17:00 - 18:30	Wicklow MR4
O0679	Clinical personalization of multiscale models of total heart function	Gernot Plank	From physiology to clinics: Clinical applications of multiscale modelling of the heart	Tuesday 10th July, 09:20 - 10:50	Liffey B
O0680	Modelling Cardiac Mechanics in the Human heart	Steven Niederer	From physiology to clinics: Clinical applications of multiscale modelling of the heart	Tuesday 10th July, 09:20 - 10:50	Liffey B
O0686	Simplified oblique helmet test methods for short duration direct head impacts based on real accident data and biomechanical understanding	Peter Halldin	Head impact biomechanics and head protection 1	Tuesday 10th July, 09:20 - 10:50	Liffey Hall 1

No	Title	Presenting	Session	Session Time	Room
O0694	Novel mechanosensitive pathways involved in aortic valve fibrosis and calcification	Craig Simmons	Mechanobiology of heart valves	Tuesday 10th July, 09:20 -10:50	Liffey Hall 2
O0695	Mechanobiology of in-situ heart valve tissue engineering using degradable polymeric scaffolds	Carlijn Bouten	Mechanobiology of heart valves	Tuesday 10th July, 09:20 -10:50	Liffey Hall 2
O0701	Biophysics of mechanosensitive cadherin adhesion and its regulation	Sanjeevi Sivasankar	Molecular force transduction	Tuesday 10th July, 09:20 -10:50	Liffey MR1
O0702	Transducing matrix mechanical and spatial properties from integrins to the nucleus.	Pere Roca-Cusachs	Molecular force transduction	Tuesday 10th July, 09:20 -10:50	Liffey MR1
O0717	In vivo imaging of interstitial flow and histological correlation within the brain tumor microenvironment	Jennifer Munson	Brain biotransport	Tuesday 10th July, 09:20 -10:50	Liffey MR3
O0718	Dynamic blood brain barrier regulation in sub-concussive brain injuries	Matthew Campbell	Brain biotransport	Tuesday 10th July, 09:20 -10:50	Liffey MR3
O0724	Experimental measurements versus model predictions of fiber rotations in soft tissues	Stéphane Avril	Image-based multiscale modelling of fibrous tissues – tools and theories	Tuesday 10th July, 09:20 -10:50	Ecocem
O0725	Structure-based Multiscale FE Model of Human Lumbar Facet Capsular Ligament During Spine Motions	Victor Barocas	Image-based multiscale modelling of fibrous tissues – tools and theories	Tuesday 10th July, 09:20 -10:50	Ecocem
O0735	Application of biomechanical modelling for the analysis of fastball pitching	DirkJan Veeger	Shoulder biomechanics 1	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 2B
O0736	Contribution of biomechanics for the choice of the vertical orientation of the sphere during the implantation of a reverse shoulder arthroplasty (RSA)	Favard Luc	Shoulder biomechanics 1	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 2B
O0742	Mechanosensing drives $\alpha\beta$ T cell recognition	Yinnian Feng, Matthew Lang	USNCB - Cell mechanosignaling in immunological diseases	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 1
O0743	Mechanogenetics For The Remote And Non-Invasive Control Of Cancer Immunotherapy	Yingxiao Wang	USNCB - Cell mechanosignaling in immunological diseases	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 1
O0744	A potent glycomimetic antagonist for selectins that inhibits mechanotransduced integrin activation and neutrophil arrest is in clinical trials for vaso-occlusive crisis in sickle cell disease	John Magnani	USNCB - Cell mechanosignaling in immunological diseases	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 1
O0745	Single-molecule measurements reveal how adhesion composition regulates force transmission by individual integrin heterodimers	Alexander Dunn	USNCB - Cell mechanosignaling in immunological diseases	Tuesday 10th July, 09:20 -10:50	Wicklow Hall 1
O0749	Pediatric cardiac shear wave elastography: Healthy controls	James Greenleaf	Cardiovascular imaging 1	Tuesday 10th July, 09:20 -10:50	Wicklow MR1
O0750	A Doppler-based regularization problem for intraventricular vector flow mapping	Damien Garcia	Cardiovascular imaging 1	Tuesday 10th July, 09:20 -10:50	Wicklow MR1
O0768	Mechanical regulation of chondrogenitor fate	Martin J. Stoddart	Physical regulators and transport cues in tissue engineering	Tuesday 10th July, 09:20 -10:50	Wicklow MR4
O0770	Frequency and duration of mechanical stimulation influence mineralisation of developing chick limbs cultured in vitro	Cristian Parisi	Physical regulators and transport cues in tissue engineering	Tuesday 10th July, 09:20 -10:50	Wicklow MR4
O0780	How rehabilitation robots can be used to quantify and understand post-stroke balance and gait	Herman van der Kooij	Human locomotion in diseased/injured populations - post-stroke	Tuesday 10th July, 11:20 - 12:50	Auditorium
O0781	Relearning to walk: training with or without errors?	Laura Marchal-Crespo	Human locomotion in diseased/injured populations - post-stroke	Tuesday 10th July, 11:20 - 12:50	Auditorium
O0787	Integrating Vascular Biomechanics Simulations into the Clinical Work Flow of Abdominal Aortic Aneurysm Patient Treatment	T.Christian Gasser	Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics	Tuesday 10th July, 11:20 - 12:50	Liffey B
O0788	Quantifying Blood Flow and Pressure in the Coronary Arteries of Patients with Nonobstructive Coronary Artery Disease	Charles Taylor	Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics	Tuesday 10th July, 11:20 - 12:50	Liffey B
O0794	Frequency-Dependent Changes in Resting State EEG Functional Networks in Piglets After Rapid Head Rotations - Implications for Identifying Traumatic Brain Injury	Susan Margulies	Head impact biomechanics and head protection 2	Tuesday 10th July, 11:20 - 12:50	Liffey Hall 1
O0802	Genotype-to-Phenotype Multiscale Biomechanical Models for Inherited Cardiomyopathies	Stuart Campbell	Cardiac growth and remodelling mechanics	Tuesday 10th July, 11:20 - 12:50	Liffey Hall 2
O0803	Post-infarction remodeling: looking for growth in all the wrong places?	Jeffrey Holmes	Cardiac growth and remodelling mechanics	Tuesday 10th July, 11:20 - 12:50	Liffey Hall 2

No	Title	Presenting	Session	Session Time	Room
O0895	Continuously parameterizing the timing and task adaptations of human locomotion for the control of powered prosthetic legs	Robert Gregg	Motor control 1	Tuesday 10th July, 15:10 - 16:40	Auditorium
O0896	A Functional and Holistic Approach to the Identification of Human Motor Control	Antonie J. van den Bogert	Motor control 1	Tuesday 10th July, 15:10 - 16:40	Auditorium
O0902	Modeling Blood Flow and Pressure in the Coronary Arteries: From the Academy to the Clinic	Charles Taylor	Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention	Tuesday 10th July, 15:10 - 16:40	Liffey B
O0903	Fluid Delivery and Mass Transport across Multiple Scales at the Interfaces of the Blood and Lymphatic Systems	James Moore	Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention	Tuesday 10th July, 15:10 - 16:40	Liffey B
O0909	The role of multiphysics computational modeling in pressure ulcer prevention	Amit Gefen	Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities.	Tuesday 10th July, 15:10 - 16:40	Liffey Hall 1
O0917	Elastin in developmental vascular growth and remodeling	Jessica Wagenseil	Vascular growth and remodelling mechanics	Tuesday 10th July, 15:10 - 16:40	Liffey Hall 2
O0918	A Credibility Plan of Vascular Growth and Remodeling Simulation Tool	Seungik Baek	Vascular growth and remodelling mechanics	Tuesday 10th July, 15:10 - 16:40	Liffey Hall 2
O0924	Multiscale modeling of traumatic brain injuries	Svein Kleiven	USNCB Neuromechanics: Integrating across spatial and temporal scales	Tuesday 10th July, 15:10 - 16:40	Liffey MR1
O0925	Multiscale perspectives on mild traumatic brain injury and recovery	David Meaney	USNCB Neuromechanics: Integrating across spatial and temporal scales	Tuesday 10th July, 15:10 - 16:40	Liffey MR1
O0931	Two challenges for the link between mechanics and energetics: 1) prevalent positive or negative muscle work in downhill ski and 2) energy dissipated by internal friction (joints/tissues) in locomotion	Alberto Minetti	Locomotion and human movement energetics in sports 1	Tuesday 10th July, 15:10 - 16:40	Liffey MR2
O0932	Comparison of the anthropometrics, kinematics and kinetics in young swimmers of different competitive levels	Tiago M. Barbosa	Locomotion and human movement energetics in sports 1	Tuesday 10th July, 15:10 - 16:40	Liffey MR2
O0938	Drug delivery to brain tumors	Jiangbing Zhou	Biotransport diagnostics and therapeutics	Tuesday 10th July, 15:10 - 18:40	Liffey MR3
O0939	Arterial wall oxygen transport and vascular disease revisited	John M. Tarbell	Biotransport diagnostics and therapeutics	Tuesday 10th July, 15:10 - 18:40	Liffey MR3
O0945	Statistical and musculoskeletal models to support decision making in gait analysis	Morgan Sangeux	From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1	Tuesday 10th July, 15:10 - 16:40	Ecocem
O0946	Allies or adversaries? The role of biomechanics and data science in improving mobility	Jennifer Hicks	From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1	Tuesday 10th July, 15:10 - 16:40	Ecocem
O0952	How does mechanical loading influence the biological microenvironment of the disc leading to failure?	Hans-Joachim Wilke	IVD degeneration / regeneration / repair mechanobiology 1	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 2A
O0953	Repair and Regeneration of the Annulus Fibrosus of the Intervertebral Disc	James Iatridis	IVD degeneration / regeneration / repair mechanobiology 1	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 2A
O0959	Do we have a complete kinematic model of the carpus yet? And if so, can it help advance total wrist arthroplasties?	Joseph Crisco	Hand and wrist biomechanics 1	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 2B
O0960	Biomechanics of the Transverse Carpal Ligament	Zong-Ming Li	Hand and wrist biomechanics 1	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 2B
O0966	Microparticle Delivered miR-27a Induced by Cyclic Stretch Modulates the Proliferation of Endothelial Cells in Hypertension	Ying-Xin Qi	Cell deformation and cell signalling	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 1
O0967	Cadherin-11 mechanobiology in cardiac fibrosis and disease	W. David Merryman	Cell deformation and cell signalling	Tuesday 10th July, 15:10 - 16:40	Wicklow Hall 1
O0974	How technological advances have led to innovative new products	Arthur G Erdman	Technology innovation in medical devices 1	Tuesday 10th July, 15:10 - 16:40	Wicklow MR1
O0975	Neural Prosthesis to Assist People with Muscle Weakness	Martin L. Tanaka	Technology innovation in medical devices 1	Tuesday 10th July, 15:10 - 16:40	Wicklow MR1
O0993	Design and manufacture of 3D-printed scaffolds for regeneration of massive craniomaxillofacial bone loss.	Warren Grayson	Functional bone and cranio-facial tissue engineering	Tuesday 10th July, 15:10 - 16:40	Wicklow MR4

No	Title	Presenting	Session	Session Time	Room
O0994	The role of dynamic hydrogel mechanical properties and bone defect mechanical loading on cell behavior and tissue regeneration	Eben Alsberg	Functional bone and cranio-facial tissue engineering	Tuesday 10th July, 15:10 - 16:40	Wicklow MR4
O1009	The exquisite design of the endothelial glycocalyx and its amazing application to a jet ski train	Sheldon Weinbaum	Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)	Tuesday 10th July, 17:10 - 18:40	Liffey B
O1010	Leveraging Fluid Dynamics to Improve Cardiovascular Devices: Tarbell's Contributions	Keefe Manning	Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)	Tuesday 10th July, 17:10 - 18:40	Liffey B
O1016	Opportunities for Biomechanics, Tissue Injury, and Rehabilitation Research in Obstetrics and Gynecology	Steven Abramowitch	Injuries and tissue mechanics in the lower abdomen	Tuesday 10th July, 17:10 - 18:40	Liffey Hall 1
O1017	A data driven micro-structural model for the bladder wall in health and disease	Anne Robertson	Injuries and tissue mechanics in the lower abdomen	Tuesday 10th July, 17:10 - 18:40	Liffey Hall 1
O1032	Generation and Validation of subject-specific finite element models for preclinical and clinical assessment of bone mechanical properties	Enrico Dall'Ara	Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact	Tuesday 10th July, 17:10 - 18:40	Liffey MR1
O1033	Computational Challenges in Clinical Cardiovascular Mathematics: integration of data and mathematical models for clinical applications	Alessandro Veneziani	Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact	Tuesday 10th July, 17:10 - 18:40	Liffey MR1
O1048	Model-based personalized Decision Support for heart valve interventions	David Rodney Hose	From the microcirculation to large artery flows: Challenges for clinical applications	Tuesday 10th July, 17:10 - 16:40	Liffey MR3
O1049	Hemorheology, red blood cells dynamics and their membrane in-plane elasticity: the necessary triptych to understand blood flow	Manouk Abkarian	From the microcirculation to large artery flows: Challenges for clinical applications	Tuesday 10th July, 17:10 - 16:40	Liffey MR3
O1082	Mechanobiology of tumor invasion: Lessons from glioblastoma	Sanjay Kumar	Cell biomechanics and oncology 1	Tuesday 10th July, 17:10 - 18:40	Wicklow Hall 1
O1083	Mechanical guidance of collective cell migration and invasion	Xavier Trepat	Cell biomechanics and oncology 1	Tuesday 10th July, 17:10 - 18:40	Wicklow Hall 1
O1106	Mechanotransduction in embryonic development: from mesoderm mechanotransductive evolutionary origins to tumorigenic mechanical induction	Emmanuel Farge	Mechanobiology and embryogenesis 1	Tuesday 10th July, 17:10 - 18:40	Wicklow MR3
O1107	How to fold a tube	Celeste Nelson	Mechanobiology and embryogenesis 1	Tuesday 10th July, 17:10 - 18:40	Wicklow MR3
O1113	Image-based computational design and 3D biomaterial printing for patient specific devices and regenerative medicine	Scott Hollister	Technologies for validation in space and time of multiscale models of tissue engineering	Tuesday 10th July, 17:10 - 18:40	Wicklow MR4
O1114	Talking to cells via surface topography: from in vitro experiments to in silico models	Aur�lie Carlier	Technologies for validation in space and time of multiscale models of tissue engineering	Tuesday 10th July, 17:10 - 18:40	Wicklow MR4
O1115	The new paradigm in multiscale biomechanical modelling of biological tissues: coupling different physics through different scales	Giuseppe Vairo	Technologies for validation in space and time of multiscale models of tissue engineering	Tuesday 10th July, 17:10 - 18:40	Wicklow MR4
O1116	Modelling and in-vitro experiments in bone regeneration	Laoise McNamara	Technologies for validation in space and time of multiscale models of tissue engineering	Tuesday 10th July, 17:10 - 18:40	Wicklow MR4
O1134	Experimental investigation of the biomechanical response and the microstructure of the ventricular myocardium	Gerhard Sommer	Cardiac mechanics and heart modelling 1	Wednesday 11th July, 09:20-10:50	Liffey B
O1135	Modeling Viscoelasticity and Frequency Response in Cardiac Muscle	David Nordsletten	Cardiac mechanics and heart modelling 1	Wednesday 11th July, 09:20-10:50	Liffey B
O1141	Real-time multiscale computational models for mechanobiological-targeted training of musculoskeletal tissues	David Lloyd	The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programs	Wednesday 11th July, 09:20-10:50	Liffey Hall 1
O1142	New clinical perspectives for MRI based patient-specific musculo skeletal models	Claudia Mazz�	The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programs	Wednesday 11th July, 09:20-10:50	Liffey Hall 1
O1148	Echo-Derived Biomechanics to Stratify Thoracic Aortic Aneurysm Patients	Kevin Lachapelle	Thoracic aortic aneurysms and aortic dissection 1	Wednesday 11th July, 09:20-10:50	Liffey Hall 2
O1149	Computational studies of hemodynamic performance of thoracic endografts	C Alberto Figueroa	Thoracic aortic aneurysms and aortic dissection 1	Wednesday 11th July, 09:20-10:50	Liffey Hall 2
O1155	An inter-population morphometric study between African and European glenohumeral articulating surfaces.	Sudesh Sivarasu	Biomedical engineering research and education in Africa	Wednesday 11th July, 09:20-10:50	Liffey MR1
O1156	Affordable Polymeric Transcatheter Heart Valves for LMICs	Deon Bezuidenhout	Biomedical engineering research and education in Africa	Wednesday 11th July, 09:20-10:50	Liffey MR1

No	Title	Presenting	Session	Session Time	Room
O1162	Dual-task, Concussion, and Sports Injuries: Connecting Mind and Movement to Better Understand Sports Injuries	David Howell	Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries	Wednesday 11th July, 09:20-10:50	Liffey MR2
O1163	Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries	Robert Lynall	Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries	Wednesday 11th July, 09:20-10:50	Liffey MR2
O1169	Mapping 3D Mechanical Strains during Tissue Morphogenesis with a Novel Fibronectin-based Nanomechanical Biosensor	Adam Feinberg	Cardiovascular development	Wednesday 11th July, 09:20-10:50	Liffey MR3
O1170	Mechanoregulation of heart valve morphogenesis	Jonathan Butcher	Cardiovascular development	Wednesday 11th July, 09:20-10:50	Liffey MR3
O1176	Biomechanics of Human Trabecular Bone: Advances and Limitations	Philippe Zysset	Bone fracture mechanics (in vitro and in vivo) 1	Wednesday 11th July, 09:20-10:50	Wicklow Hall 1
O1177	Advancing matrix-sensitive techniques to assess the fracture resistance of bone	Jeffry Nyman	Bone fracture mechanics (in vitro and in vivo) 1	Wednesday 11th July, 09:20-10:50	Wicklow Hall 1
O1183	3D bioprinting of scaled-up tissues that mimic the structure, composition and biomechanics of articular cartilage	Daniel Kelly	Biomimetic implants for articular cartilage repair / regeneration	Wednesday 11th July, 09:20-10:50	Wicklow Hall 2A
O1184	Targeted genome engineering of pluripotent stem cells as a basis for self-regulating, functional engineered tissues	Farshid Guilak	Biomimetic implants for articular cartilage repair / regeneration	Wednesday 11th July, 09:20-10:50	Wicklow Hall 2A
O1190	Biomechanics of the Skeletal Muscle Extracellular Matrix	Richard Lieber	Mechanics of passive muscle and connective tissue 1	Wednesday 11th July, 09:20-10:50	Wicklow Hall 2B
O1191	Composition-dependent mechanisms of multiscale tendon mechanics	Spencer Lake	Mechanics of passive muscle and connective tissue 1	Wednesday 11th July, 09:20-10:50	Wicklow Hall 2B
O1197	Nanokick: stimulation of osteogenesis by mesenchymal stem cells using a nanovibrational bioreactor	Matthew Dalby	Multiscale biomechanics of scaffolds 1	Wednesday 11th July, 09:20-10:50	Ecocem
O1198	Regenerating bone with biomimetic scaffolds in large defects	Hanna Isaksson	Multiscale biomechanics of scaffolds 1	Wednesday 11th July, 09:20-10:50	Ecocem
O1253	Modeling overuse injuries in sport as a mechanical fatigue phenomenon	W. Brent Edwards	Multiscale biomechanics of sport and sport injuries	Wednesday 11th July, 11:20 - 12:50	Liffey Hall 1
O1254	Use of Shear Wave Tensiometers to Track Tendon Tissue Loads during Running	Darryl Thelen	Multiscale biomechanics of sport and sport injuries	Wednesday 11th July, 11:20 - 12:50	Liffey Hall 1
O1269	Experience of Biomedical Engineering Education in the United Arab Emirates	Tim McGloughlin	Biomedical engineering education 1	Wednesday 11th July, 11:20 - 12:50	Liffey MR1
O1270	Incorporating classroom based research experiences into biomechanical engineering education	Alisa Clyne	Biomedical engineering education 1	Wednesday 11th July, 11:20 - 12:50	Liffey MR1
O1271	Emerging Trends and Future Landscape of Biomedical Engineering Education	James Goh	Biomedical engineering education 1	Wednesday 11th July, 11:20 - 12:50	Liffey MR1
O1275	Can responses to gait perturbations be used to discriminate between older adults with and without history of falls?	Sanne Roeles	Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance	Wednesday 11th July, 11:20 - 12:50	Liffey MR2
O1276	Assessment of Dynamic Stability of the Lower Extremity Using Position Controlled Platform Perturbations	Maarten Prins	Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance	Wednesday 11th July, 11:20 - 12:50	Liffey MR2
O1282	Hemodynamics controls thrombosis to cause heart attacks and strokes	David Ku	Challenges of thrombosis modelling	Wednesday 11th July, 11:20 - 12:50	Liffey MR3
O1283	A predictive multiscale model for simulating platelet activation and aggregation in shear flow	Danny Bluestein	Challenges of thrombosis modelling	Wednesday 11th July, 11:20 - 12:50	Liffey MR3
O1298	A Paradigm for Using Physiological Inputs to In Vitro Models for Assessment of Cartilage Tribology	Suzanne Maher	Cartilage tribology	Wednesday 11th July, 11:20 - 12:50	Wicklow Hall 2A
O1299	Motion is lotion: New insights into how movement helps maintain joint lubrication and health	David Burris	Cartilage tribology	Wednesday 11th July, 11:20 - 12:50	Wicklow Hall 2A
O1332	Invasion-Mutation: DNA Damage Portends Genome Variation in Cancer Cells after Pore Migration	Dennis Discher	Mechanogenetics for cell therapy	Wednesday 11th July, 11:20 - 12:50	Wicklow MR2

