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 02
Ecocem 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

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
“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 378 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 foil,

* Kelly DJ, O’Brien
FJ, Prendergast

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

Prof. Danny Kelly
Trinity College Dublin
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:

- Taiji Adachi (Molecular Biomechanics)
- Kristen Billiar (Tissue Biomechanics)
- Carlijn 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)
- Caithriona Lally (Special Sessions)
- Tim McGloughlin (Biomechanics Education)
- Kristin Myers (Co-Track Chair, Emerging Areas)
- Niadh 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 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:

- Taiji Adachi (Molecular Biomechanics)
- Kristen Billiar (Tissue Biomechanics)
- Carlijn Bouten (Tissue Engineering)
- Tamara Reid Bush (Sport Biomechanics, Injury and Rehabilitation)
- Tammy Haut Donahue (Musculoskeletal)
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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
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)

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Nationality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Dominique Barthes-Biesel,</td>
<td>France</td>
</tr>
<tr>
<td>Vice-Chair</td>
<td>Peter Hunter, New Zealand</td>
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<tr>
<td>Secretary</td>
<td>Susan S. Margulies, USA</td>
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<tr>
<td>Treasurer</td>
<td>Keita Ito, The Netherlands</td>
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</tr>
<tr>
<td>Immediate Past Chair</td>
<td>Geert W. Schmid-Schönbein, USA</td>
<td></td>
</tr>
</tbody>
</table>

C 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 Doblaré, 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 Stergiopulos, Switzerland
- Takashi Ushida, Japan
- Marco Vaz, Brazil
- Fergal O’Brien, Ireland
- Daniel Kelly, Ireland
- Jeniffer S. Wayne, USA

NEW MEMBERS

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

www.wcb2018.com
## Programme at a Glance

<table>
<thead>
<tr>
<th>SUNDAY 8th July 2018</th>
<th>MONDAY 9th July 2018</th>
<th>TUESDAY 10th July 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>08:20 - 09:00</strong></td>
<td>Opening Ceremony</td>
<td>08:30 - 09:15</td>
</tr>
<tr>
<td><strong>09:00 - 09:45</strong></td>
<td>Invited Plenary</td>
<td>ASME Lissner Award</td>
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<td></td>
<td>Lori Setton</td>
<td>ESB Perren Award</td>
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<tr>
<td></td>
<td>USA</td>
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<td></td>
<td>Invited Plenary</td>
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<tr>
<td></td>
<td>Takuji Ishikawa</td>
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<tr>
<td></td>
<td>Japan</td>
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<tr>
<td><strong>09:20 - 10:15</strong></td>
<td>Scientific Sessions</td>
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<tr>
<td><strong>09:55 - 11:25</strong></td>
<td>Scientific Sessions</td>
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</tr>
<tr>
<td></td>
<td>Refreshment Break</td>
<td>Refreshment Break and</td>
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<tr>
<td></td>
<td>and Poster Session</td>
<td>Post Session GROUP 2</td>
</tr>
<tr>
<td></td>
<td>GROUP 1</td>
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</tr>
<tr>
<td><strong>12:00 - 13:30</strong></td>
<td>Scientific Sessions</td>
<td></td>
</tr>
<tr>
<td><strong>13:30 - 19:00</strong></td>
<td>Registration Opens</td>
<td></td>
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<tr>
<td><strong>13:30 - 15:00</strong></td>
<td>Lunch and Poster</td>
<td>Lunch and Poster</td>
</tr>
<tr>
<td></td>
<td>Session GROUP 1</td>
<td>Session GROUP 2</td>
</tr>
<tr>
<td><strong>14:30 - 16:00</strong></td>
<td>Scientific Sessions</td>
<td></td>
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<tr>
<td><strong>15:00 - 16:30</strong></td>
<td>Scientific Sessions</td>
<td></td>
</tr>
<tr>
<td><strong>16:00</strong></td>
<td>Refreshment Break</td>
<td></td>
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<tr>
<td><strong>16:30 - 18:00</strong></td>
<td>Scientific Sessions</td>
<td></td>
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<tr>
<td><strong>18:00 - 18:45</strong></td>
<td>Invited Plenary</td>
<td>Invited Plenary</td>
</tr>
<tr>
<td></td>
<td>Jay Humphrey</td>
<td>Toni Arndt</td>
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<tr>
<td></td>
<td>USA</td>
<td>Sweden</td>
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<tr>
<td></td>
<td>Invited Plenary</td>
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<tr>
<td></td>
<td>Lori Setton</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Japan</td>
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<tr>
<td><strong>17:00 - 18:30</strong></td>
<td>Scientific Sessions</td>
<td></td>
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<tr>
<td><strong>17:10 - 18:40</strong></td>
<td>Scientific Sessions</td>
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<tr>
<td><strong>18:30 - 20:00</strong></td>
<td>Welcome Reception</td>
<td>19:00 - 22:30</td>
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<tr>
<td></td>
<td>The CCD</td>
<td>BEDRock Concert</td>
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<td></td>
<td></td>
<td>The Academy</td>
</tr>
</tbody>
</table>
### PROGRAMME AT A GLANCE