No	Title	Presenting	Session	Session Time	Room
O1333	Outside-in/inside-out signaling loop of the TCR mechanosensor induced by negative selecting ligands in the thymus	Cheng Zhu	Mechanogenetics for cell therapy	Wednesday 11th July, 11:20 - 12:50	Wicklow MR2
O1339	Dose-dependent Effects of Irisin on Osteoblast Proliferation and Differentiation	Zhang Yuwei	Cell interaction with microenvironment 1	Wednesday 11th July, 11:20 - 12:50	Wicklow MR4
O1340	Dynamic filopodial traction forces induce fast extracellular fibrous matrix remodeling that can be predicted with viscoplasticity	Andrea Malandrino, Roger D Kamm	Cell interaction with microenvironment 1	Wednesday 11th July, 11:20 - 12:50	Wicklow MR4
O1350	Movement Coordination after Unilateral Transtibial Amputation	Anne Silverman	Amputee biomechanics 1	Wednesday 11th July, 15:10 - 16:40	Auditorium
O1351	Robust control of active upper limb prostheses by real-time neuromusculoskeletal modeling	Dario Farina	Amputee biomechanics 1	Wednesday 11th July, 15:10 - 16:40	Auditorium
O1357	Engineering heart muscle for heart failure repair	Wolfram-Hubertus Zimmermann	Cardiac regeneration and healing	Wednesday 11th July, 15:10 - 16:40	Liffey B
O1358	Designing better post-infarction scar	Jeffrey Holmes	Cardiac regeneration and healing	Wednesday 11th July, 15:10 - 16:40	Liffey B
O1364	Research into running injuries	Tim Derrick	Running Injuries 1	Wednesday 11th July, 15:10 - 16:40	Liffey Hall 1
O1365	Running injuries protect runner's knees from osteoarthritis	Ross Miller	Running Injuries 1	Wednesday 11th July, 15:10 - 16:40	Liffey Hall 1
O1371	Predicting growth and rupture of abdominal aortic aneurysms; What have we learnt from retrospective clinical studies based on finite element modeling of wall stress and strength?	Joy Roy	Abdominal aortic aneurysms 1	Wednesday 11th July, 15:10 - 16:40	Liffey Hall 2
O1372	Angiotensin II and the heterogeneity of the aorta - the basis for aneurysmal locations?	Alan Daugherty	Abdominal aortic aneurysms 1	Wednesday 11th July, 15:10 - 16:40	Liffey Hall 2
O1378	Design as a Feature of BME Education: Satisfying ABET and Preparing Students to Solve Clinical Needs	Michele Grimm	Biomedical engineering education 2	Wednesday 11th July, 15:10 - 16:40	Liffey MR1
O1379	Biomedical Engineering education at Eindhoven University of Technology	Cees Oomens	Biomedical engineering education 2	Wednesday 11th July, 15:10 - 16:40	Liffey MR1
O1380	A case study in the growth of BME curricula in the United States	William Guilford	Biomedical engineering education 2	Wednesday 11th July, 15:10 - 16:40	Liffey MR1
O1381	The design of a biomedical engineering programme at Queen Mary, University of London	Julia C. Shelton	Biomedical engineering education 2	Wednesday 11th July, 15:10 - 16:40	Liffey MR1
O1384	Massively Parallel Models of Multiscale Hemodynamics in the Human Vasculature	Amanda Randles	Computational challenges in multiscale modelling in biomechanics	Wednesday 11th July, 15:10 - 16:40	Liffey MR2
O1385	Computational Challenges in Multi-scale Modelling of the Neuromuscular System	Oliver Roehrl	Computational challenges in multiscale modelling in biomechanics	Wednesday 11th July, 15:10 - 16:40	Liffey MR2
O1391	Aortic Arches after Coarctation Repair - Geometry and Haemodynamics	Michael Quail	Arterial pulse wave mechanics and ventriculo-arterial interaction	Wednesday 11th July, 15:10 - 16:40	Liffey MR3
O1392	Ventricular wave reflection and its effects on outflow patterns and external work	Jonathan Mynard	Arterial pulse wave mechanics and ventriculo-arterial interaction	Wednesday 11th July, 15:10 - 16:40	Liffey MR3
O1407	Individual Trabecula Segmentation (ITS) and Microindentation Testing Reveal Structural and Mechanical Deteriorations in the Subchondral Trabecular Bone under Moderately Degenerated Cartilage in Osteoarthritis (OA)	X. Edward Guo	Bone-cartilage cross-talk	Wednesday 11th July, 15:10 - 16:40	Wicklow Hall 2A
O1408	Deconstructing the mechanobiology of bone/cartilage cross-talk to identify therapeutic targets for musculoskeletal diseases	Farshid Guilak	Bone-cartilage cross-talk	Wednesday 11th July, 15:10 - 16:40	Wicklow Hall 2A
O1414	Probing Molecular Damage and Failure of Collagen in Connective Tissues	Jeffrey Weiss	Tendon, ligament and enthesis biomechanics 1	Wednesday 11th July, 15:10 - 16:40	Wicklow Hall 2B
O1422	Extrusion-based 3D printing of biodegradable hydrogels	Jason Burdick	Biofabrication for musculoskeletal tissue engineering	Wednesday 11th July, 15:10 - 16:40	Ecocem
O1423	Designing bio-ink and bio-resin platforms for 3D bioprinting and bioassembly	Tim BF Woodfield	Biofabrication for musculoskeletal tissue engineering	Wednesday 11th July, 15:10 - 16:40	Ecocem
O1429	Coronary drug eluting stents - time for some personalised medicine?	Keith Oldroyd	Stenting within the cardiovascular system 1	Wednesday 11th July, 15:10 - 16:40	Wicklow MR1

No	Title	Presenting	Session	Session Time	Room
O1430	A novel computational method for simulating arterial remodelling around a biodegradable magnesium stent utilising multiple remodelling stimuli.	Peter McHugh	Stenting within the cardiovascular system 1	Wednesday 11th July, 15:10 -16:40	Wicklow MR1
O1436	Multiscale imaging-based computational modeling of knee joint, articular cartilage and chondrocyte	Rami Korhonen	Synergy of image-based modelling and model-based imaging for probing biological systems	Wednesday 11th July, 15:10 -16:40	Wicklow MR2
O1437	Imaging hearing in plants: integrated imaging and modeling to identify acoustic detection in <i>Arabidopsis thaliana</i>	Guy Genin	Synergy of image-based modelling and model-based imaging for probing biological systems	Wednesday 11th July, 15:10 -16:40	Wicklow MR2
O1454	Fluid mechanics of left-right symmetry breaking in the zebrafish embryo	David Smith	Prenatal cardiovascular fluid mechanics and flow mechanobiology	Wednesday 11th July, 17:10 -18:40	Liffey B
O1464	Selective Filopodia Adhesion Ensures Robust Cell Matching in the <i>Drosophila</i> Heart	Timothy Saunders	Prenatal cardiovascular fluid mechanics and flow mechanobiology	Wednesday 11th July, 17:10 -18:40	Liffey B
O1487	Applying a science capital approach to increase engagement with biomechanics	Laura-Anne Furlong	Public engagement with biomechanics	Wednesday 11th July, 17:10 -18:40	Liffey MR1
O1488	Finding the balance between education outreach and research goals	Sarah Shultz	Public engagement with biomechanics	Wednesday 11th July, 17:10 -18:40	Liffey MR1
O1493	Uncertainty quantification and sensitivity analysis for cardiovascular model predictions	Leif Rune Hellevik	Modelling uncertainty and propagation of data for biomechanics systems	Wednesday 11th July, 17:10 -18:40	Liffey MR2
O1494	Computational methods for uncertainty quantification of complex biological systems	Jennifer Rowson	Modelling uncertainty and propagation of data for biomechanics systems	Wednesday 11th July, 17:10 -18:40	Liffey MR2
O1500	An approach for uncertainty quantification in computational biomechanics feasible for complex, large scale models	Wolfgang A. Wall	Verification, validation and uncertainty quantification in cardiovascular CFD	Wednesday 11th July, 17:10 -18:40	Liffey MR3
O1501	New trends for advanced reduced order methods in CFD: applications to optimisation, control, uncertainty quantification and data assimilation of parametric cardiovascular flows	Gianluigi Rozza	Verification, validation and uncertainty quantification in cardiovascular CFD	Wednesday 11th July, 17:10 -18:40	Liffey MR3
O1516	Dynamic remodeling of a biomaterial niche alters hematopoietic stem cell lineage specification	Brendan Harley	Bone marrow properties and mechanobiology	Wednesday 11th July, 17:10 -18:40	Wicklow Hall 2A
O1517	MSCs and bone vs marrow fat: Coordinated increase of nuclear tension and lamin-A with matrix stiffness outcompetes lamin-B receptor which favors soft tissue phenotypes	Dennis Discher	Bone marrow properties and mechanobiology	Wednesday 11th July, 17:10 -18:40	Wicklow Hall 2A
O1523	Harnessing helpful heterogeneity: the new picture of hard-to-soft tissue attachment, and what it means for treatment and surgical repair	Guy Genin	Tendon, ligament and enthesis biomechanics 2	Wednesday 11th July, 17:10 -18:40	Wicklow Hall 2B
O1531	A model to describe the heterogeneous mechanical behaviour of human skin	C.W.J. Oomens	Multiscale biomechanics and modeling of engineered tissues	Wednesday 11th July, 17:10 -18:40	Ecocem
O1532	On the relationship between fiber-level and network-level fatigue behavior of collagen networks	V.H. Barocas	Multiscale biomechanics and modeling of engineered tissues	Wednesday 11th July, 17:10 -18:40	Ecocem
O1547	Harmonic waves in anisotropic poroelastic and viscoelastic anisotropic tissues: Magnetic Resonance Elastography and Dynamic Nanoindentation	Pasquale Vena	Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems 1	Wednesday 11th July, 17:10 -18:40	Wicklow MR2
O1548	Micromechanics of collagen rich-tissues and nanomechanics of individual collagen fibrils as a function of hydration, cross-linking, age and tissue function	Philipp Thurner	Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems 1	Wednesday 11th July, 17:10 -18:40	Wicklow MR2
O1554	Mechano-Active Materials to Direct Stem Cell Differentiation	Robert Mauck	Mechanotransduction in engineered tissue	Wednesday 11th July, 17:10 -18:40	Wicklow MR4
O1555	A macro-micro modeling approach to determine in-situ heart valve interstitial cell contractile behaviors in native and synthetic environments	Michael Sacks	Mechanotransduction in engineered tissue	Wednesday 11th July, 17:10 -18:40	Wicklow MR4
O1565	Personalised biomechanical modelling for the early intervention of knee osteoarthritis	Thor Besier	Human locomotion in diseased/injured populations - osteoarthritis	Thursday 12th July, 08:30 -10:00	Auditorium
O1566	Effects of obesity and subsequent intentional weight loss on gait biomechanics in knee OA patients	Stephen P. Messier	Human locomotion in diseased/injured populations - osteoarthritis	Thursday 12th July, 08:30 -10:00	Auditorium
O1572	Fontan Surgical Planning: Can we Design the Future?	Ajit Yoganathan	Congenital heart defects and paediatric cardiology applications 1	Thursday 12th July, 08:30 -10:00	Liffey B
O1580	Strategies to fulfil a rapid change in direction	Wolfgang Potthast	ISB Session 2: Footwear biomechanics	Thursday 12th July, 08:30 -10:00	Liffey Hall 1
O1581	Use of pressure data to evaluate footwear during running	Sharon Dixon	ISB Session 2: Footwear biomechanics	Thursday 12th July, 08:30 -10:00	Liffey Hall 1

No	Title	Presenting	Session	Session Time	Room
O1587	Relationship between Local Flow Conditions and Aneurysm Wall Characteristics	Juan Cebal	Cerebral aneurysms 1	Thursday 12th July, 08:30 - 10:00	Liffey Hall 2
O1588	History and Perspective of Cerebral aneurysms and Computational Fluid Dynamics - From a viewpoint of a physician	Masaaki Shojima	Cerebral aneurysms 1	Thursday 12th July, 08:30 - 10:00	Liffey Hall 2
O1594	Fluid mechanics of ureteroscopes	Sarah Waters	Modelling of biofluid transport 1	Thursday 12th July, 08:30 - 10:00	Liffey MR1
O1602	Fluid-Structure Interaction Simulation of Heart Valve Dynamics	Wei Sun	Fluid-structure interactions in cardiovascular mechanics 1	Thursday 12th July, 08:30 - 10:00	Liffey MR2
O1603	Computational fluid-structure interaction methods and their use in the design of cardiovascular assist devices	Yuri Bazilevs	Fluid-structure interactions in cardiovascular mechanics 1	Thursday 12th July, 08:30 - 10:00	Liffey MR2
O1609	The physiology of fetal membrane weakening and rupture associated with inflammation and bleeding induced premature rupture of fetal membranes, a major cause of preterm birth and infant mortality.	John Moore	The biomechanics of pregnancy and parturition	Thursday 12th July, 08:30 - 10:00	Liffey MR3
O1610	Personalized biomechanical models of human pregnancy – integrating with clinical care	Kristin Myers	The biomechanics of pregnancy and parturition	Thursday 12th July, 08:30 - 10:00	Liffey MR3
O1616	Protecting Soft Tissues from Breakdown: Design Concepts for Medical Devices Claiming Pressure Ulcer Prevention	Amit Gefen	Medical device - soft tissue interaction	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 1
O1617	Tribology of human soft tissue and implications for medical device development	Matt Carre	Medical device - soft tissue interaction	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 1
O1623	New players and concepts in musculoskeletal biomechanics	Elazar Zelzer	Biomechanics of musculoskeletal development	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 2A
O1624	Using in vitro and ex vivo models to study the influence of the mechanical environment on the development of bone and cartilage	Alicia El Haj	Biomechanics of musculoskeletal development	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 2A
O1630	The endothelial glycocalyx and pcam-1 collaborate to induce nitric oxide production in response to shear stress	John Tarbell	Cardiovascular cell mechanics and its role in human disease	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 2B
O1631	Dynamic Interaction Between Vascular Endothelial Cells and Leukocyte During Diapedesis	Juan C. Lasheras	Cardiovascular cell mechanics and its role in human disease	Thursday 12th July, 08:30 - 10:00	Wicklow Hall 2B
O1637	Multi-scale Mechanics in Tendon: Structure-Function Specialisations	Hazel Screen	Biomechanics of muscle, tendon and ligament tissue engineering	Thursday 12th July, 08:30 - 10:00	Ecocem
O1638	Biomaterial and Biomechanical Considerations in Ligament Tissue Engineering	Helen Lu	Biomechanics of muscle, tendon and ligament tissue engineering	Thursday 12th July, 08:30 - 10:00	Ecocem
O1644	Toward Subject-Specific Imaging to Improve Diagnosis and Rehabilitation for Shoulder Pathology In Manual Wheelchair Users	Kristin Zhao	Rehabilitation methods, tools, and devices for shoulder	Thursday 12th July, 08:30 - 10:00	Wicklow MR1
O1645	Rotator cuff tears: using computational modeling as a tool to inform rehabilitation	Meghan Vidt	Rehabilitation methods, tools, and devices for shoulder	Thursday 12th July, 08:30 - 10:00	Wicklow MR1
O1660	Engineering Tissue Connectivity via Interface Tissue Engineering	Helen Lu	Mechanical issues in interfacial tissue engineering	Thursday 12th July, 08:30 - 10:00	Wicklow MR4
O1661	Molecular Mechanics of Mussel Inspired Polymers and Coatings	Phillip Messersmith	Mechanical issues in interfacial tissue engineering	Thursday 12th July, 08:30 - 10:00	Wicklow MR4
O1670	Planetary scale smartphone data reveal relationships between physical activity, environment, and health	Scott Delp	Mobile monitoring of biomechanical phenomena 1	Thursday 12th July, 10:30 - 12:00	Auditorium
O1671	Why use an accelerometer to monitor mobility 24/7? Evidence from aging and neurological cohorts	Jeffrey Hausdorff	Mobile monitoring of biomechanical phenomena 1	Thursday 12th July, 10:30 - 12:00	Auditorium
O1686	Computational Modeling to Evaluate Occupant Response and the Potential for Injury in Automotive Crash Scenarios	Duane Cronin	Automotive safety biomechanics 1	Thursday 12th July, 10:30 - 12:00	Liffey Hall 1
O1687	Challenges in automobile injury biomechanics and adaptation of traditional biomechanics research tools	Jason Forman	Automotive safety biomechanics 1	Thursday 12th July, 10:30 - 12:00	Liffey Hall 1
O1720	Preterm birth: a growing global problem that requires a team approach	Helen Feltovich	USNCB Global women's health biomechanics	Thursday 12th July, 10:30 - 12:00	Liffey MR3
O1721	Effects of elastase digestion on vaginal wall biaxial mechanical response	Kristin S. Miller	USNCB Global women's health biomechanics	Thursday 12th July, 10:30 - 12:00	Liffey MR3