<table>
<thead>
<tr>
<th>Time</th>
<th>Wednesday 11th July 2018</th>
<th>Thursday 12th July 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30 - 09:15</td>
<td>Invited Plenary Chwee Teck Lim Singapore</td>
<td>Invited Plenary Merryn Tawhai New Zealand</td>
</tr>
<tr>
<td>09:20 - 10:50</td>
<td>Scientific Sessions</td>
<td></td>
</tr>
<tr>
<td>10:50 - 11:20</td>
<td>Refreshment Break and Poster Session GROUP 3</td>
<td>10:00 - 10:30</td>
</tr>
<tr>
<td>11:20 - 12:50</td>
<td>Scientific Sessions and Industry Sessions</td>
<td>10:30 - 12:00</td>
</tr>
<tr>
<td>12:50 - 14:20</td>
<td>Lunch and Poster Session GROUP 3</td>
<td>12:00 - 13:30</td>
</tr>
<tr>
<td>14:20 - 15:05</td>
<td>Invited Plenary Elazer Edelman USA</td>
<td>Invited Plenary Clemens van Blitterswijk The Netherlands</td>
</tr>
<tr>
<td>15:10 - 16:40</td>
<td>Scientific Sessions and Industry Sessions</td>
<td>15:50 - 16:20</td>
</tr>
<tr>
<td>16:40 - 17:10</td>
<td>Refreshment Break and Poster Session GROUP 3</td>
<td>16:20 - 17:50</td>
</tr>
<tr>
<td>17:10 - 18:40</td>
<td>Scientific Sessions and Industry Sessions</td>
<td>18:00 - 18:30</td>
</tr>
<tr>
<td>20:00 - Late</td>
<td>Congress Party The Guinness Storehouse</td>
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</tr>
</tbody>
</table>

**Notes:**
- **ASME Lissner Award**
- **ESB Perren Award**
- **ESB Best Thesis Award**
- **BEDRock Concert The Academy**
# 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.

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday, 8th July</td>
<td>13:30 – 19:00</td>
</tr>
<tr>
<td>Monday, 9th July</td>
<td>07:30 – 18:30</td>
</tr>
<tr>
<td>Tuesday, 10th July</td>
<td>08:00 – 18:30</td>
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<tr>
<td>Wednesday, 11th July</td>
<td>08:00 – 18:30</td>
</tr>
<tr>
<td>Thursday, 12th July</td>
<td>08:00 – 17:00</td>
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</tbody>
</table>

## EXHIBITION OPEN HOURS - GROUND FLOOR
The exhibition will be open for the following hours:

<table>
<thead>
<tr>
<th>Day</th>
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</thead>
<tbody>
<tr>
<td>Monday, 9th July</td>
<td>10:00 – 20:00</td>
</tr>
<tr>
<td>Tuesday, 10th July</td>
<td>08:00 – 19:00</td>
</tr>
<tr>
<td>Wednesday, 11th July</td>
<td>08:00 – 19:00</td>
</tr>
<tr>
<td>Thursday, 12th July</td>
<td>08:00 – 16:20</td>
</tr>
</tbody>
</table>

## 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:

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<tr>
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</tbody>
</table>

## 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](http://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.

<table>
<thead>
<tr>
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<tr>
<td>Thursday, 12th July</td>
<td>08:00 – 18:30</td>
</tr>
</tbody>
</table>

## 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

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.

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.
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 enthrall 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 EMMIGRATION 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 Evernsel, Mihai Mihaescu

Amputee biomechanics 1 & 2
Anthony Bull, Hannah Jarvis, Anne Silverman

Analytical tools for nanoscale force transduction
Deborah Leckband, Lucas H. Timmins

Asian-Pacific Association for Biomechanics: The Yamaguchi Medal for Young Investigators
Takeo Matsumoto, Kyehan Rhee

ASME: Biomechanics at the Cell, Tissue and Multiscale Level
Alisa Morse Clyde, Kristin Miller

ASME: Cardiovascular imaging and Modelling
Carlinjn Bouten, Claire Brougham

ASME: Cardiovascular Mechanics and Cell Biomechanics
Chira Bellini, Ali Akyildiz

ASME: Musculoskeletal Mechanics
Brendon Baker, Mariana Kersh

ASME: Sports Biomechanics
Carrie Peterson, Ken Morson

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

Biobuicraft and bioreactors for functional tissue systems 1 & 2
Monica Soncini, Sharan Ramaswamy

Biofabrication for musculoskeletal tissue engineering
Jason Malda, Vivian Mouser

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
Carlinjn Bouten, Claire Brougham

Biomechanics of muscle, tendon and ligament tissue engineering
James Goh, Zong Ming Li

Biomechanics of musculoskeletal development
Niarnh 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 Kurtcuoglu

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 Milton, Sebastien Laporte

Bone fracture mechanics (in vitro and in vivo) 3
David Milton, Emile de Brosses

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
Omar Kennedy, Mitch Schaffler

Brain biotransport
Zhepeng Qin, Ailing Zhang

Brain injury mechanics 1 & 2
Songbai Ji, Steven Rowson

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, Sendar Goktepe, Manuel Rausch
Cardiac regeneration and healing
Glenn Gaudette, Karen 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 Allford, Victor Varner

Cardiovascular imaging 1 & 2
Elisa E. Korofagou, Spureta 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 Ostenkov

Computational joint mechanics 1, 2 & 3
Jennifer Wayne, Joseph Iaquinto

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
Keelie 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, Calilie Doherty, Fiona Clerigh-Bultier

Dynamic medical imaging techniques for biomechanics systems 1 & 2
Kevin Matthew Moerman, Niccolo Fiorentino

ESB Clinical Biomechanics award finalists
Hanna Isaksson, Luca Cristofolini

ESB Student Award finalists
Hanna Isaksson, Jérôme Naalley

ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients
Peter Augat, Catlynn Collins

Falls – prediction and prevention 1 & 2
Kenton Kaufman, Jeremy Crenshaw

Flow-mediated cellular biomechanics 1 & 2
Cécile 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 Choosne, 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 Salzac, Takjiu Ishikawa

Functional bone and cranio-facial tissue engineering
Laosie McNamara, Joel Buerckel

Functional tissue engineering of articular cartilage and fibrocartilage
Kathryn Stok, Matthew Fisher

Gait in cerebral palsy: Neuronomuscular control versus muscle mechanics 1 & 2
Kaats Desloovere, Marjolein Vander Krogt

General musculoskeletal biomechanics
Deepak Vashishth & Blaine Christiansen

General tissue engineering
Sandria Hofmann

German Society of Biomechanics session: Experimental Biomechanics
Markus Heller, Christof Hurschler

Hand and wrist biomechanics 1 & 2
Ken Fischer, Angela Kedgley, Troy Crisco and Ukadike Chris Ugbolue.