No	Title	Presenting	Session	Session Time	Room
O1727	Meniscal mechanics in degenerated joints: A gap in knowledge?	Lutz Duerselen	Meniscal mechanics	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 1
O1728	Reprogramming cell and ECM physical properties to promote dense connective tissue repair	Robert Mauck	Meniscal mechanics	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 1
O1734	Exploring links between tissue loading and motor control at the patellofemoral joint	Thor Besier	Sensorimotor function and neuromechanics of joints	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 2A
O1735	Current neuromotor concepts to prevent 1st and 2nd ACL injury in young athletes	Timothy E. Hewett	Sensorimotor function and neuromechanics of joints	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 2A
O1741	Non-Coding Genomic Regulation Identified In Human Cardiomyocytes	Adam Engler	Cardiovascular mechanobiology and molecular mechanisms	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 2B
O1742	Mechanotransduction through LFA-1/ICAM-1 bonds on arrested neutrophils elicits outside-in signaling via Kindlin-3 and Rack-1 to mediate Ca ²⁺ flux and cell migration	Scott Simon	Cardiovascular mechanobiology and molecular mechanisms	Thursday 12th July, 10:30 - 12:00	Wicklow Hall 2B
O1748	Synthetic human embryology in a dish	Jianping Fu	Biomechanical microengineering of tissue mimics for human disease modelling	Thursday 12th July, 10:30 - 12:00	Ecocem
O1749	Biomechanical Responses of Engineered Human Skeletal Muscle Myobundles	George Truskey	Biomechanical microengineering of tissue mimics for human disease modelling	Thursday 12th July, 10:30 - 12:00	Ecocem
O1755	Biomechanical simulation is an effective means to generate scientific hypotheses and novel insights valuable for hand rehabilitation	Wendy Murray	Rehabilitation methods, tools, and devices for hand/wrist	Thursday 12th July, 10:30 - 12:00	Wicklow MR1
O1756	Prospects of Soft Robotics for Assisting Hand Rehabilitation	Muthu Wijesundara	Rehabilitation methods, tools, and devices for hand/wrist	Thursday 12th July, 10:30 - 12:00	Wicklow MR1
O1762	Application of dynamic stereo-radiographic imaging: Effects of ACL injury and reconstruction on joint arthrokinematics and implications for osteoarthritis development	Scott Tashman	Dynamic medical imaging techniques for biomechanics systems 1	Thursday 12th July, 10:30 - 12:00	Wicklow MR2
O1763	Automatic quantitative assessment for patellofemoral joint within dynamic TT-TG distance of 4D CT data	Hao Chen	Dynamic medical imaging techniques for biomechanics systems 1	Thursday 12th July, 10:30 - 12:00	Wicklow MR2
O1769	Directing cartilage growth in vitro: learning from developmental biology	Niamh Nowlan	Functional tissue engineering of articular cartilage and fibrocartilage	Thursday 12th July, 10:30 - 12:00	Wicklow MR4
O1770	Cartilage Tissue Engineering Versus Osteochondral Allografts: Challenges and Strategies for Viable Long-Term Solutions	Gerard Ateshian	Functional tissue engineering of articular cartilage and fibrocartilage	Thursday 12th July, 10:30 - 12:00	Wicklow MR4
O1789	The history of mechanical circulatory support: game changers and magic moments	Heinrich Schima	Mechanical circulatory support	Thursday 12th July, 14:20 - 15:50	Liffey B
O1790	Mechanical circulatory support: The landscape of our horizon	Francisco A. Arabia	Mechanical circulatory support	Thursday 12th July, 14:20 - 15:50	Liffey B
O1805	A new method for non-invasive measurement of arterial wave speed, intensity and reflection	Peter Weinberg	Arterial stiffness and disease	Thursday 12th July, 14:20 - 15:50	Liffey Hall 2
O1806	Coupling between the micro-structure of the cerebral aneurysm wall and its stiffness and failure properties	Anne Robertson	Arterial stiffness and disease	Thursday 12th July, 14:20 - 15:50	Liffey Hall 2
O1812	Biological Propulsion in (and of?) the Ocean	John Dabiri	Bioloocomotion and flows	Thursday 12th July, 14:20 - 15:50	Liffey MR1
O1813	Life in rough terrain—principles of leg control for agile and robustly stable bipedal locomotion among ground birds from quail to ostrich	Monica Daley	Bioloocomotion and flows	Thursday 12th July, 14:20 - 15:50	Liffey MR1
O1819	Biomechanics of Cough Clearance	Peter Krumpe	Airway flows and lung transport 1	Thursday 12th July, 14:20 - 15:50	Liffey MR2
O1820	Superimposed pressure oscillation therapy-acute and chronic asthmatic model responses	Ahmed Al-Jumaily	Airway flows and lung transport 1	Thursday 12th July, 14:20 - 15:50	Liffey MR2
O1826	Fracture behaviour of soft biological tissues	Edoardo Mazza	Integrated approaches for reproductive biomechanics	Thursday 12th July, 14:20 - 15:50	Liffey MR3
O1827	Modelling the second stage of labour using statistical shape analysis	Poul M. F. Nielsen	Integrated approaches for reproductive biomechanics	Thursday 12th July, 14:20 - 15:50	Liffey MR3
O1842	'Walking with a giant': the continuing impact of an exceptional zoologist and biomechanicist	Peter Aerts	Biomechanics in nature I: a tribute to Professor R. McNeill Alexander	Thursday 12th July, 14:20 - 15:50	Wicklow Hall 2A

No	Title	Presenting	Session	Session Time	Room
O1843	Manoeuvre dynamics in flying insects: from take-off to free flight	Florian T Muijres	Biomechanics in nature I: a tribute to Professor R. McNeill Alexander	Thursday 12th July, 14:20 - 15:50	Wicklow Hall 2A
O1849	Microtissue Platforms as Cardiovascular Disease Models	Viola Vogel	Cardiovascular cell mechanics, adhesion and mechanotransduction	Thursday 12th July, 14:20 - 15:50	Wicklow Hall 2B
O1850	Biaxial hysteresis in vascular smooth muscle cells	Patrick Alford	Cardiovascular cell mechanics, adhesion and mechanotransduction	Thursday 12th July, 14:20 - 15:50	Wicklow Hall 2B
O1856	Mechanisms of pelvic organ prolapse development: biomechanics and biochemistry	Margot Damaser	Biomechanics of pelvic floor / bladder engineering	Thursday 12th July, 14:20 - 15:50	Ecocem
O1857	Quo Vadis Female Pelvic Floor Biomechanics?	James Ashton-Miller	Biomechanics of pelvic floor / bladder engineering	Thursday 12th July, 14:20 - 15:50	Ecocem
O1863	The effects of stiffness of an Ankle Foot Orthosis on gait performance	Jaap Harlaar	Rehabilitation methods, tools, and devices for ankle/foot 1	Thursday 12th July, 14:20 - 15:50	Wicklow MR1
O1864	Compact, integrated hydraulic systems for wearable rehabilitation robots	William Durfee	Rehabilitation methods, tools, and devices for ankle/foot 1	Thursday 12th July, 14:20 - 15:50	Wicklow MR1
O1879	Biologically-engineered tissue tubes for cardiovascular grafts	Robert Tranquillo	Biofabrication and bioreactors for functional tissue systems 1	Thursday 12th July, 14:20 - 15:50	Wicklow MR4
O1880	Redefining identity of disease, tissues and cells – a Biofabrication paradigm	Abhay Pandit	Biofabrication and bioreactors for functional tissue systems 1	Thursday 12th July, 14:20 - 15:50	Wicklow MR4
O1899	Identification of lung tissue mechanics using stereoscopy and optical coherence tomography	Poul M. F. Nielsen	Lung biomechanics	Thursday 12th July, 16:20 - 17:50	Liffey Hall 2
O1900	Characterisation of blast lung injury through mechanical measurement and volumetric imaging	Hari Arora	Lung biomechanics	Thursday 12th July, 16:20 - 17:50	Liffey Hall 2
O1924	Sensing Tissue Microstructure with Shear Waves: Application of MR-Elastography in Oncology for Lesion Characterization and Therapy Follow-up	Ralph Sinkus	Multiscale cancer mechanobiology and biomechanics	Thursday 12th July, 16:20 - 17:50	Liffey MR3
O1925	Cancer Mechano-pathology: Bringing biomechanics to the clinic	Triantafyllos Stylianopoulos	Multiscale cancer mechanobiology and biomechanics	Thursday 12th July, 16:20 - 17:50	Liffey MR3
O1931	Towards SCI Prevention: Combining Ex Vivo and Human Subject Studies of the Cervical Spine	Peter Cripton	Traumatic loading of the spine and/or spinal cord injury	Thursday 12th July, 16:20 - 17:50	Wicklow Hall 1
O1932	Painful neck trauma: multiscale biomechanics of injury and dysfunction	Beth A Winkelstein	Traumatic loading of the spine and/or spinal cord injury	Thursday 12th July, 16:20 - 17:50	Wicklow Hall 1
O1938	Revisiting Alexander's dynamic similarity hypothesis to interpret the effects of body mass and leg posture on bipedal gaits of running birds	Monica Daley	Biomechanics in nature II: a tribute to Professor R. McNeill Alexander	Thursday 12th July, 16:20 - 17:50	Wicklow Hall 2A
O1939	Beyond bouncy gaits: the role of compliance in contractile performance of skeletal muscle	Natalie Holt	Biomechanics in nature II: a tribute to Professor R. McNeill Alexander	Thursday 12th July, 16:20 - 17:50	Wicklow Hall 2A
O1946	Remote controlled activation of stem cell mechanotransduction via magnetic nanoparticles; applications for injectable cell therapies for osteoarthritis and bone repair	Alicia El Haj	Mechanical regulation of stem cells	Thursday 12th July, 16:20 - 17:50	Wicklow Hall 2B
O1970	Biomechanical modeling of endovascular aortic aneurysm repair: transfer towards clinical practice	Stéphane Avril	Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues	Thursday 12th July, 16:20 - 17:50	Wicklow MR2
O1971	A patient-specific computational tool for preoperative planning of endovascular aortic aneurysm repair	Gilles Soulez	Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues	Thursday 12th July, 16:20 - 17:50	Wicklow MR2
O1977	The Biomechanics of Sharp Force Injuries	Sarah Hainsworth	General musculoskeletal biomechanics	Thursday 12th July, 16:20 - 17:50	Wicklow MR3
O1978	Bottom-Up Bone Tissue Mechanics and Fracture: Fundamental Underpinnings to Translation	Deepak Vashishth	General musculoskeletal biomechanics	Thursday 12th July, 16:20 - 17:50	Wicklow MR3
O1979	Systemic bone changes following fracture in mice	Blaine Christiansen	General musculoskeletal biomechanics	Thursday 12th July, 16:20 - 17:50	Wicklow MR3

SCIENTIFIC PROGRAMME

and Track Chairs

Biofluid and transport
David Steinman

Molecular biomechanics
Taiji Adachi

Biomechanics Education
Tim McGloughlin

Musculoskeletal
Tammy Haut Donahue

Cardiovascular
Gerhard Holzapfel

Plenary session

Cell biomechanics
Ed Guo

Society session
Michael Walsh

Emerging areas
Niamh Nowlan
and Kristin Myers

**Sport biomechanics, injury
and rehabilitation**
Tamara Reid Bush

Imaging and devices
Marie-Christine Ho Ba Tho

Tissue engineering
Carlijn Bouten

**Locomotion and Human
Movement**
Walter Herzog

PROGRAMME / SUNDAY 8th July 2018

TIME	Auditorium Level 3	Liffey B Level 1	Liffey Hall 1 Level 1	Liffey Hall 2 Level 1	Liffey MR1 Level 1	Liffey MR2 Level 1	Liffey MR3 Level 1
10:00 - 13:00							
13:30 - 19:00	Registration Opens The Convention Centre Dublin						
14:30 - 16:00	Locomotion and human movement	Society Starts at 14:15 ASME Mow/Fung/ Woo/Nerem Awards	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Locomotion and human movement	Biofluid and transport
	Locomotion and falling in the elderly 1		Brain injury mechanics 1	Biomechanics of cardiovascular tissues 1	Ocular biomechanics of aging and disease	Skeletal muscle properties and function during human movement (in vivo muscle properties)	Hyperthermia and heat-mediated transport
16:00 - 16:30	Refreshment Break	Refreshment Break					
16:30 - 18:00		Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Locomotion and human movement	Biofluid and transport
		Challenges of working across scales in patient- and animal-specific cardiovascular modeling	Brain injury mechanics 2	Biomechanics of cardiovascular tissues 2	Ocular trauma	ISB Session 1 - Computer simulation of human movement	Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)
18:00 - 18:45	Invited Plenary Jay Humphrey USA	Invited Plenary Toni Arndt Sweden					

PROGRAMME / SUNDAY 8th July 2018

Wicklow Hall 1 Level 2	Wicklow Hall 2A Level 2	Wicklow Hall 2B Level 2	Ecoem Level 2	Wicklow MR1 Level 2	Wicklow MR2 Level 2	Wicklow MR3 Level 2	Wicklow MR4 Level 2
			WCB General Assembly Private Meeting				
Registration Opens The Convention Centre Dublin							
Cell biomechanics	Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue engineering	Imaging and devices	Emerging areas	Molecular biomechanics
Mechanics of cell motility 1	Computational joint mechanics 1	Mechanics of musculoskeletal growth and adaptation 1	Population based approaches to computational musculoskeletal modelling	Biomechanics of heart valve tissue engineering	Deformable (statistical and analytical) shape and appearance models in biomechanics 1	Next generation tissue mechanic approaches: In situ and in patients to self-assembling materials	Molecular dynamics simulation
Refreshment Break							
Cell biomechanics	Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue engineering	Imaging and devices	Emerging areas	Molecular biomechanics
Mechanics of cell motility 2	Computational joint mechanics 2	Mechanics of musculoskeletal growth and adaptation 2	Multiscale biomechanics of paediatric musculoskeletal diseases	Mechanobiology of engineered soft tissue growth and remodeling	Deformable (statistical and analytical) shape and appearance models in biomechanics 2	Breast health biomechanics	Mechanobiology of cellular actomyosin systems

PROGRAMME / MONDAY 9th July 2018

TIME	Auditorium Level 3	Liffey B Level 1	Liffey Hall 1 Level 1	Liffey Hall 2 Level 1	Liffey MR1 Level 1	Liffey MR2 Level 1	Liffey MR3 Level 1	
08:20 - 09:00	Opening Ceremony							
09:00 - 09:45	Invited Plenary Lori Setton USA	Invited Plenary Takuji Ishikawa Japan						
09:55 - 11:25	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Musculoskeletal	Biofluid and transport	
	Locomotion and falling in the elderly 2	Multiscale mechanobiology of vascularisation and atherosclerosis	High rate injury biomechanics 1	Biomechanics of cardiovascular tissues 3	Biomechanics of ocular pathologies 1	Musculoskeletal interfaces	Nanotherapeutics and nanoparticle transport	
11:30 - 12:00	Refreshment Break and Poster Session Group 1 The Forum (Ground Floor) & Liffey A (Level 1)							
12:00 - 13:30	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Musculoskeletal	Biofluid and transport	
	Falls - prediction and prevention 1	Multiscale modeling of vascular and neurovascular diseases	High rate injury biomechanics 2	Micromechanics of cardiovascular tissues	Biomechanics of ocular pathologies 2	Multiscale biomechanics of articular degenerative diseases	Cancer microenvironments and tumor transport	
13:30 - 15:00	Lunch Break and Poster Group 1 The Forum (Ground Floor) & Liffey A (Level 1)							
15:00 - 16:30	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Musculoskeletal	Biofluid and transport	
	Falls - prediction and prevention 2	Multiscale mechanics of cardiovascular materials and structures	High rate injury biomechanics 3	Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke	Computer models of growth and remodeling 1	Incorporating in vivo load variability in modelling	Microfluidics	
16:30 - 17:00	Refreshment Break and Poster Session Group 1 The Forum (Ground Floor) & Liffey A (Level 1)							
17:00 - 18:30	Locomotion and human movement	Emerging areas	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Musculoskeletal	Biofluid and transport	
	Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1	Multiscale models of the cardiopulmonary system	Mechanosensing in injury and pain	Atherosclerotic plaque: Mechanism and modeling	Computer models of growth and remodeling 2	In vivo bone remodeling mechanics	Vascular, lymphatic, and ocular transport	
18:30 - 20:00	Welcome Reception The Convention Centre Dublin The Forum (Ground Floor) & Liffey A (Level One)							

PROGRAMME / MONDAY 9th July 2018

Wicklow Hall 1 Level 2	Wicklow Hall 2A Level 2	Wicklow Hall 2B Level 2	Ecoem Level 2	Wicklow MR1 Level 2	Wicklow MR2 Level 2	Wicklow MR3 Level 2	Wicklow MR4 Level 2
Cell biomechanics	Musculoskeletal	Locomotion and human movement	Musculoskeletal	Society	Imaging and devices	Tissue engineering	Molecular biomechanics
Computational methods in cell mechanics 1	Computational joint mechanics 3	Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 1	Multiscale biomechanics of age-related bone fractures	Asian-Pacific Association for Biomechanics: The Yamaguchi Medal for Young Investigators	Digital volume correlation strain measurements in biological tissues and biomaterials	TERMIS session: Biomaterials and biomechanics 1	Connecting molecular interactions and mechanosensing to cell behaviors
Refreshment Break and Poster Session Group 1 The Forum (Ground Floor) & Liffey A (Level 1)							
Cell biomechanics	Musculoskeletal	Locomotion and human movement	Musculoskeletal	Society	Imaging and devices	Tissue engineering	Molecular biomechanics
Computational methods in cell mechanics 2	Human spine, characterization and modeling 1	Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 2	Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention	Société de Biomécanique session: Christian Oddou Award Lecture and Young Investigator Awards	Advanced bioimaging 1	TERMIS session: Biomaterials and biomechanics 2	Analytical tools for nanoscale force transduction
Lunch Break and Poster Group 1 The Forum (Ground Floor) & Liffey A (Level 1)				Society Meeting 14.00 - 14.45 Société de Biomécanique General Assembly		Private Meeting USNCB (U.S. National Committee on Biomechanics)	
Cell biomechanics	Musculoskeletal	Locomotion and human movement	Musculoskeletal	Society	Imaging and devices	Tissue engineering	Molecular biomechanics
Flow-mediated cellular biomechanics 1	Human spine, characterization and modeling 2	Joint loading during locomotion and human movement (effects on joint and tissue adaptation) 3	Quantitative outcome assessment in orthopaedic trials	VPH Institute session: 25 years of physiome	Advanced bioimaging 2	Biomechanics of vascular tissue engineering	Intercellular and subcellular force transmission
Refreshment Break and Poster Session Group 1 The Forum (Ground Floor) & Liffey A (Level 1)							
Cell biomechanics	Musculoskeletal	Locomotion and human movement	Musculoskeletal	Society	Imaging and devices	Tissue engineering	Molecular biomechanics
Flow-mediated cellular biomechanics 2	Human spine, characterization and modeling 3	Predictive human movement simulation 1	ESB-ANC multiscale Biomechanics for orthopedics - from molecules to patients	Japan Society of Mechanical Engineers session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME Session runs until 1900	Biomechanics of soft tissue by Elastography (MRI, US)	Mechanobiology and tissue engineering of the respiratory tract	Nonequilibrium biomechanics - from Molecules to Cells
Welcome Reception The Convention Centre Dublin The Forum (Ground Floor) & Liffey A (Level One)							

PROGRAMME / TUESDAY 10th July 2018

TIME	Auditorium Level 3	Liffey B Level 1	Liffey Hall 1 Level 1	Liffey Hall 2 Level 1	Liffey MR1 Level 1	Liffey MR2 Level 1	Liffey MR3 Level 1
08:30 - 09:15	ASME Lissner Award	ESB Perren Award					
09:20 - 10:50	Locomotion and human movement Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 2	Cardiovascular From physiology to clinics: clinical applications of multiscale modelling of the heart	Sport biomechanics, injury and rehabilitation Head impact biomechanics and head protection 1	Cardiovascular Mechanobiology of heart valves	Molecular biomechanics Molecular force transduction	Locomotion and human movement Predictive human movement simulation 2	Biofluid and transport Brain biotransport
10:50 - 11:20	Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)						
11:20 - 12:50	Locomotion and human movement Human locomotion in diseased/injured populations - post-stroke	Cardiovascular Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics	Sport biomechanics, injury and rehabilitation Head impact biomechanics and head protection 2	Cardiovascular Cardiac growth and remodeling mechanics	Emerging areas Mechanobiology of tissue development on a chip	Sport biomechanics, injury and rehabilitation Pediatric injury	Biofluid and transport Biomechanics of the Central Nervous System
12:50 - 14:20	Lunch Break and Poster Group 2 The Forum (Ground Floor) & Liffey A (Level 1)						
14:20 - 15:05	Invited Plenary Xavier Trepast Spain	ESB Best Thesis Award					
15:10 - 16:40	Locomotion and human movement Motor control 1	Cardiovascular Multiscale modeling of the Cardiovascular System: Disease development, progression, and clinical intervention	Sport biomechanics, injury and rehabilitation Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities	Cardiovascular Vascular growth and remodeling mechanics	Emerging areas USNCB neuromechanics: Integrating across spatial and temporal scales	Sport biomechanics, injury and rehabilitation Locomotion and human movement energetics in sports 1	Biofluid and transport Biotransport diagnostics and therapeutics
16:40 - 17:10	Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)						
17:10 - 18:40	Locomotion and human movement Motor control 2	Cardiovascular Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)	Sport biomechanics, injury and rehabilitation Injuries and tissue mechanics in the lower abdomen	Cardiovascular Prosthetic heart valve	Emerging areas Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact	Sport biomechanics, injury and rehabilitation Locomotion and human movement energetics in sports 2	Biofluid and transport From the microcirculation to large artery flows: Challenges for clinical applications
18:45 - 19:45							
19:00 - 23:00	BEDRock Concert The Academy, 57 Abbey Street Middle, Dublin 1						





PROGRAMME / TUESDAY 10th July 2018

Wicklow Hall 1 Level 2	Wicklow Hall 2A Level 2	Wicklow Hall 2B Level 2	Ecocem Level 2	Wicklow MR1 Level 2	Wicklow MR2 Level 2	Wicklow MR3 Level 2	Wicklow MR4 Level 2
Cell biomechanics	Society	Musculoskeletal	Musculoskeletal	Imaging and devices	Society	Society	Tissue Engineering
USNCB - Cell mechanosignaling in immunological diseases	European Society of Biomechanics (ESB) Student Award	Shoulder biomechanics 1	Image-based multiscale modelling of fibrous tissues - tools and theories	Cardiovascular imaging 1	ASME BED PhD Student Paper Competition - Biomechanics at the Cell, Tissue and Multiscale Level	ASME BED PhD Student Paper Competition - Biotransport, Cryopreservation and Cardiovascular Modelling	Physical regulators and transport cues in tissue engineering
Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)							
Cell biomechanics	Society	Musculoskeletal	Musculoskeletal	Imaging and devices	Society	Society	Tissue Engineering
Microbial biomechanics	European Society of Biomechanics (ESB) Clinical Biomechanics Award	Shoulder biomechanics 2	Musculoskeletal biomechanics across the scales	Cardiovascular imaging 2	ASME BED PhD Student Paper Competition - Musculoskeletal Mechanics	ASME BED PhD Student Paper Competition - Cardiovascular Imaging and Modelling	Mechanobiology and tissue engineering of skin
	Society Meeting 13.00 - 14.00 European Society of Biomechanics (ESB) General Assembly	Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)			Society Meeting 13.30 - 15.00 NSF Undergraduate Design Competition	Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)	
Cell biomechanics	Musculoskeletal	Musculoskeletal	Musculoskeletal	Imaging and devices	Society	Society	Tissue Engineering
Cell deformation and cell signalling	IVD degeneration / regeneration / repair mechanobiology 1	Hand and wrist biomechanics 1	From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1	Technology innovation in medical devices 1	ASME BED PhD Student Paper Competition - Sports Biomechanics	ASME BED PhD Student Paper Competition - Cardiovascular Mechanics and Cell Biomechanics	Functional bone and cranio-facial tissue engineering
Refreshment Break and Poster Session Group 2 The Forum (Ground Floor) & Liffey A (Level 1)							
Cell biomechanics	Musculoskeletal	Musculoskeletal	Musculoskeletal	Imaging and devices	Society	Cell biomechanics	Tissue Engineering
Cell biomechanics and oncology 1	IVD degeneration / regeneration / repair mechanobiology 2	Hand and wrist biomechanics 2	From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 2	Technology innovation in medical devices 2	German Society of Biomechanics session: Experimental Biomechanics including Best Paper Award	Mechanobiology and embryogenesis 1	Technologies for validation in space and time of multiscale models of tissue engineering
					ASME Open Executive Business Meeting		
BEDRock Concert The Academy, 57 Abbey Street Middle, Dublin 1							

PROGRAMME / WEDNESDAY 11th July 2018

TIME	Auditorium Level 3	Liffey B Level 1	Liffey Hall 1 Level 1	Liffey Hall 2 Level 1	Liffey MR1 Level 1	Liffey MR2 Level 1	Liffey MR3 Level 1
08:30 - 09:15	Invited Plenary Chwee Teck Lim Singapore	Invited Plenary Merryn Tawhai New Zealand					
09:20 - 10:50	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Emerging areas	Sport biomechanics, injury and rehabilitation	Cardiovascular
	Motor control 3	Cardiac mechanics and heart modeling 1	The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programmes	Thoracic aortic aneurysms and aortic dissection 1	Biomedical engineering research and education in Africa	Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries	Cardiovascular development
10:50 - 11:20	Refreshment Break and Poster Session Group 3 The Forum (Ground Floor) & Liffey A (Level 1)						
11:20 - 12:50	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Education	Sport biomechanics, injury and rehabilitation	Biofluid and transport
	Motor control 4	Cardiac mechanics and heart modeling 2	Multiscale biomechanics of sport and sport injuries	Thoracic aortic aneurysms and aortic dissection 2	Biomedical engineering education 1	Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance	Challenges of thrombosis modelling
12:50 - 14:20	Lunch Break and Poster Group 3 The Forum (Ground Floor) & Liffey A (Level 1)			Society Meeting 13:00 - 14:00 ASME Awards Announcements and Medal Winner Recognition	Lunch Break and Poster Group 3 The Forum (Ground Floor) & Liffey A (Level 1)		
14:20 - 15:05	Invited Plenary Elazer Edelman USA	Invited Plenary Clemens van Blitterswijk The Netherlands					
15:10 - 16:40	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Education	Emerging areas	Biofluid and transport
	Amputee biomechanics 1	Cardiac regeneration and healing	Running injuries 1	Abdominal aortic aneurysms 1	Biomedical engineering education 2	Computational challenges in multiscale modelling in biomechanics	Arterial pulse wave mechanics and ventriculo-arterial interaction
16:40 - 17:10	Refreshment Break and Poster Session Group 3 The Forum (Ground Floor) & Liffey A (Level 1)						
17:10 - 18:40	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Public Engagement	Emerging areas	Biofluid and transport
	Amputee biomechanics 2	Prenatal cardiovascular fluid mechanics and flow mechanobiology	Running injuries 2	Abdominal aortic aneurysms 2	Public engagement with biomechanics	Modelling uncertainty and propagation of data for biomechanics systems	Verification, validation and uncertainty quantification in cardiovascular CFD
18:45 - 19:45							
19:30 Bus Departure 20:00	Congress Party The Guinness Storehouse						



PROGRAMME / WEDNESDAY 11th July 2018

Wicklow Hall 1 Level 2	Wicklow Hall 2A Level 2	Wicklow Hall 2B Level 2	Ecocem Level 2	Wicklow MR1 Level 2	Wicklow MR2 Level 2	Wicklow MR3 Level 2	Wicklow MR4 Level 2
Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue Engineering	Imaging and devices	Cell biomechanics		Cell biomechanics
Bone fracture mechanics (in vitro and in vivo) 1	Biomimetic implants for articular cartilage repair / regeneration	Mechanics of passive muscle and connective tissue 1	Multiscale biomechanics of scaffolds 1	Technology innovation in medical devices 3	Mechanobiology and embryogenesis 2		Cell biomechanics and oncology 2
Refreshment Break and Poster Session Group 3 The Forum (Ground Floor) & Liffey A (Level 1)							
Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue Engineering	Imaging and devices	Cell biomechanics	Industry Session 11:20 - 12:50	Cell biomechanics
Bone fracture mechanics (in vitro and in vivo) 2	Cartilage tribology	Mechanics of passive muscle and connective tissue 2	Multiscale biomechanics of scaffolds 2	Technology innovation in medical devices 4	Mechanogenetics for cell therapy	Medical Image Based Innovations to Improve Patient Care Hosted by Materialise 	Cell interaction with microenvironment 1
Lunch Break and Poster Group 3 The Forum (Ground Floor) & Liffey A (Level 1)					Society Meeting 13.00 - 14.00 German Society of Biomechanics (DGF) General Assembly		Society Meeting 13.00 - 14.00 Asian-Pacific Association for Biomechanics Executive Committee Meeting
Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue Engineering	Imaging and devices	Imaging and devices	Industry Session 15:10 - 15:55	Cell biomechanics
Bone fracture mechanics (in vitro and in vivo) 3	Bone-cartilage cross-talk	Tendon, ligament and enthesis biomechanics 1	Biofabrication for musculoskeletal tissue engineering	Stenting within the Cardiovascular System 1	Synergy of image-based modeling and model-based imaging for probing biological systems	Outdoor Motion Capture and Musculoskeletal Simulations Hosted by Anybody Technology & Xsens 	Cell interaction with microenvironment 2
						Industry Session 15:55 - 16:40	
						IMU Data Quality Control Hosted by Noraxon 	
Refreshment Break and Poster Session Group 3 The Forum (Ground Floor) & Liffey A (Level 1)							
Musculoskeletal	Musculoskeletal	Musculoskeletal	Tissue Engineering	Imaging and devices	Imaging and devices	Industry Session 17:10 - 17:55	Cell biomechanics
Bone fracture mechanics (in vitro and in vivo) 4	Bone marrow properties and mechanobiology	Tendon, ligament and enthesis biomechanics 2	Multiscale biomechanics and modelling of engineered tissues	Stenting within the Cardiovascular System 2	Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems 1	Markerless Motion Capture - new high performance technology for big data in real world scenarios- Use cases, Accuracy, Case studies Hosted by SIMI 	Mechanotransduction in engineered tissue
						ASME Student Leadership Council Meeting	
Congress Party The Guinness Storehouse							

PROGRAMME / THURSDAY 12th July 2018

TIME	Auditorium Level 3	Liffey B Level 1	Liffey Hall 1 Level 1	Liffey Hall 2 Level 1	Liffey MR1 Level 1	Liffey MR2 Level 1	Liffey MR3 Level 1	
08:30 - 10:00	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Biofluid and transport	Biofluid and transport	Emerging areas	
	Human locomotion in diseased/injured populations - osteoarthritis	Congenital heart defects and pediatric cardiology applications 1	ISB Session 2 - footwear biomechanics	Cerebral aneurysms 1	Modeling of biofluid transport 1	Fluid-structure interactions in cardiovascular mechanics 1	The biomechanics of pregnancy and parturition	
10:00 - 10:30	Refreshment Break and Poster Session Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
10:30 - 12:00	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Biofluid and transport	Biofluid and transport	Emerging areas	
	Mobile monitoring of biomechanical phenomena 1	Congenital heart defects and pediatric cardiology applications 2	Automotive safety biomechanics 1	Cerebral aneurysms 2	Modeling of biofluid transport 2	Fluid-structure interactions in cardiovascular mechanics 2	USNCB global women's health biomechanics	
12:00 - 13:30	Lunch Break and Poster Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
13:30 - 14:15	Invited Plenary Julie Steele Australia	Invited Plenary David Elad Israel						
14:20 - 15:50	Locomotion and human movement	Cardiovascular	Sport biomechanics, injury and rehabilitation	Cardiovascular	Biofluid and transport	Biofluid and transport	Emerging areas	
	Mobile monitoring of biomechanical phenomena 2	Mechanical circulatory support	Automotive safety biomechanics 2	Arterial stiffness and disease	Biolocotion and flows	Airway flows and lung transport 1	Integrated methods for reproductive biomechanics	
15:50 - 16:20	Refreshment Break and Poster Session Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
16:20 - 17:50			Sport biomechanics, injury and rehabilitation	Emerging areas	Imaging and devices	Biofluid and transport	Emerging areas	
			Biomechanics of sports: Surfing to soccer	Lung biomechanics	Imaging and device biomechanics: Modelling, diagnosis, rehabilitation	Airway flows and lung transport 2	Multiscale cancer mechanobiology & biomechanics	
18:00 - 18:30	Closing Ceremony							

PROGRAMME / THURSDAY 12th July 2018

Wicklow Hall 1 Level 2	Wicklow Hall 2A Level 2	Wicklow Hall 2B Level 2	Ecozem Level 2	Wicklow MR1 Level 2	Wicklow MR2 Level 2	Wicklow MR3 Level 2	Wicklow MR4 Level 2
Musculoskeletal	Musculoskeletal	Cell biomechanics	Tissue engineering	Imaging and devices	Imaging and devices		Tissue engineering
Medical device / soft tissue interaction	Biomechanics of musculoskeletal development	Cardiovascular cell mechanics and its role in human disease	Biomechanics of muscle, tendon and ligament tissue engineering	Rehabilitation methods, tools, and devices for shoulder	Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems 2		Mechanical Issues in Interfacial Tissue Engineering
Refreshment Break and Poster Session Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
Musculoskeletal	Musculoskeletal	Cell biomechanics	Tissue engineering	Imaging and devices	Imaging and devices	Industry Session 10:30 - 11:15	Tissue engineering
Meniscal mechanics	Sensorimotor function and neuromechanics of joints	Cardiovascular mechanobiology and molecular mechanisms	Biomechanical microengineering of tissue mimics for human disease modeling	Rehabilitation methods, tools, and devices for hand/wrist	Dynamic medical imaging techniques for biomechanics systems 1	Body (A)symmetries: Is there a Link between Local and Integral Movement Function? Hosted by Kistler  measure. analyze. innovate.	Functional tissue engineering of articular cartilage and fibrocartilage
						Industry Session 11:15 - 12:00 Integrating IMUs with Optical Motion Capture: Clinical and Sporting Applications' Hosted by VICON 	
Lunch Break and Poster Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
Musculoskeletal	Emerging areas	Cell biomechanics	Tissue engineering	Imaging and devices	Imaging and devices		Tissue engineering
Total joint replacements	Biomechanics in nature I, a tribute to Prof R. McNeill Alexander	Cardiovascular cell mechanics, adhesion and mechano-transduction	Biomechanics of pelvic floor / bladder engineering	Rehabilitation methods, tools, and devices for ankle/foot 1	Dynamic medical imaging techniques for biomechanics systems 2		Biofabrication and bioreactors for functional tissue systems 1
Refreshment Break and Poster Session Group 4 The Forum (Ground Floor) & Liffey A (Level 1)							
Musculoskeletal	Emerging areas	Cell biomechanics	Tissue engineering	Imaging and devices	Imaging and devices	Musculoskeletal	Tissue engineering
Traumatic loading of the spine and/or spinal cord injury	Biomechanics in nature II, a tribute to Prof R. McNeill Alexander	Mechanical regulation of stem cells	General tissue engineering	Rehabilitation methods, tools, and devices for ankle/foot 2	Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues	General musculoskeletal biomechanics	Biofabrication and bioreactors for functional tissue systems 2



POSTER LISTING

Monday 9th July

THE FORUM

Cell Biomechanics

- P1000-P1020 Computational methods in cell mechanics
P1021-P1029 Flow-mediated cellular biomechanics
P1030-P1036 Mechanics of cell motility

Emerging Areas

- P1037-P1042 Biomechanics of ocular pathologies
P1043-P1049 Breast health biomechanics
P1050-P1059 Computer models of growth and remodelling
P1060-P1062 Next generation tissue mechanic approaches: In situ and in patients to self-assembling materials
P1063-P1065 Ocular biomechanics of aging and disease
P1066-P1067 Ocular trauma

Imaging & Device Biomechanics

- P1068-P1081 Advanced biomaging
P1082-P1097 Biomechanics of soft tissue by Elastography (MRI, US)
P1098-P1107 Deformable (statistical and analytical) shape and appearance models in biomechanics
P1108-P1117 Digital volume correlation strain measurements in biological tissues and biomaterials

Molecular Biomechanics

- P1118-P1122 Analytical tools for nanoscale force transduction
P1123-P1126 Connecting molecular interactions and mechanosensing to cell behaviours
P1127-P1133 Intercellular and subcellular force transmission
P1134-P1138 Mechanobiology of cellular actomyosin systems
P1139 Non-equilibrium biomechanics - from molecules to cells

Musculoskeletal

- P1140-P1141 ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients
P1142-P1177 Computational joint mechanics
P1178-P1220 Human spine, characterization and modelling
P1221-P1233 In vivo bone remodelling mechanics
P1234-P1238 Incorporating in vivo load variability in modelling
P1239-P1257 Mechanics of musculoskeletal growth and adaptation
P1258-P1269 Multiscale biomechanics of age-related bone fractures
P1270-P1285 Multiscale biomechanics of articular degenerative diseases
P1286-P1289 Multiscale biomechanics of paediatric musculoskeletal diseases
P1290-P1300 Musculoskeletal interfaces
P1301-P1310 Population based approaches to computational musculoskeletal modelling
P1311-P1318 Quantitative outcome assessment in orthopaedic trials

Sport biomechanics, injury and Rehabilitation

- P1319-P1334 Brain injury mechanics
P1335-P1362 High rate injury biomechanics
P1363-P1364 Mechanosensing in injury and pain

Tissue engineering

- P1365-P1369 Biomechanics of heart valve tissue engineering
P1370-P1382 Biomechanics of vascular tissue engineering
P1383-P1387 Mechanobiology and tissue engineering of the respiratory tract
P1388-P1395 Mechanobiology of engineered soft tissue growth and remodelling
P1396-P1403 TERMIS session: Biomaterials and biomechanics 1
P1404 TERMIS session: Biomaterials and biomechanics 2

LIFFEY A

Awards

- P1500-P1512 JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME

Biofluid and transport

- P1513 Cancer microenvironments and tumour transport
P1514 Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)
P1515-P1522 Microfluidics
P1523-P1526 Nanotherapeutics and nanoparticle transport
P1527-P1538 Vascular, lymphatic, and ocular transport

Cardiovascular

- P1539-P1547 Atherosclerotic plaque: Mechanism and modelling
P1548-P1574 Biomechanics of cardiovascular tissues
P1575-P1582 Challenges of working across scales in patient- and animal-specific cardiovascular modelling
P1583-P1585 Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke
P1586-P1588 Micromechanics of cardiovascular tissues
P1589-P1594 Multiscale mechanics of cardiovascular materials and structures
P1595 Multiscale mechanobiology of vascularisation and atherosclerosis
P1596-P1599 Multiscale modeling of vascular and neurovascular diseases
P1600-P1603 Multiscale models of the cardiopulmonary system

Locomotion & human movement

- P1604-P1623 Falls - prediction and prevention
P1624-P1638 Gait in cerebral palsy: Neuromuscular control versus muscle mechanics
P1639-P1653 ISB Session 1: Computer simulation of human movement
P1654-P1682 Joint loading during locomotion and human movement (effects on joint and tissue adaptation)
P1683-P1703 Locomotion and falling in the elderly
P1704-P1730 Predictive human movement simulation
P1731-P1754 Skeletal muscle properties and function during human movement (in vivo muscle properties)

Society

- P1755-P1774 Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention

POSTER LISTING

Tuesday 10th July

THE FORUM

Cell Biomechanics

- P2000-P2010 Cell biomechanics and oncology
 P2011-P2017 Cell deformation and cell signalling
 P2018-P2025 Mechanobiology and embryogenesis
 P2026-P2032 USNCB - Cell mechanosignaling in immunological diseases

Emerging areas

- P2033-P2048 Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact
 P2049-P2050 Mechanobiology of tissue development on a chip
 P2051-P2053 Microbial biomechanics
 P2054-P2055 USNCB Neuromechanics: Integrating across spatial and temporal scales

Imaging and device biomechanics

- P2056-P2077 Cardiovascular imaging
 P2078-P2124 Technology innovation in medical devices

Molecular biomechanics

- P2125-P2126 Molecular force transduction

Musculoskeletal

- P2127-P2131 Image-based multiscale modelling of fibrous tissues – tools and theories
 P2132-P2141 From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making
 P2142-P2165 Hand and wrist biomechanics
 P2166-P2176 IVD degeneration / regeneration / repair mechanobiology
 P2177-P2190 Musculoskeletal biomechanics across the scales
 P2191-P2207 Shoulder biomechanics

Sport biomechanics, injury and rehabilitation

- P2208-P2235 Head impact biomechanics and head protection
 P2236 Injuries and tissue mechanics in the lower abdomen
 P2237-P2256 Locomotion and human movement energetics in sports
 P2257-P2258 Paediatric injury
 P2259-P2264 Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities.