Head impact biomechanics and head protection 1 & 2
Michael Galchrist, Aisling Ni Annadh

High rate injury biomechanics 1, 2 & 3
Duane Cronin, Spyros Masiouros

Human locomotion in diseased/injured populations - osteoarthritis
Kenton Kaufman, Eng Kuan Moo

Human locomotion in diseased/injured populations - post-stroke
Lane Gutierrez-Farrow, Heidi Wagner, Robert Reiner

Human spine, characterization and modelling 1
Hans-Joachim Wilke, Fabio Gallussera

Human spine, characterization and modelling 2
Hans-Joachim Wilke, Stephen Ferguson

Human spine, characterization and modelling 3
Hans-Joachim Wilke, Stephen Ferguson

Hyperthermia and heat-mediated transport
Chris Rylander, Jylee Hood

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

Injuries and tissue mechanics in the lower abdomen
Sara Roccabianca, Alejandro Holdan- Alzate

THANK YOU
to our Session Chairs
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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 Mickie

IVD degeneration / regeneration / repair mechanobiology 1 & 2
Keita Ko, Grace O’Connell

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

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 Grabner, 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
Saum Ghadiali, Rebecca Hesse

Mechanobiology of cellular actomyosin systems
ShinjiDeguchi, 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

Mechanobiogenetics for cell therapy
Yingxiao Wang, Jie Sun

Mechanosensing in injury and pain
Beth Ann Winkelstein, Devra Purmessaar

Mechanotransduction in engineered tissue
Roland Kaunas, Chelsey Simmons

Medical device - soft tissue interaction
Jérôme Molimard, Bou-Said Benyebka

Meniscal mechanics
Tanny Donahue, Lin-Han

Microbial biomechanics
Christopher Hernandez, Jens Moller

Microrheology
Merryn Tawhai, Hari Arora

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 Samittionarat, Lynne Bilston

Modelling uncertainty and propagation of data for biomechanics systems
Tien-Tuan Dao, Miguel Angel Gonzalez Ballester

Molecular dynamics simulation
Mohammad R. K. Molfrad, Wormuk 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 Dhafer, Rami Korhonen

Multiscale biomechanics of paediatric musculoskeletal diseases
Anthony Bull, Xinshan Li

Multiscale biomechanics of scaffolds 1 & 2
Nicholas Durme, Tanya Levingstone

Multiscale biomechanics of sport and sport injuries
Dario Cazzola, Mark Robison

Multiscale cancer mechanobiology and biomechanics
Philippe Buchler, Daniel Abler

Multiscale mechanics of cardiovascular materials and structures
Victor Barocas, Shayn Peirce-Cottler

Multiscale mechanobiology of vascularisation and atherosclerosis
Kim Van Der Heiden, Frank Opplenen

Multiscale modeling of vascular and neurovascular diseases
Yannis 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 Bobsterlee and Elizabeth Clarke
THANK YOU to our Session Chairs

Muscloskeletal 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
Oran Kennedy, Farshid Guilak

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
Alcira El Hag, 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
Boiko Guesguere, Benedikt Braun

Rehabilitation methods, tools, and devices for ankle/foot 1 & 2
Elizabeth Hisao-Weckslser, Karl Zelik

Rehabilitation methods, tools, and devices for hand/wrist
Rita Patterson, Sam Leitkam

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 Jayabalal

Shoulder biomechanics 1 & 2
Philippe Faure, 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 Olayon, Laurence Chéze

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 Ragavahan, 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 Rando

USNCB - Cell mechanosignaling in immunological diseases
Scott Simon, Sriram Neelamegham