Tissue engineering

- P2265-P2271 Functional bone and cranio-facial tissue engineering
 P2272-P2289 Mechanobiology and tissue engineering of skin
 P2290-P2291 Physical regulators and transport cues in tissue engineering
 P2292-P2296 Technologies for validation in space and time of multiscale models of tissue engineering

LIFFEY A

Awards

- P2500-P2512 ASME POSTER Session BS Level: Cardiovascular Biomechanics, Cellular & Tissue Biomechanics, Biofluid & Biotransport, and Emerging Areas
 P2513-P2527 ASME Poster Session BS Level: Locomotion, Musculoskeletal, Sports Biomechanics, and Central Nervous System
 P2528-P2540 ASME Poster Session MS Level: Biofluid & Biotransport, Cellular & Molecular Biomechanics, and Musculoskeletal Biomechanics
 P2541-P2555 ASME Poster Session MS Level: Cardiovascular Biomechanics, Sport Biomechanics, Devices, and Emerging areas

Biofluid and transport

- P2556-P2565 Biomechanics of the Central Nervous System
 P2573-P2577 Brain biotransport
 P2578-P2593 From the microcirculation to large artery flows: Challenges for clinical applications

Cardiovascular

- P2594-P2600 Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics
 P2601-P2603 Cardiac growth and remodelling mechanics
 P2604-P2607 From physiology to clinics: Clinical applications of multiscale modelling of the heart
 P2608-P2610 Mechanobiology of heart valves
 P2611-P2618 Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention
 P2619-P2625 Prosthetic heart valves
 P2626-P2633 Vascular growth and remodelling mechanics

Locomotion and human movement

- P2634-P2645 Human locomotion in diseased/injured populations - post-stroke
 P2646-P2706 Motor control



POSTER LISTING

Wednesday 11th July

THE FORUM

Cell biomechanics

- P3000-P3027 Cell interaction with microenvironment
P3028-P3029 Mechanogenetics for cell therapy
P3030-P3033 Mechanotransduction in engineered tissue

Emerging areas

- P3034-P3039 Biomedical engineering research and education in Africa
P3040-P3044 Computational challenges in multiscale modelling in biomechanics
P3045-P3053 Modelling uncertainty and propagation of data for biomechanics systems

Imaging and device biomechanics

- P3054-P3059 Synergy of image-based modelling and model-based imaging for probing biological systems
P3060-P3072 Nano- and micro-mechanics of biological tissue, biomimetic and bioinspired materials and systems
P3073-P3092 & P3241-P3243 Stenting within the cardiovascular system
P3093-P3098 Synergy of image-based modelling and model-based imaging for probing biological systems

Musculoskeletal

- P3099-P3100 Biomimetic implants for articular cartilage repair / regeneration
P3101-P3141 Bone fracture mechanics (in vitro and in vivo)
P3142-P3151 Cartilage tribology
P3152-P3165 Mechanics of passive muscle and connective tissue
P3166-P3190 Tendon, ligament and enthesis biomechanics

Sport biomechanics, injury and rehabilitation

- P3191-P3196 Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance
P3197-P3202 Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries
P3203-P3206 Multiscale biomechanics of sport and sport injuries
P3207-P3213 Running Injuries
P3214 The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programmes

Tissue engineering

- P3215-P3223 Biofabrication for musculoskeletal tissue engineering
P3224-P3232 Multiscale biomechanics and modeling of engineered tissues
P3233-P3240 Multiscale biomechanics of scaffolds

LIFFEY A

Biofluid and transport

- P3500-P3507 Challenges of thrombosis modelling
P3508-P3514 Verification, validation and uncertainty quantification in cardiovascular CFD

Biomedical engineering education

- P3515-P3518 Biomedical engineering education 1

Cardiovascular

- P3519-P3529 Abdominal aortic aneurysms
P3530-P3542 Arterial pulse wave mechanics and ventriculo-arterial interaction
P3543-P3564 Cardiac mechanics and heart modelling
P3565-P3567 Cardiac regeneration and healing
P3568-P3569 Cardiovascular development
P3570-P3572 Prenatal cardiovascular fluid mechanics and flow mechanobiology
P3576-P3589 Thoracic aortic aneurysms and aortic dissection

Locomotion and human movement

- P3590-P3618 Amputee biomechanics

POSTER LISTING

Thursday 12th July

THE FORUM

Cell biomechanics

- P4000-P4014** Cardiovascular cell mechanics, adhesion and mechanotransduction
P4015-P4021 Cardiovascular mechanobiology and molecular mechanisms
P4022-P4032 Mechanical regulation of stem cells
P4366-P4370 Cardiovascular cell mechanics and its role in human disease

Emerging areas

- P4033-P4043** Biomechanics in nature I: a tribute to Professor R. McNeill Alexander
P4044-P4047 Biomechanics in nature II: a tribute to Professor R. McNeill Alexander
P4048-P4054 Lung biomechanics
P4055-P4064 Multiscale cancer mechanobiology and biomechanics
P4065-P4070 The biomechanics of pregnancy and parturition
P4071-P4074 USNCB Global women's health biomechanics

Imaging and device biomechanics

- P4075-P4087** Dynamic medical imaging techniques for biomechanics systems
P4088-P4121 Imaging and device biomechanics: Modelling, diagnosis, rehabilitation
P4122-P4142 Imaging and device biomechanics: Modelling, diagnosis, rehabilitation
P4143-P4175 Rehabilitation methods, tools, and devices for ankle/foot
P4176-P4185 Rehabilitation methods, tools, and devices for hand/wrist
P4186-P4188 Rehabilitation methods, tools, and devices for shoulder

Musculoskeletal

- P4189-P4196** Biomechanics of musculoskeletal development
P4197-P4225 General musculoskeletal biomechanics
P4226-P4233 Medical device - soft tissue interaction
P4234-P4243 Meniscal mechanics
P4244-P4247 Sensorimotor function and neuromechanics of joints
P4248-P4254 Traumatic loading of the spine and/or spinal cord injury

Sport biomechanics, injury and rehabilitation

- P4255-P4268** Automotive safety biomechanics
P4269-P4302 Biomechanics of sports: surfing to soccer
P4303-P4315 ISB Session 2: Footwear biomechanics

Tissue engineering

- P4316-P4321** Biofabrication and bioreactors for functional tissue systems
P4322-P4324 Biomechanical microengineering of tissue mimics for human disease modelling
P4325-P4336 Biomechanics of muscle, tendon and ligament tissue engineering
P4337-P4340 Biomechanics of pelvic floor / bladder engineering
P4341-P4352 Functional tissue engineering of articular cartilage and fibrocartilage
P4353-P4364 General tissue engineering
P4365 Mechanical issues in interfacial tissue engineering

LIFFEY A

Biofluid and transport

- P4500-P4511** Airway flows and lung transport
P4512-P4520 Biocomotion and flows
P4521-P4537 Fluid-structure interactions in cardiovascular mechanics
P4538-P4564 Modelling of biofluid transport

Cardiovascular

- P4565-P4572** Arterial stiffness and disease
P4578-P4591 Cerebral aneurysms
P4592-P4600 Congenital heart defects and paediatric cardiology applications
P4601-P4619 Mechanical circulatory support
P4620-P4632 Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues

Locomotion and human movement

- P4633-P4649** Human locomotion in diseased/injured populations - osteoarthritis
P4650-P4673 Mobile monitoring of biomechanical phenomena

Poster listing correct as per 26th June, please see the online programme and App for the most up to date listing.



INDUSTRY SESSIONS

Wednesday 11th July

MEDICAL IMAGE BASED INNOVATIONS TO IMPROVE PATIENT CARE

11:20 - 12:50



The scope of this session is to highlight new and notable contributions from academic delegates to the future of applying medical image based technologies in patient care. The finalists of the Mimics Innovation Awards from all regions (EMEA, APAC and Americas) will present their recent work and highlight the most advanced techniques they use to advance the field of biomechanics. The session will also contain an overview of the latest functionalities within the brand new Mimics Innovation Suite 21, and the award ceremony for the Mimics Innovation Award Winners of 2018.

Session Chairs

Prof. Dr. Jos Vander Sloten (Katholieke Universiteit Leuven, Belgium) & Dr. Zahra Asgharpour (Materialise N.V. Leuven, Belgium)

- Simon Sonntag, COO at enmodes GmbH, Aachen, Germany
Title of Speech: "Development of a Novel Inflow Cannula for the EVAHEART® 2 LVAS: Virtual Anatomical Fitting and Hemodynamic Simulation"
- Louis Parker, PhD Researcher at Vascular Engineering Lab, Harry Perkins Institute of Medical Research, Perth, Australia
Title of Speech: 'Computational Modelling to Evaluate Intervention Strategies for a Complex Case of Aortic Disease'
- Prof. Dr. Lakshmi Prasad Dasi, Ohio State University, Columbus, USA
Title of Speech: 'Accurate Predictive Models to Assess Coronary Obstruction and PARAVALVULAR Leakage During TAVR'
- Prof. Dr. Michael Skipper Andersen, Aalborg University, Aalborg, Denmark
Title of Speech: "Workflow Assessing the Effect of Gait Alterations on Stresses in the Medial Tibial Cartilage – Combined Musculoskeletal Modelling and Finite Element Analysis"
- Sjoerd Kolk, Materialise N.V. Leuven, Belgium
Title of Speech: "Using Medical Imaging Data in Biomechanics: Past, Present and Future"
- Award Ceremony Mimics Innovation Awards 2018

www.materialise.com

OUTDOOR MOTION CAPTURE AND MUSCULOSKELETAL SIMULATION

15:10 - 15:55



Gait analysis is a standard tool within the biomechanics community. Moreover, the creation of musculoskeletal models allow researchers to estimate quantities difficult to measure non-invasively. Conventionally, these models require optical motion capture and force plate data to perform the inverse dynamic calculations which estimate muscle forces and joint moments. However, such applications are limited to gait laboratories.

Recently the AnyBody Modeling System has incorporated techniques that enable inverse dynamics calculations using solely kinematic input, combined with ground reaction force predictions. Xsens MVN is an inertial motion capture system with robust performance and can be used in any location. This allows motion data to be acquired in the natural environment of the participant. The latest software release of Xsens MVN Analyze 2018 includes new major features, such as immunity to magnetic disturbances and reduced skin tissue artefact.

In this joint AnyBody & Xsens session, we present the state of the art in inertial motion capture and musculoskeletal models. Furthermore, a workflow is presented to import Xsens motion data into AnyBody, such that full-force musculoskeletal simulations can be performed.

Speakers

Jason Konrath - Xsens
Ananth Gopalakrishnan - Anybody Technology

www.xsens.com
www.anybodytech.com

INDUSTRY SESSIONS

Wednesday 11th July

IMU DATA QUALITY CONTROL

15:55 - 16:40



Dr. John Cockcroft, PhD (Managing Staff Scientist, Neuromechanics Unit, Stellenbosch University, South Africa) will share this experience of refining IMU data collection procedures in the laboratory and the clinic to ensure high quality data recording to allow for accurate interpretation. Dr. Cockcroft will share best practices regarding developing set up procedures and identifying appropriate scaling methods for individual models.

Speakers

John Cockcroft, PhD
Managing Staff Scientist, Neuromechanics Unit,
Stellenbosch University, South Africa

www.noraxon.com

MARKERLESS MOTION CAPTURE – NEW HIGH PERFORMANCE TECHNOLOGY FOR BIG DATA IN REAL WORLD SCENARIOS– USE CASES, ACCURACY, CASE STUDIES

17:10 - 17:55



This session will give an overview on principles, accuracy validations and actual use cases of markerless motion capture. Several studies have been performed to validate accuracy of this method and a summary of those will be presented regarding angle and joint position accuracy. Further actual use cases from high performance sport and medical field will be presented showing how the technology has been implemented to deliver automated motion capture for big data analysis in real games and daily routine, without any subject preparations.

Speakers

Philipp Ruß, Thomas Hock - Simi

www.simi.com



INDUSTRY SESSIONS

Thursday 12th July

BODY (A)SYMMETRIES: IS THERE A LINK BETWEEN LOCAL AND INTEGRAL MOVEMENT FUNCTION?

10:30 - 11:15

KISTLER
measure. analyze. innovate.

Local asymmetries include bilateral asymmetries (the difference in performance or function between the same muscles on different limb/side) and asymmetries between the opposing muscles of the same limb (e.g. flexors and extensors). Global asymmetries are characterized by performance imbalance seen at a body region or even in full kinetic chain. Local and global performance are determined by the level of individual's fundamental motor abilities – strength and power, stability and balance, flexibility and mobility, all of which are interrelated to a certain degree.

Body asymmetries in various sports have been investigated before, yet several questions remain unanswered especially how the different types of asymmetries are related and what impact they have on injury prevention or return to play decisions.

The scope of this session is to present you a study conducted by Prof. Nejc Sarabon which shows the role of force measurement when looking at asymmetries in the context mentioned above.

Speakers

Prof. Nejc Sarabon
University of Primorska, Andrej Marusic Institute,
Department of Health Study, Koper, Slovenia

www.kistler.com

INTEGRATING IMUS WITH OPTICAL MOTION CAPTURE: CLINICAL AND SPORTING APPLICATIONS'

11:15 - 12:00

VICON

How to apply Vicon IMU technology and Vicon optical Motion Capture in your lab, be it a Clinical or a Sporting application.

Dr. Thor Besier will discuss the development of wearable sensor technologies and their use in musculoskeletal model integration, the value of integration with optical modalities, and their use in sporting and clinical applications. This talk will detail the different modelling approaches that contributed to the integration including: mechanical and deterministic models, statistical models, and hybrid 'surrogate' modelling.

Speakers

Dr. Thor Besier

www.vicon.com



European Society of Biomechanics

WCB2018 is held in conjunction with the European Society of Biomechanics (ESB). The goal of ESB is to encourage research, disseminate knowledge and promote progress in Biomechanics. It is now the largest Biomechanics society in Europe with over 1000 members. For more information on ESB come see us at our booth on Level One.

ESB activities at WCB

Tuesday 10th July is "ESB Day" with the following sessions and meetings:

SM Perren Award 2018

8:30 – 9:15, Liffey B

Stefaan Verbruggen and colleagues have been awarded the SM Perren Award 2018 for their study entitled "Altered Biomechanical Stimulation of the Developing Hip Joint in Presence of Hip Dysplasia Risk Factors". The work has primarily been carried out at Imperial Collage London, UK.

ESB Student Award 2018 + Mobility Award 2018

9:20 – 10:50, Wicklow Hall 2A

The 4 finalists that will compete for the 2018 ESB Student Award are:

- **Graeme Paul** "Real-time FEA allows homogenization of strain profiles in individual mice for improved fracture healing after cyclic loading"
- **Duncan Betts** "A three-dimensional multiscale model of fracture healing in mice: Sensitivity of callus microstructure to osteoblast polarization and initial MSC density"
- **Andrea Mainardi** "Cartilage on chip: hyper-physiological compression in a microscale platform triggers osteoarthritic traits in a cartilage model"
- **Arsalan Marghoub** "Modelling bone formation at the cranial sutures in normal and craniosynostotic mice"

All ESB members that join the whole session can vote for the winner!

At the end of the session, the ESB Mobility Award will be presented and the winners of the 2018 edition will be announced.

ESB Clinical Biomechanics Award 2018

11:20 – 12:50, Wicklow Hall 2A

The 4 finalists that will compete for the 2018 Clinical Biomechanics Award are:

- **Philipp Damm** "Gluteal muscle damage leads to higher in vivo hip joint loads 3 months after total hip arthroplasty"
- **Sónia Alves** "Laying the foundation for healthy gait asymmetry ranges outside the laboratory in everyday life activities"
- **Hans Kainz** "Selective dorsal rhizotomy normalizes muscle forces during walking in children with spastic cerebral palsy"
- **Hai-Chao Han** "The effects of trabecular cutting on the diastolic and systolic function in ex vivo New Zealand rabbits"

After the ESB Clinical Biomechanics Award Session, grab your lunch and take it with you to return to Wicklow Hall 2A for the ESB General Assembly.

ESB General Assembly

13:00 to 14:00, Wicklow Hall 2A

The state and activities of ESB will be discussed. The results of the Council elections will be presented as well as the venue for ESB2021. Furthermore, the winners of the Student and Clinical Biomechanics awards will be announced!

ESB members only

ESB Best Thesis Award 2018

14:20 – 15:05, Liffey B



Miguel Ángel Ariza Gracia has been awarded the ESB Best Thesis Award 2018 for his thesis entitled "Methods for characterising patient-specific corneal biomechanics."

Miguel Ángel Ariza Gracia studied Biomedical Engineering in a joint doctoral programme between Universidad de Zaragoza, Spain, and Universidad Politécnica de Cataluña, Spain.

ESB Membership

Not yet an ESB member? You can attend all ESB sessions at this conference!