USNCB Global women’s health biomechanics
Kristin Myers, Michelle Oyen, Helen Feltoovich

USNCB Neuromechanics: Integrating across spatial and temporal scales
Susan Marguilies, 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, Daniela Schiavace

VPH Institute session: 25 years of Physiome
Liesbet Geris, Auntie Carrier
<table>
<thead>
<tr>
<th>PLENARY SPEAKERS</th>
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| **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 TREPAT**  
Tuesday, 10th July 2018  
14:20 – 15:05  
Auditorium – Level 3  
IBEC Barcelona  
Spain  
Forces driving migration, division and folding in epithelial sheets |
| **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 |
| **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 |
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"
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<td>Where to step? Mediolateral foot placement for balance control in young and old adults</td>
<td>Jaap van Dieën</td>
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<td>Brains, Strains, and Automobiles: Concussion Biomechanics and Instrumentation</td>
<td>Stefan Duma</td>
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<td>Operating length and velocity of vastus lateralis muscle in human jumping and steady state locomotion</td>
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<td>Thomas Roberts</td>
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<td>John Bischof</td>
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<td>Lisa Xu</td>
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<td>David Lloyd</td>
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<td>Paul Rullkoetter</td>
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<td>Joseph d'Alessandro</td>
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<td>Mesoscale substrate curvatures overrule nanoscale contact guidance to direct mesenchymal stem cell migration</td>
<td>Maike Werner</td>
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<td>Computational modeling inspired design enables long term in vivo functionality of living engineered heart valves</td>
<td>Frank Baaijens</td>
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<td>Patrick Onck</td>
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<td>Chiara Bellini</td>
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<td>Subject-specific arterial blood flow modelling using reduced-order formulations</td>
<td>Jordi Alastruey</td>
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<td>Raffaella De Vita</td>
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<td>Sae-II Murtada</td>
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<td>Brian Umberger</td>
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<td>Thao (Vicky) Nguyen</td>
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<td>Nasim Annabi</td>
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<td>Simulating cell migration mechanics</td>
<td>David Odde</td>
<td>Connecting molecular interactions and mechanosensing to cell behaviours</td>
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<td>Dimitrios Vavylonis</td>
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<td>Jie Yan</td>
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<td>Jeffrey M. Haushdorff</td>
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<td>Effect of Materials on Stent Deployment</td>
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<td>00333</td>
<td>Big whorls have little whorls: Implications of multiscale flow in monoscale vessels</td>
<td>David Steinman</td>
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<td>Elasticity models for dispersion in fibrous soft biological tissues</td>
<td>Ray Ogden</td>
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<td>00349</td>
<td>A validated computational model for vascular growth and remodeling with maturation, low oscillatory shear stress and increased arterial stiffness.</td>
<td>Rudolph Gleason</td>
<td>Micromechanics of cardiovascular tissues</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00373</td>
<td>Cell-cell junction dynamics and their role in tumor cell transendothelial migration</td>
<td>Roger D. Kamm</td>
<td>Cancer microenvironments and tumour transport</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00374</td>
<td>Bone mineral matrix: a potential regulator of breast cancer skeletal metastasis</td>
<td>Claudia Fischbach</td>
<td>Cancer microenvironments and tumour transport</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00380</td>
<td>Are changes in Joint Contact Mechanics related to the Progression of Joint Degeneration?</td>
<td>Suzanne Maher</td>
<td>Orthopaedic Research Society: Injury and joint degeneration: Initiation, progression and intervention</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Ecocem</td>
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<tr>
<td>00387</td>