Why hesitate in becoming a member? Apply now, pay your 2018 membership fee and get your 2019 membership for free! Apply through: <https://esbiomech.org/esb-membership-benefits/>



ASME-BED

Awards and Committee Meetings

ASME - BIOENGINEERING DIVISION AT THE 2018 WORLD CONGRESS OF BIOMECHANICS

Wednesday, July 11, 2018

Awards Announcements & Medal Liffey Hall 2 1:00 pm – 2:00 pm
Winner Recognition

COMMITTEE MEETINGS

Unless denoted by an *, the committee meetings are open to all. Attending these meetings is a terrific way to get more involved with the Society! Please consider joining one or more of the meetings listed below.

The Committee Meetings are at The Spencer Hotel located near the Convention Center. All other meetings/events are at the Convention Center

Sunday, July 8, 2018

The Spencer Hotel, Excise Walk, IFSC, Dublin 1

BED Executive*	Pegasus 1&2, 1st Floor	7:00 am – 9:30 am
SB ³ C Organizing & Programme (NOTE: 1)	Pegasus 1&2, 1st Floor	9:30 am – 10:20 am
SB ³ C Oversight* (NOTE: 2)	Pegasus 1&2, 1st Floor	10:30 am – 11:20 am
Industry Advisory	Columba 2, Lwr Ground	10:30 am – 11:20 am
New Directions	Orion 2, Ground Floor	10:30 am – 11:20 am
Education	Orion 2, Ground Floor	11:30 am – 12:20 pm
Biotransport	Columba 2, Lwr Ground	11:30 am – 12:20 pm
Solid Mechanics	Pegasus 1&2, 1st Floor	11:30 am – 12:20 pm
Cell & Tissue Engineering	Columba 2, Lwr Ground	12:30 pm – 1:20 pm
Design, Dynamics & Rehabilitation	Orion 2, Ground	12:30 pm – 1:20 pm
Fluid Mechanics	Pegasus 1&2, 1st Floor	12:30 pm – 1:20 pm

Tuesday, July 10, 2018

Open Executive Business Meeting Wicklow MR 2, CCD 6:45pm – 7:45 pm
Among other business, revisions to the Bylaws of ASME BED will be discussed at this meeting.

Wednesday, July 11, 2018

Student Leadership Committee Wicklow MR 3, CCD 6:45pm – 7:45 pm

Open to all Students, Post-docs, and Faculty interested in Student Affairs.

NOTE 1
SB³C Organizing committee meeting: members for three conference years (2017, 2019, 2020) should attend. SB³C Programme committee meeting: Programme Chair (2019), Programme Chair (2017), and Chairs of Technical Committees. Organizing Committee chaired by Conference Chair 2017.

NOTE 2
Conference Oversight Committee consists of the Conference Chairs from 2016-2020 and the Programme Chairs from 2016-2020. Chaired by Conference Chair 2017



ASME

Lissner Medal Information

1977 Robert W. Mann
1978 Y.C. Fung
1979 Robert F. Rushmer
1980 F. Gaynor Evans
1981 Max Anliker
1982 R.M. Kenedi
1983 Henning E. von Gierke
1984 Perry L. Blackshear
1985 Richard Skalak
1986 Albert H. Burstein
1987 Van C. Mow
1988 Alf Louis Nachemson
1989 Robert M. Nerem
1990 Albert B. Schultz
1991 Savio Lau-Yuen Woo
1992 John C. Chato
1993 Don P. Giddens
1994 Sheldon Weinbaum
1995 Robert E. Mates
1996 Albert I. King
1997 Ajit P. Yoganathan
1998 Malcolm H. Pope
1999 Stephen C. Cowin
2000 Morton H. Friedman
2001 W. Michael Lai
2002 Kenneth R. Diller
2003 Vijay K. Goel
2004 John M. Tarbell
2005 Steven A. Goldstein
2006 Peter A. Torzilli
2007 Maury L. Hull
2008 Noshir A. Langrana
2009 Thomas P. Andriacchi
2010 Roger D. Kamm
2011 Jay D. Humphrey
2012 David Butler
2013 Mehmet Toner
2014 Kyriacos A. Athanasiou
2015 James A. Ashton-Miller
2016 Roger C. Haut
2017 Gerard A. Athesian
2018 Louis J. Soslowsky

H.R. LISSNER MEDAL

The H.R. Lissner Medal recognizes outstanding achievements in the field of bioengineering. These achievements may be in the form of (1) significant research contributions in bioengineering; (2) development of new methods of measuring in bioengineering; (3) design of new equipment and instrumentation in bioengineering; (4) educational impact in the training of bioengineers; and/or (5) service to the bioengineering community, in general, and to the Bioengineering Division of ASME, in particular. The Bioengineering Division of ASME established the H. R. Lissner Award as a divisional award in 1977. It was upgraded to a society award in 1987, made possible by a donation from Wayne State University and is named in honor of Professor H. R. Lissner of Wayne State University for his pioneering work in biomechanics that began in 1939.

2018

LOUIS J. SOSLOWSKY, PHD

Dr. Lou Soslowsky received his PhD from Columbia University and began his faculty career at the University of Michigan in 1991. In 1997, he joined the University of Pennsylvania where he is the Fairhill Professor of Orthopaedic Surgery, Professor of Bioengineering, Vice Chair for Research (Orthopaedic Surgery), Founding Director of the campus-wide Penn Center for Musculoskeletal Disorders (the longest running NIH sponsored Center of its kind in the country), and Associate Dean for Research Integration. For 18 years, he was the Director of the McKay Orthopaedic Research Laboratory.

He has won many awards including the Fung Young Investigator Award, the Neer Award, the Hughston Award, the Kappa Delta Award, and the ORS Outstanding Mentor Award. He is a Fellow of ASME and AIMBE and a Past Chair of the ASME Bioengineering Division. He completed the Whitaker Foundation Academic Leadership Programme and the Penn Medicine-Wharton Academic Medicine Leadership Programme.

Lou is a bioengineer who seeks to understand and uncover etiologic factors and pathologic mechanisms driving injury, healing, repair, and regeneration of tendons and ligaments and to use this information to develop and evaluate treatment modalities. His innovative model systems have become the standard for such studies world-wide. He has authored more than 200 research articles.



ASME

Van C. Mow Medal Information

2005 Kyriacos A. Athanasiou
2006 Robert Lie-Yuan Sah
2007 Lori A. Setton
2008 Scott L. Delp
2009 Michael Sacks
2010 Tony M. Keaveny
2011 David A. Vorp
2012 John Bischof
2013 Jeffrey Weiss
2014 Christopher R. Jacobs
2015 Dawn M. Elliott
2016 Beth A. Winkelstein
2017 Richard R. Neptune
2018 Jeffrey W. Holmes

VAN C. MOW MEDAL

The Van C. Mow Medal is bestowed upon an individual who has made significant contributions to the field of bioengineering through research, education, professional development, leadership in the development of the profession, as a mentor to young bioengineers, and with service to the bioengineering community. The individual must have earned a PhD or equivalent degree between ten and twenty years prior to June 1 of the year of the award. The award was established by the Bioengineering Division in 2004.

2018

JEFFREY W. HOLMES, PHD

Jeff Holmes is a Professor of Biomedical Engineering and Medicine at the University of Virginia. He obtained his B.S. in Biomedical Engineering from the Johns Hopkins University in 1989, his Ph.D. in Bioengineering from the University of California, San Diego in 1995, and his M.D. from the University of California, San Diego in 1998. His first faculty position was at Columbia University, where he helped found and build a new Biomedical Engineering department.

In 2007, Dr. Holmes moved to the University of Virginia, where he currently serves as the founding Director of the Center for Engineering in Medicine. His laboratory studies the interactions between mechanics, function, and growth and remodeling in the heart, using a combination of computational and experimental models. His research has been funded by the National Institutes of Health, the National Science Foundation, the American Heart Association, the Whitaker Foundation, the Coulter Foundation, the Hartwell Foundation, and the Allen Foundation. Dr. Holmes was awarded the Y.C. Fung Young Investigator Award in 2005, an American Heart Association Established Investigator Award in 2006, and is a Fellow of the American Heart Association, the American Institute for Medical and Biological Engineering (AIMBE), and the American Society of Mechanical Engineers.



ASME

Y.C. Fung Young Investigator Award

1986 Mark H. Holmes
1987 Steven A. Goldstein
1989 David N. Ku
1990 Jay D. Humphrey
1991 Michael Kwan
1992 Cheng Zhu
1993 John A. Frangos
1994 Mehmet Toner
1995 Cheng Dong
1996 Antony Keaveny
1997 Gerard A. Ateshian
1998 Louis J. Soslowsky
1999 Rebecca Richards-Kortum
2000 Farshid Guilak
2001 David F. Meaney
2002 Jeffrey A. Weiss
2003 Sangeeta N. Bhatia
2004 Richard E. Debski
2005 Jeffrey W. Holmes
2006 Beth A. Winkelstein
2007 Stavros Thomopoulos
2008 Gabriel A. Silva
2009 Robert Mauck
2010 Matthew J. Gounis
2011 Ali Khademhosseini
2012 Marissa Nichole Rylander
2013 Jonathan Vande Geest
2014 W. David Merryman
2015 Adam J. Engler
2016 Triantafyllos
Stylianopoulos
2017 Kristin M. Myers
2018 Spencer P. Lake

Y.C. FUNG YOUNG INVESTIGATOR AWARD

The Y.C. Fung Young Investigator Award is given to a young investigator who is under the age of 36 on or before June 1 of the year of the nomination, and has received a PhD or equivalent bioengineering degree within seven years prior to their nomination. The individual must be committed to pursuing research in and have demonstrated significant potential to make substantial contributions to the field of bioengineering. Such accomplishments may take the form of, but are not limited to, design or development of new methods, equipment or instrumentation in bioengineering, and research publications in peer-reviewed journals. The award was established by the Bioengineering Division in 1985 and operated as a division award until 1998 when it was elevated to a Society award.

2018

SPENCER P. LAKE, PHD

Spencer P. Lake is an Assistant Professor of Mechanical Engineering & Materials Science, Biomedical Engineering and Orthopaedic Surgery at Washington University in St. Louis. He received a BS in Bioengineering from the University of Utah, where he performed research with Dr. Jeffrey A. Weiss. He earned a Ph.D. in Bioengineering from the University of Pennsylvania under the mentorship of Dr. Louis J. Soslowsky, followed by postdoctoral training at the University of Minnesota with Dr. Victor H. Barocas.

Since 2012, he has been the director of the Musculoskeletal Soft Tissue Lab. His research focuses on multiscale structure-function relationships of musculoskeletal soft tissues and joints. His work has (1) developed new model systems to study challenging clinical conditions like elbow injury and joint contracture, (2) designed experimental methods to elucidate multiscale/multi-axial tendon mechanics, and (3) advanced imaging techniques to quantify real-time microstructural organization of connective tissues under load.

Dr. Lake's research has resulted in over 50 journal articles and more than 100 conference abstracts, and has been funded by the NIH, NSF, and several research foundations. He is the recipient of the 2016 Donald G. Fink Award from IEEE and the 2017 Early Career Award from the Journal of Orthopaedic Research.



ASME

Savio L-Y. Woo Medal

2016 B. Barry Lieber
2017 Arthur Erdman
2018 Kyriacos A. Athanasiou

The Savio L-Y Woo Translational Biomechanics Medal was established in June 2015 as a society-level award and recognizes a sustained level of meritorious contributions in translating bioengineering research to clinical application, to improve the quality of life. The award is named in honor of Savio Lau-Yuen Woo, Ph.D., Distinguished University Professor of Bioengineering and the Founder and Director of the Musculoskeletal Research Center (MSRC), a diverse multidisciplinary research and educational center in the Department of Bioengineering at the University of Pittsburgh. Beyond pioneering and world-renowned scholarly contributions, Professor Woo has made an enormous impact in 40 years of translational research that has significantly contributed to the delivery of healthcare. Any member of ASME who has demonstrated a sustained level of outstanding achievement in translating bioengineering findings to the clinical community may be eligible for this medal.

2018

KYRIACOS A. ATHANASIOU, PHD

Kyriacos A. Athanasiou is Distinguished Professor in the Department of Biomedical Engineering at the University of California, Irvine. He has established one of the most recognized research groups in bioengineering, specializing in the musculoskeletal system. He has published over 335 peer-reviewed articles, 316 conference proceedings and abstracts, a textbook on 'continuum biomechanics', four tissue engineering books, the book 'articular cartilage', and 31 U.S. patents. His pioneering and extensive work in tissue engineering has addressed the important goal of cartilage healing. In terms of service, he is past president of the Biomedical Engineering Society and has served on the BMES board of directors.

He is also the Editor-in-Chief of the Annals of Biomedical Engineering, the flagship journal of BMES. Professor Athanasiou's success is not merely academic. Five companies with a total of 15 FDA-approved products have been founded on discoveries within his group and now produce widely used medical products; two of these companies have been acquired by large medical companies.



ASME

Robert M. Nerem Medal

2018 Roger D. Kamm

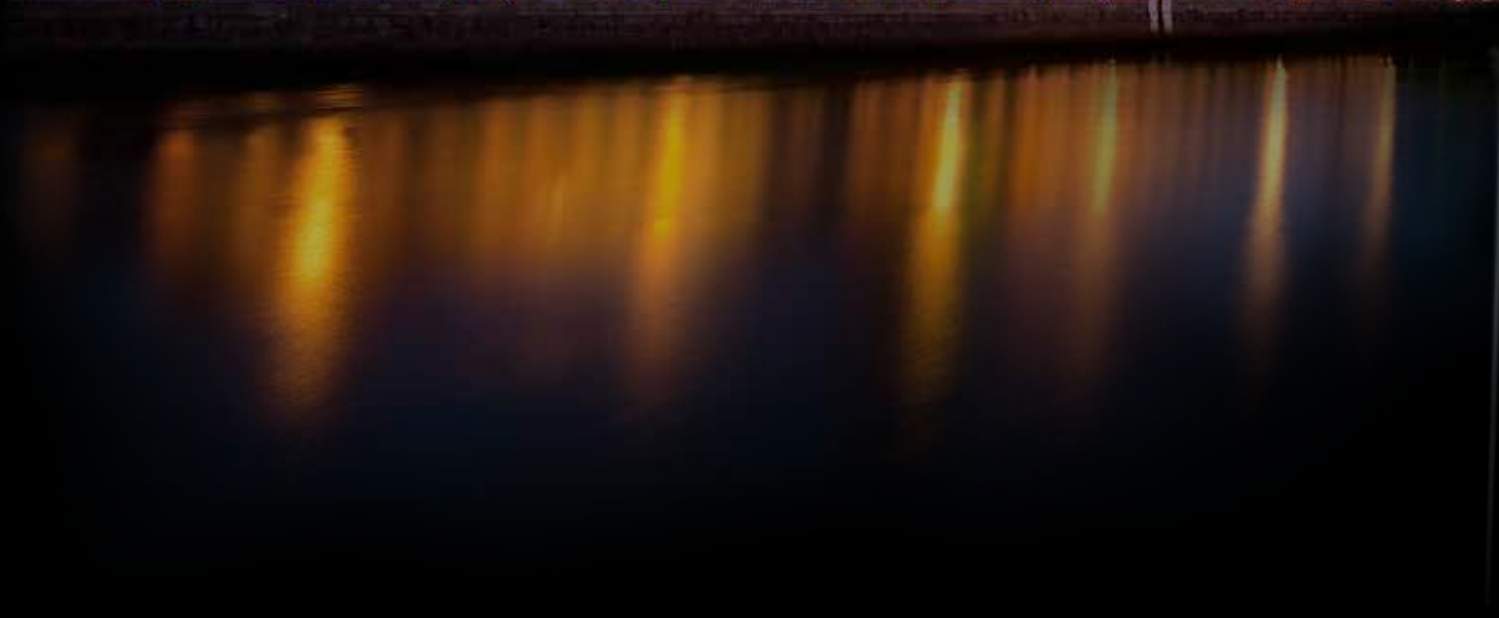
The Robert M. Nerem Education and Mentorship Medal is given to an individual who has demonstrated a sustained level of outstanding achievement in education and mentoring of trainees. Examples of meritorious activities include leadership within the nominee's institution, mentoring activities that are above and beyond those expected from others employed in similar positions, mentoring activities tailored to meet the needs of the trainees, and innovative mentoring activities. Any member of ASME with a Ph.D. or equivalent terminal degree in any field of engineering, physics, medicine or life sciences is eligible for the award. The award was established by the Bioengineering Division in 2017.

2018

ROGER D. KAMM, PHD

Roger D. Kamm is currently the Cecil and Ida Green Distinguished Professor of Biological and Mechanical Engineering at MIT, where he has served on the faculty since 1978. Kamm has long been instrumental in growing research activities at the interface of biology and mechanics, in molecular mechanics, and now in engineered living systems. In education, he was a co-recipient of the Class of 1960 Award in 1999 and received the Everett Moore Baker Memorial Award for Excellence in Undergraduate Teaching.

Student mentoring has been a high priority, and 35 of Kamm's former students are now in faculty positions around the world. Kamm has fostered biomechanics as Chair of the US National Committee on Biomechanics (2006-2009) and of the World Council on Biomechanics (2006-2010). He co-initiated a series of meetings on Frontiers of Biomechanics, chaired the ASME Summer Bioengineering Conference (2001), and organized a Summit of Experts on Biomechanics (2007) and a Workshop on Engineered Living Systems (2016). In 2014, Kamm co-chaired the World Congress of Biomechanics. He is the 2010 recipient of the ASME Lissner Medal and the 2015 recipient of the Huiskes Medal, and is a member of the National Academy of Medicine.



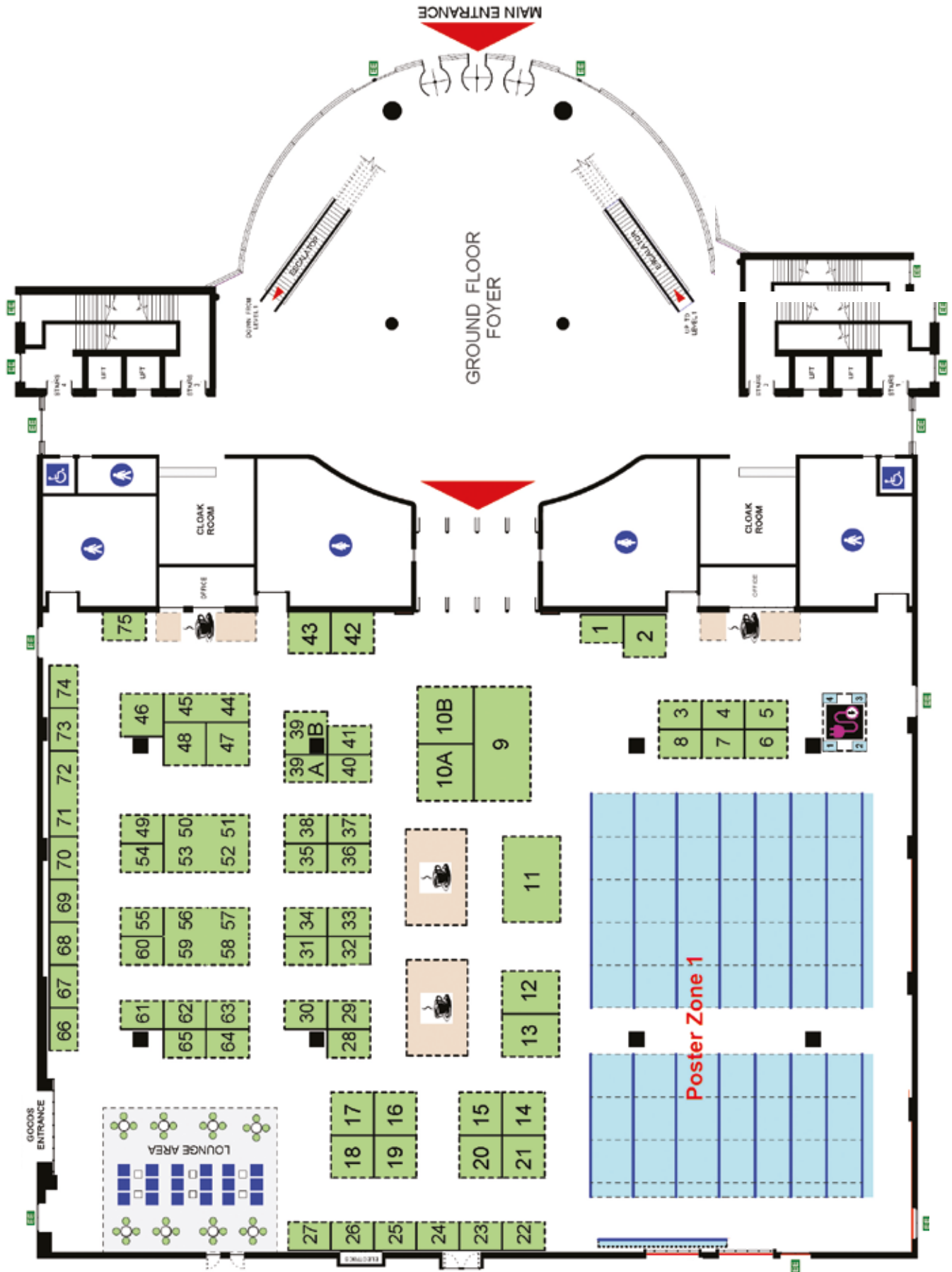
SPONSORS & EXHIBITORS LISTING





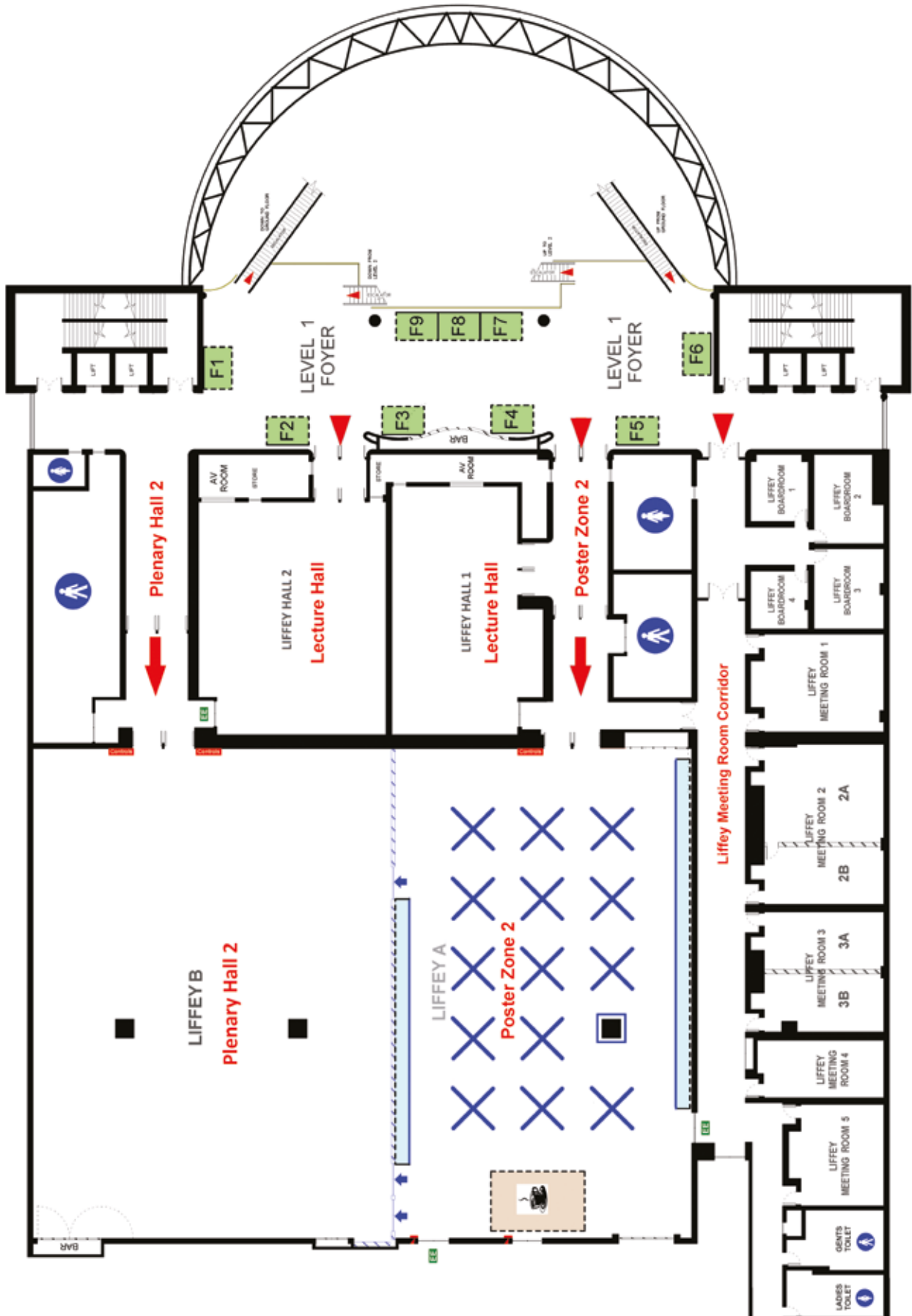
EXHIBITORS

Ground floor - The Forum



EXHIBITORS

Level 1 - Foyer





8th World Congress
of Biomechanics
8 - 12 July 2018
Dublin, Ireland

SPONSORS

We wish to thank and acknowledge
our sponsors

www.sfi.ie



www.meetinireland.com



www.rcsi.com/dublin/



Leading the world
to better health

www.kistler.com/biomechanics



www.beam.vt.edu/



www.kildarevillage.com

















EXHIBITORS LISTING














The exhibition is located in The forum, on the ground floor as well as the foyer on Level 1.

Stand	Organisation	Details
66		Organisation IO80 Motion Contact Anna-Carin Månsson Email Anna-carin@io80motion.com Tel +46 709 816 210 Web io80motion.com
16		Organisation AMTI Contact Don Andres Email Dona@amtimail.com Tel +1 617 926 6700 Web amti.biz
42		Organisation AnyBody Technology Contact Arne Kiis Email sales@anybodytech.com Tel +45 963 542 86 Web anybodytech.com
38		Organisation APDM Wearable Technologies Contact Kristen Sowalsky, PhD Email kristen@apdm.com Tel +1 888 988 2736 Web apdm.com
35		Organisation APL Bioengineering Contact Diana Schlamadinger, PhD Email Aplbioeng-journalmanager@aip.org Tel +1 516 576 2319 Web aplbioeng.aip.org
20		Organisation ATI Industrial Automation Contact Kristine Castle Email Kristine.Castle@ati-ia.com Tel +1 919 772 0115 Web ati-ia.com
34		Organisation Aurora Scientific Europe Contact Rufus O'Brien Email rufuso@aurorascientific.com Tel +353 1 525 3300 Web aurorascientific.com
43		Organisation Bertec Contact Jeff Sobotka Email jeff@bertec.com Tel +1 614 543 1127 Web bertec.com
47		Organisation BETA CAE Systems Contact Email ansa@beta-cae.com Tel Web beta-cae.com
07		Organisation Biomomentum Contact Emilie Sauvé Email info@biomomentum.com Tel +1 450 667 2299 Web biomomentum.com
65		Organisation Bob-Biomechanics Contact Dr James Shippen Email info@bob-biomechanics.com Tel +44 7949 562075 Web bob-biomechanics.com

Stand	Organisation	Details
39A	 Bone & Joint Research	Organisation Bone & Joint Research Contact Email info@boneandjoint.org.uk Tel +44 20 7782 0010 Web bjr.boneandjoint.org.uk
73	 BTS Bioengineering	Organisation BTS Bioengineering Contact Marco Carcassoni, PhD Email marco.carcassoni@btsbioengineering.com Tel +39 02 366 490 00 Web btsbioengineering.com
21	 CADFEM®	Organisation CADFEM Group Contact Barbara Leichtenstern Email blei@cadfemireland.com Tel +353 1 652 2732 Web cadfemukandireland.com
74	 CED CAMBRIDGE ELECTRONIC DESIGN LIMITED DATA ACQUISITION & ANALYSIS	Organisation Cambridge Electronic Design Ltd Contact Simon Gray Email simong@ced.co.uk Tel +44 1223 420186 Web ced.co.uk
LEVEL 1 - F8	 CELLINK®	Organisation CELLINK Contact Daniel Lidberg Email dl@cellink.com Tel +4673 506 03 21 Web cellink.com
31	 GAITRite	Organisation CIR Systems/GAITRite Contact Karen Toepper Email sales@gaitrite.com Tel +1 973 209 0711 Web Gaitrite.com
63	 C-Motion Research Biomechanics	Organisation C-Motion Contact Email info@c-motion.com Tel +1 301 540 5611 Web c-motion.com
33	 codamotion	Organisation Codamotion Contact Sachin Nandha Email sachin.nandha@codamotion.com Tel +44 116 230 1060 Web codamotion.com
64	 cometa	Organisation Cometa Systems Contact Matteo Dellacorna Email sales@cometasystems.com Tel +39 0291410582 Web cometasystems.com
19	 CSMi	Organisation CSMi Contact Rob Potash Email rob.potash@csmisolutions.com Tel +1 781 258 1958 Web csmissolutions.com
15	 DELSYS®	Organisation Delsys Inc. Contact Steven Lindley Email slindley@delsys.com Tel +44 776 933 4495 Web delsys.com
28	 FLEXCELL	Organisation Dunn Labortechnik GmbH Contact Andreas Bichet Email info@dunnlab.de Tel +49 (0)268 343 094 Web dunnlab.de
LEVEL 1 - F1	 ELSEVIER	Organisation Elsevier's Biomechanics Journals Contact Tanya Wheatley Email t.wheatley@elsevier.com Tel +44 1865 843824 Web elsevier.com
LEVEL 1 - F5	 European Society of Biomechanics	Organisation European Society of Biomechanics Contact Maria Angeles Perez Anson Email angeles@unizar.es Tel +34 609 3450 25 Web esbiomech.org
32	 Gaitup	Organisation Gait Up Contact Cléo Moulin Email cleo.moulin@gaitup.com Tel +41 216 337 527 Web gaitup.com

Stand	Organisation	Details
26		Organisation GOM UK Contact Andrew Cuffley Email a.cuffley@gom.com Tel +44 2476 639920 Web gom.com
39B		Organisation h/p/cosmos sports & medical Contact Dr. Bjoern Zimmermann Email email@h-p-cosmos.com Tel +49 8669 86420 Web h-p-cosmos.com
75		Organisation Hawkin Dynamics Wireless Force Plates Contact Jonathan Hedges Email Jonathan@hawkindynamics.com Tel +1 344 623 883 Web hawkindynamics.com
11		Organisation HUR Contact Katariina Kiviranta Email Katariina.kiviranta@hur.fi Tel +358 40 664 6887 Web hur.fi
LEVEL 1 - F2		Organisation IME Medical Electrospinning Contact Joris Woudberg Email J.Woudberg@ime-electrospinning.com Tel +31 40 28 27 956 Web ime-electrospinning.com
46		Organisation Instron Contact Instron Sales Email info_news@instron.com Tel +44 1494 456 815 Web instron.com
54	IOP Publishing	Organisation IOP Publishing Contact Lisa Searle Email Lisa.searle@iop.org Tel +44 117 9297481 Web ioppublishing.org
02		Organisation Kistler Contact Katharina Buechli Email katharina.buechli@kistler.com Tel +41 52 224 15 99 Web kistler.com/biomechanics
LEVEL 1 - F4		Organisation Lode B.V. Contact Ton Rademaker Email ask@lode.nl Tel +31 50 572 18 11 Web lode.nl
36		Organisation MATERIALISE NV Contact Zahra Asgharpour Email zahra.asgharpour@materialise.be Tel +32 16 396 537 Web materialise.com/en/medical
68		Organisation Mbientlab Inc. Contact Sophie Kassovic Email sophie@mbientlab.com Tel +1 408 679 1118 Web mbientlab.com
56, 57, 58, 59		Organisation Motek Contact Goetz Lenuweit Email goetz.lenuweit@motekforcelink.com Tel +31 20 301 3020 Web motekforcelink.com
3		Organisation Moticon GmbH Contact Andre Zschernig Email sales@moticon.de Tel +49 89 2000 301 60 Web moticon.de
12		Organisation Motion Analysis Contact Erin Conway Email econway@motionanalysis.com Tel +1 707 579 6521 Web motionanalysis.com
48		Organisation MTS Systems Corporation Contact Lito Mejia Email lito.mejia@mts.com Tel +1 952 937 4000 Web mts.com

Stand	Organisation	Details
06	 NCSRR NATIONAL CENTER FOR SIMULATION IN REHABILITATION RESEARCH	Organisation NCSRR / OpenSim Contact Joy Ku Email opensim@stanford.edu Tel +1 650 736 8434 Web opensim.stanford.edu
14	 NDI	Organisation NDI Contact Email msci@ndigital.com Tel +1 519 884 5142 Web ndigital.com
71 & 72	 NORAXON MOVEMENT • DATA • PEOPLE	Organisation NORAXON USA Contact Clement Leung, VP Sales Email info@noraxon.com Tel +1 480 443 3413 Web noraxon.com
44 & 45	 novel.de	Organisation Novel.de Contact Peter Seitz, CEO Email novel@novel.de Tel +49 89 4177670 Web novel.de
13	 OPTICS11	Organisation Optics11 Life Science Contact Ernst Breel Email info@optics11.com Tel +31 20 598 8326 Web optics11.com
10A	 OptiTrack	Organisation OptiTrack Contact Francois Asseman Email sales@optitrack.com Tel +1 541 753 6645 Web optitrack.com
04	 ORPYX HUMAN PERCEPTION REDEFINED	Organisation Orpyx Medical Technologies Inc. Contact John Jahrstorfer Email john.jahrstorfer@orpyx.com Tel +1 403 460 0216 Web orpyx.com
37	 ProtoKinetics The Most Accurate in Gait Analysis	Organisation ProtoKinetics Gait Analysis Walkways Contact Michael Rowling Email mike@protokinetics.com Tel +1 610 449 4879 Web protokinetics.com
50, 51, 52, 53	 QUALISYS Motion Capture Systems	Organisation Qualisys Contact Helen Holmqvist Rydén Email Helen.ryden@qualisys.com Tel +46 31 703 607 225 Web Qualisys.com
69	 THE ROYAL SOCIETY PUBLISHING	Organisation Royal Society Publishing Contact Anita Kristiansen Email Anita.Kristiansen@royalsociety.org Tel +44 207 451 2649 Web royalsociety.org/journals/
55	 Rtec instruments	Organisation Rtec-Instruments, Inc Contact Liz Chen Email liz@rtec-instruments.com Tel +1 408 708 9226 Web rtec-instruments.com
29	 SAWBONES WORLDWIDE	Organisation SAWBONES WORLDWIDE Contact Sawbones Europe AB Email info@sawbones.se Tel +46 40 650 70 00 Web sawbones.com
01	 SCANCO MEDICAL	Organisation SCANCO MEDICAL Contact Philippe Maffioli Email pmafflioli@scanco.ch Tel +41 448 059 800 Web scanco.ch
41	 simi reality motion systems	Organisation Simi Contact Philipp Russ Email philipp@simi.com Tel Web simi.com
40	 simulation solutions	Organisation Simulation Solutions Ltd Contact Joanne Spencer Email joanne.spencer@simsol.co.uk Tel +44 161 947 9113 Web simsol.co.uk

Stand	Organisation	Details
30		Organisation Spraybase Contact Elleney Byrne Email ebyrne@spraybase.com Tel +353 87 9636585 Web spraybase.com
24		Organisation Springer Nature Contact Email Tel Web springernature.com
08		Organisation Spryng – Twinery Innovations by MAS Contact Angelo Karunaratne Email angelok@masholdings.com Tel +94 7666 020 08 Web twinery.co
70		Organisation STT Systems Contact Fernando Email info@stt-systems.com Tel +34 943 31 77 77 Web stt-systems.com
LEVEL 1 - F9		Organisation Summer Biomechanics, Bioengineering and Biotransport Conference 2019 Contact Joseph Iaquinto, PhD Email info@sb3c.org Tel Web sb3c.org
05		Organisation Synopsys Contact Dr Rebecca Bryan Email Rebecca.Bryan@Synopsys.com Tel +44 1392 428750 Web synopsys.com/simpleware
18		Organisation TA Instruments – ElectroForce Contact Michael McMullan Email MMcMullan@tainstruments.com Tel Web tainstruments.com/products/electroforce-mechanical-testers/
25		Organisation Taylor & Francis Contact Ian Challand Email ian.challand@tandf.co.uk Tel Web tandfonline.com/tbbe
17		Organisation Tekscan, Inc Contact Email info@tekscan.com Tel +1 617 464 4500 Web tekscan.com
LEVEL 1 - F7		Organisation The American Society of Mechanical Engineers (ASME) / Alliance for Advanced Biomedical Engineering (AABME) Contact Christine Reilley Email reilleyc@asme.org Tel +1 212 591 8486 Web aabme.org
23		Organisation The MotionMonitor Contact Meredith Evans Email support@TheMotionMonitor.com Tel +1 773 244 6470 Web TheMotionMonitor.com
67		Organisation Toyota Mobility Foundation Contact Julie-Ann Burandt Email julieann.burandt@toyota.com Tel +1 646 413 4840 Web Mobilityunlimited.org
60		Organisation TSI Contact Martin Hyde Email tsi.EMEA@tsi.com Tel +49 241 5230 30 Web tsi.com
62		Organisation ULTIMUV Contact Peter Kolar Email peter.kolar@ultimuv.com Tel +421 948 945 115 Web ultimuv.com

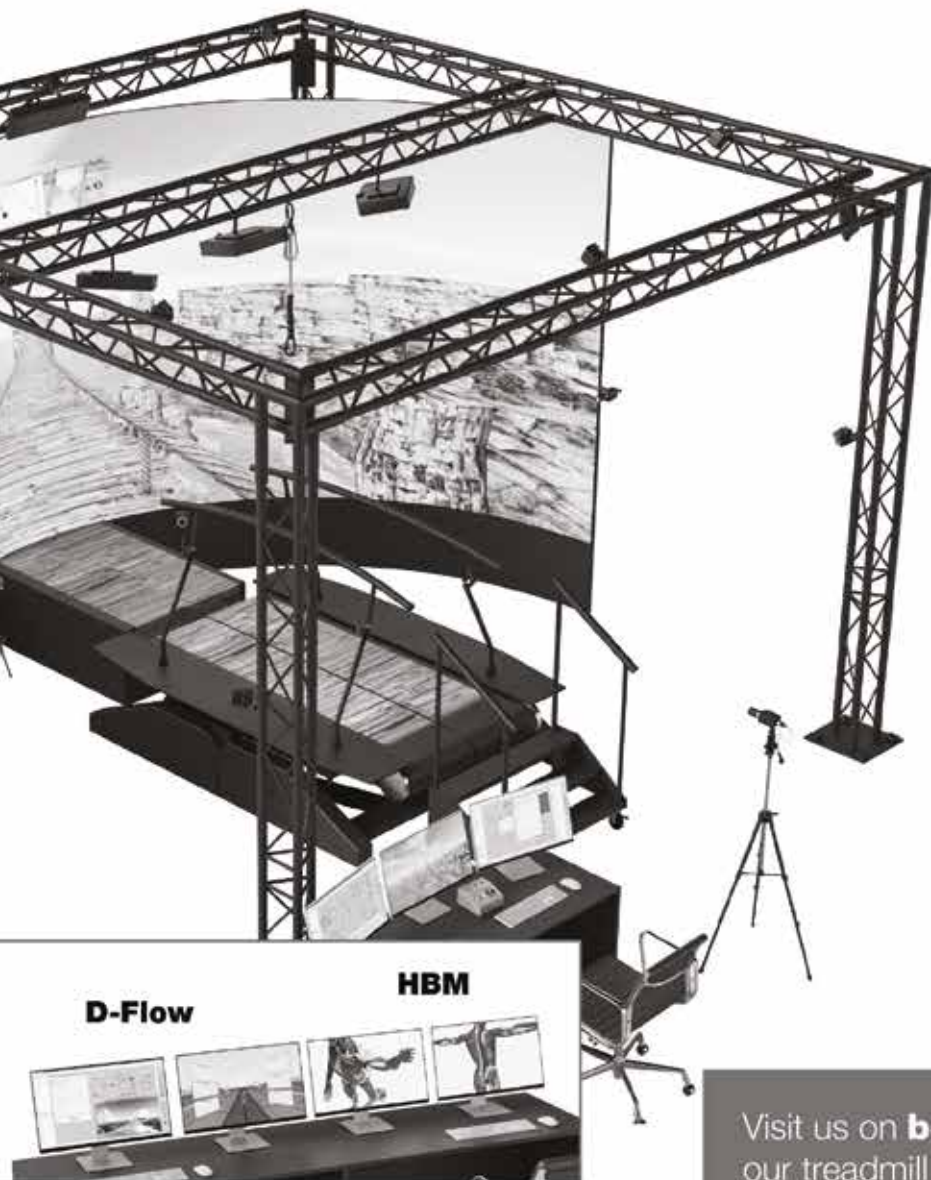
Stand	Organisation	Details
LEVEL 1 - F3		Organisation Vald Performance Contact Sean Mc Veigh Email s.mcveigh@valdperformance.com Tel +353 83 040 9954 Web Valdperformance.com
09		Organisation Vicon Motion Systems Ltd Contact Phil Bacon Email info@vicon.com Tel +44 186 526 1800 Web vicon.com
61		Organisation VOLMO LTD Contact Ash Harkara Email aharkara@volmopl.com Tel +44 7789 480 798 Web volmopl.com
49		Organisation Welter's Personalised Footwear Ltd Contact Liz Dunbar Email Liz.dunbar@pedorthist.ie Tel +353 1 4434409 Web pedorthist.ie
LEVEL 1 - F6		Organisation World Council of Biomechanics / World Congress of Biomechanics WCB2022 Contact Rene Chang - Congress Secretariat c/o K&A International Co., Ltd. Email info@wcb2022.com Tel +886 2 875 13588 Web wcb2022.com
22		Organisation WPI / CellScale Contact Ian Davies Email idavies@wpi-europe.com Tel +44 146 242 4700 Web wpi-europe.com/biomaterials
10B		Organisation Xsens Contact Peter Hartman Email sales@xsens.com Tel +31 88 973 6700 Web xsens.com
27		Organisation Zwick Roell Contact Rachel Patchett/Mike Brooks Email Sales.info@zwick.co.uk Tel +44 1568 615201 Web zwick.com

IMPROVE HUMAN PERFORMANCE



YOUR GAIT-LAB OF THE FUTURE

A total integration tool for gait analysis and training



THE GRAIL

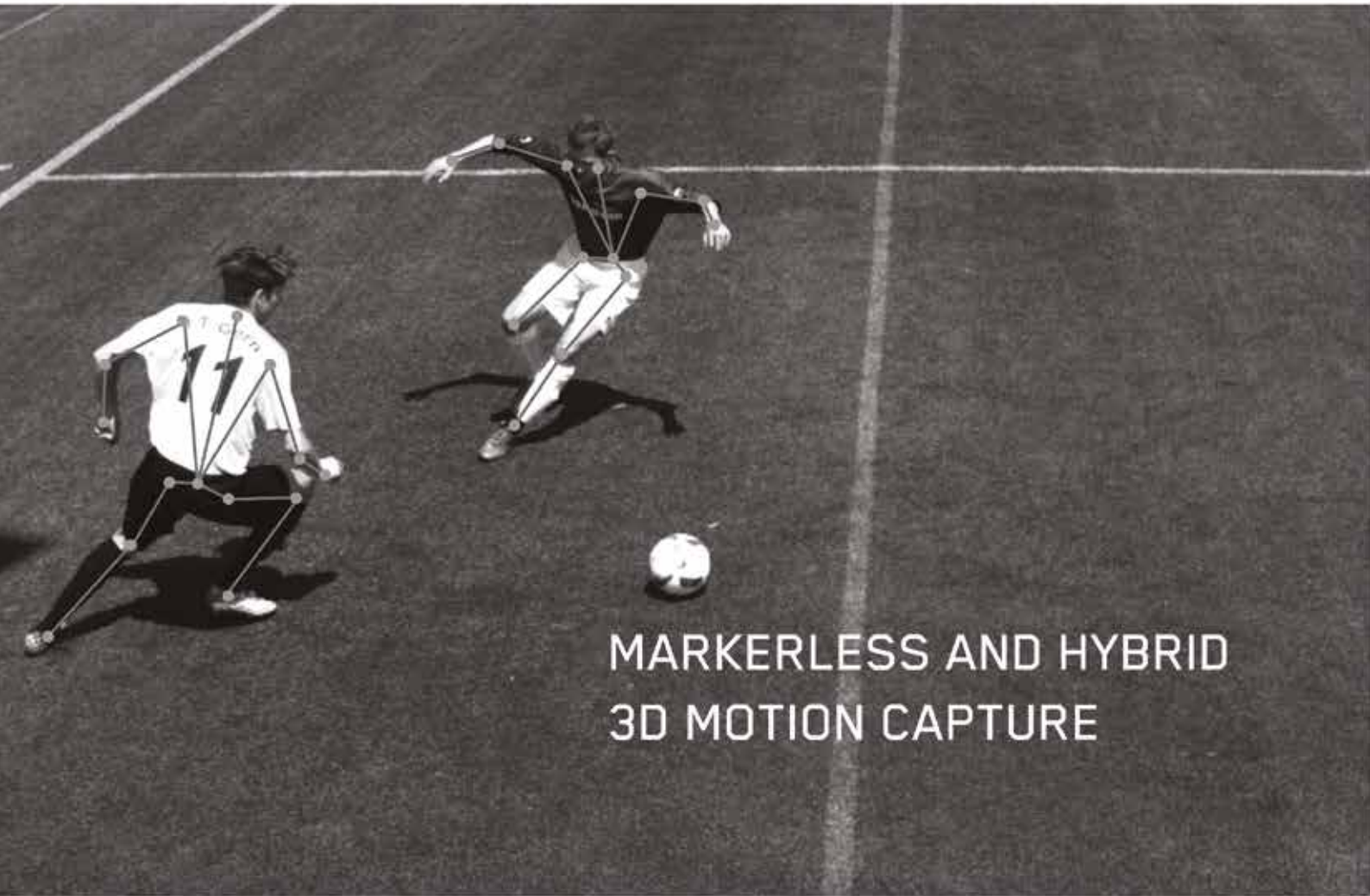
**LET MOTEK HELP YOU
CREATE UNIQUE AND
GROUNDBREAKING
RESEARCH AND THERAPY
ENVIRONMENTS.**

Our GRAIL system combines an advanced instrumented dual-belt treadmill, a virtual reality system, and a video and motion capture camera set-up into one sophisticated lab solution, providing functional gait analysis and training for both research and clinical rehabilitation. All gait parameters – such as kinematics, kinetics and muscle activation, can be recorded continuously, improving efficiency and data reliability.

With an integration of our in-house D-Flow software and Human Body Model and their real-time feedback capabilities, you will enter an all-round gateway into new research and therapy opportunities. Come talk to us about how we can support you.

Visit us on **booth 56 – 59** and experience our treadmill system first hand!

Or contact us via www.motekforcelink.com or info@motekforcelink.com



MARKERLESS AND HYBRID 3D MOTION CAPTURE

The Future of Motion Capture

SIMI® Motion is an advanced platform for movement analysis. With the world's first validated 3D Markerless and Hybrid Motion Capture System, Simi is setting new standards in Research and opens new fields for the applied field of biomechanics.

SIMI® is a motion analysis company with experience since 1992. With offices in Germany, USA and China, Simi delivers the best solutions, support and education to over 1000 partners and clients around the world.

Let our superior motion capture technology be the foundation of your success!

- Application templates Accurate markerless full body 3D kinematics
- Use it in labs, indoors and outdoors
- Get data from real competitions and natural environments
- Analyze high speed movements in large capture volumes
- Get data fast and user-friendly
- Validated and accurate research grade data

High impact research from the Royal Society

The Royal Society journals *Interface* and *Interface Focus* publish research, reviews, reports, and topical theme issues in all areas of the cross-disciplinary sciences.

To browse content and for further information about how to submit your work, please visit royalsociety.org/journals

Our authors benefit from:

- Average first decision time of 30 days
- High quality and constructive peer review by active, expert scientists
- Open access options
- Data archiving costs covered (Dryad/figshare)
- High visibility and high article usage rates

“The *Journal of the Royal Society Interface* has rigorous but fair reviews and excellent feedback from the editors, even when the decision is negative. The production is well managed and timely. It has rapidly become one of the most important and respected journals in my field.”

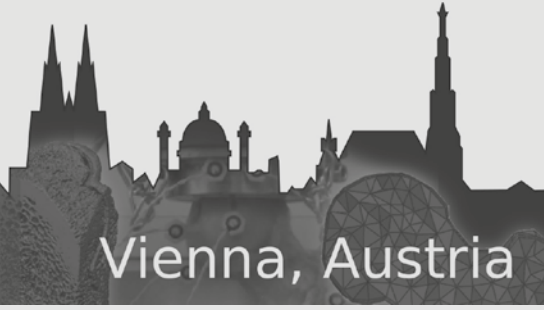
Associate Professor Doug Altshuler,
University of British Columbia



THE
ROYAL
SOCIETY
PUBLISHING

Image: A large hawkmoth (*Manduca sexta*) searching for a feeder with its semi-extended proboscis.

ESB 2019



July 7-10, 2019

Vienna, Austria

25th Congress of the European Society of Biomechanics

SAVE THE DATE!

Congress Chairmen: Philipp J. THURNER, Dieter PAHR, Christian HELLMICH

Organising Institutions:



TECHNISCHE
UNIVERSITÄT
WIEN



PRIVATUNIVERSITÄT FÜR
GESUNDHEITSWISSENSCHAFTEN

While Vienna is a city most commonly associated for its unparalleled contributions in music and the arts, it is also the home of several Nobel Laureates in Medicine as well as the Vienna University of Technology (TU Wien), which is the oldest edition of its type in the German-speaking part of Europe.

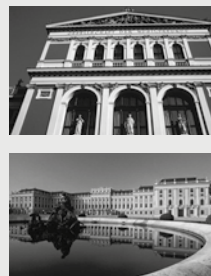
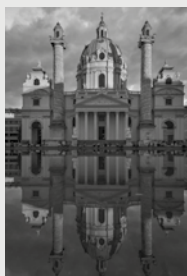
The 25th anniversary congress of ESB will take place in Vienna in 2019, organized by TU Wien (Vienna) and Karl Landsteiner University of Health Sciences (Krems).

The ESB congress will take place in Austria for the first time, and we are proud to host it in a truly central European location.

We invite you to join us in celebrating this anniversary meeting of a pan-European society and help us make the ESB and its annual congress a continuing success.

Don't miss the opportunity. We are looking forward to seeing you in Vienna, to learn and share exciting new scientific insights and results, to network, and to socialize.

For updates visit <https://esbiomech.org/conference> or contact us at esb2019@tuwien.ac.at.



Save the date for ESB 2019 on July 7-10, 2019 in Vienna, Austria!

Join Us:

Booth #71-72 – Ask about special WCB pricing!
Wed, July 11 – Industry Workshop: Natural Environments



Biomechanics Data Acquisition in Minutes.

ultium^{EMG}



With the Noraxon biomechanics research systems, you can wirelessly capture and analyze high-fidelity EMG, kinetics and kinematics data, automatically synchronized into the myoRESEARCH software, for a complete study of human movement. Set it up, or take it with you...any data, anywhere. Why wait?



New myoRESEARCH[®] 3.12 Software
When you are ready, so is your data. Try out the new MR3.12, offering real-time processing and biofeedback, custom configurations and powerful one-click reporting to significantly reduce setup and processing time.

NORAXON[™]
MOVEMENT • DATA • PEOPLE
noraxon.com



xsens

MVN Analyze

Lab quality motion capture data in field conditions
www.xsens.com - info@xsens.com

Announcing the 2019

Summer Biomechanics, Bioengineering, and Biotransport Conference (SB³C)



June 25-28 2019, Seven Springs Pennsylvania, USA

The 2019 conference theme is "**Creating Multiscale Connections: The Keystone of Integrative Biomechanics, Bioengineering and Biotransport**" we encourage abstract submissions from researchers at all levels in academia, government, and industry.

SB³C Typically Includes:

Workshops	Networking
Invited Speakers	Industry Exhibits
Student Competitions	BEDRock Concert

Visit sb3c.org in the coming months or come to our **WCB exhibitor table** for more details, email info@sb3c.org for other inquiries



INTRODUCING HUMAC NORM WITH BUILT-IN DELSYS® & NORAXON™ EMG



ANALYZING DATA IS THE RESEARCHER'S JOB. Providing instruments that make it easy to collect, compile, and report accurate data is our job. Introducing the new HUMAC/EMG software. The only isokinetic machine software to include EMG protocols that guide the user from set-up to exported results.

See the new **HUMAC NORM** software with the choice of built-in EMG by Delsys or Noraxon in **BOOTH #19**. HUMAC/EMG software is also available as an upgrade to existing CYBEX and HUMAC NORMs, as well as Biodex System 3 and System 4 machines.

HUMAC[®]
STRENGTH
THROUGH
KNOWLEDGE



Call **+1-781-297-2034** today to schedule a HUMAC NORM with EMG demonstration. www.csmisolutions.com

HUMAC® is a registered trademark of Computer Sports Medicine, Inc. Delsys® is a registered trademark of Delsys Incorporated. Noraxon is a trademark of Noraxon USA. ©2018 Computer Sports Medicine, Inc. All rights reserved.

**CALLING ALL INNOVATORS, DESIGNERS,
ENGINEERS, AND DREAMERS TO ENTER
THE TOYOTA MOBILITY FOUNDATION'S
MOBILITY UNLIMITED CHALLENGE.**

Our three-year long challenge awards a total of **\$4 MILLION** to improve mobility for people with lower-limb paralysis through groundbreaking assistive device technology.

VISIT OUR BOOTH to learn more or APPLY ONLINE at mobilityunlimited.org



**MOBILITY
UNLIMITED
CHALLENGE**

AUGUST 15, 2018

APPLICATION DEADLINE

January 2019

**5 FINALISTS GRANTED
\$500,000 each**

Finalists announced and awarded development grants to further develop their prototypes.

September 2020

**1 WINNING TEAM AWARDED
\$1 MILLION**

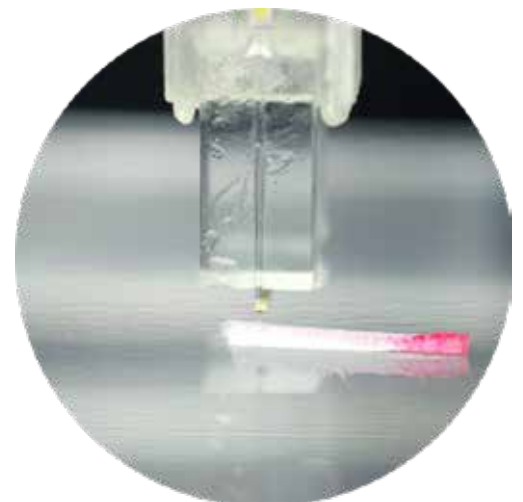
The winner of the Mobility Unlimited Challenge will be unveiled in Tokyo in 2020.

Quantify biology with the new

PIUMA and **CHIARO**

Instruments

- Cell mechanobiology
- Tissue mechanical properties
- Hydrogel visco-elastic behavior
- Mechanics of 3D scaffolds



Explore our instruments at booth #13!



**Reliable data
for objective
decisions**



**Thursday,
12 July 2018
10:30 - 11:15**

Body (A)symmetries: Is there a Link between Local and Integral Movement Function?

Local asymmetries include bilateral asymmetries (the difference in performance or function between the same muscles on different limb/side) and asymmetries between the opposing muscles of the same limb (e.g. flexors and extensors). Global asymmetries are characterized by performance imbalance seen at a body region or even in full kinetic chain. Local and global performance are determined by the level of individual's fundamental motor abilities – strength and power, stability and balance, and flexibility and mobility, all of which are interrelated to a certain degree.

Body asymmetries in various sports have been investigated before, yet several questions remain unanswered especially how the different types of asymmetries are related and what impact they have on injury prevention or return to play decisions. Prof. Sarabon will present you his studies and findings on this topic.



Nejc Sarabon – short bio

University of Primorska, Andrej Marusic Institute, Department of Health Study, Koper, Slovenia

S2P, Science to Practice, Ltd., Laboratory for Motor Control and Motor Behaviour, Ljubljana, Slovenia

T: +386 40 429 505; E: nejc.sarabon@s2p.si

Assoc. Prof. Nejc Sarabon, PhD, has his background in physical therapy and sport science which he upgraded with the doctoral and post-doc projects on the fields of motor control and motor behavior using primarily electrophysiological and biomechanical diagnostic approaches. His primary research interests include balance, sensory-motor integration processes, kinaesthesia, and inter-muscular coordination. Within these areas he is continuously active also in the field of methodological and technical innovations. Most intensely he has been involved in the research and development activities related to balance and fall prevention and also alterations of sensory-motor integration processing during different acute and chronic injuries/interventions. He also has extensive experience as a physical conditioning coach and a science-to-practice consultant for strength/power training, conditioning, prevention and rehabilitation at National Teams (Karate, Handball, Basketball, and Tennis National Associations).

KEYNOTE

PROFESSIONAL
CONFERENCE
ORGANISERS

This conference was organised with the assistance of Keynote PCO, who provide specialised conference management services for association conference clients.



Tel. + 353 (0) 1 400 3626
 Fax. + 353 (0) 1 400 3692
 Email. info@keynotepco.ie
 Website. www.keynotepco.ie



MEETING
QUALITY





Be sure to download our
Congress App.
Please search WCB2018
with your app provider.



An online programme
is also available at
www.wcb2018.com



www.wcb2018.com



#wcb2018