<td>Non-linear dynamics of the intervertebral disc</td>
<td>Stephen Ferguson</td>
<td>Human spine, characterization and modelling 1</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow Hall 2A</td>
</tr>
<tr>
<td>00388</td>
<td>Barycentremetry and subject specific spine modeling from biplanar X-Rays</td>
<td>Wafa Skalli</td>
<td>Human spine, characterization and modelling 1</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>00394</td>
<td>Modelling articular cartilage as a dynamic tissue</td>
<td>Bruce Gardiner</td>
<td>Multiscale biomechanics of articular degenerative diseases</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00395</td>
<td>Theoretical and Experimental Foundations for Investigating Damage Mechanics in Articular Cartilage</td>
<td>Brandon Zimmerman</td>
<td>Multiscale biomechanics of articular degenerative diseases</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00410</td>
<td>From fluid and structure dynamical behaviors to vascular pathologies</td>
<td>Valérie Deplano</td>
<td>Société de Biomécanique session: Christian Oddou Award lecture and Young Investigator Awards</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR1</td>
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<tr>
<td>00416</td>
<td>Advanced in vivo bio-imaging of hard tissue.</td>
<td>Steven Boyd</td>
<td>Advanced bioimaging 1</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR2</td>
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<tr>
<td>00417</td>
<td>Multi-scale and multi-modal cardiac imaging to study the mechanics of heart failure</td>
<td>Martyn P. Nash</td>
<td>Advanced bioimaging 1</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR2</td>
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<tr>
<td>00423</td>
<td>Leveraging elasticity to accelerate wound repair</td>
<td>Anthony Weiss</td>
<td>TERMIS session: Biomaterials and biomechanics 2</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR3</td>
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<tr>
<td>00429</td>
<td>Coiled coils as molecular force sensors for the extracellular matrix</td>
<td>Kerstin G. Blank</td>
<td>Analytical tools for nanoscale force transduction</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00430</td>
<td>Piconewton-sensitive biosensors to investigate molecular forces in cells</td>
<td>Carsten Grashoff</td>
<td>Analytical tools for nanoscale force transduction</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00431</td>
<td>Munc18-1 and Vps33 catalyze directional SNARE assembly by templating SNARE association Munc18-1 and Vps33 catalyze directional SNARE assembly by templating SNARE association</td>
<td>Yongli Zhang</td>
<td>Analytical tools for nanoscale force transduction</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00432</td>
<td>Rationally designed synthetic protein hydrogels with predictable mechanical properties based on single molecule protein mechanics</td>
<td>Yi Cao</td>
<td>Analytical tools for nanoscale force transduction</td>
<td>Monday 9th July, 12:00 - 13:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00449</td>
<td>Multi-scale Mechanics of Extracellular Matrix in the Arterial Wall</td>
<td>Katherine Yanhang Zhang</td>
<td>Multiscale mechanics of cardiovascular materials and structures</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey B</td>
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<tr>
<td>00450</td>
<td>Multiscale mechanics of cardiovascular tissues: from artery tissues to myocardium to filament networks</td>
<td>Gerhard Holzapfel</td>
<td>Multiscale mechanics of cardiovascular materials and structures</td>
<td>Monday 9th July, 15:00 - 16:30</td>
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<td>00465</td>
<td>Medical Device Development for Acute Ischemic Stroke: An Industry Perspective</td>
<td>John Daniel</td>
<td>Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00466</td>
<td>Evolution of Mechanical Thrombectomy in Stroke and Current Clinical Challenges</td>
<td>Ian Rennie</td>
<td>Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00472</td>
<td>Biomechanical Simulations of Progressing Osteoarthritis: Experiments, Theory, Finite Elements, and Preliminary Results</td>
<td>David M. Pierce</td>
<td>Computer models of growth and remodelling 1</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR1</td>
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<tr>
<td>00473</td>
<td>Growth and remodeling of human aortic and pulmonary heart valves</td>
<td>Sandra Loerakker</td>
<td>Computer models of growth and remodelling 1</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR1</td>
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<tr>
<td>00488</td>
<td>A microfluidic model of endothelial metabolism in flow</td>
<td>Alisa Clyne</td>
<td>Microfluidics</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00489</td>
<td>Microfluidic technologies for modelling and monitoring biomechanical tissue and organ systems</td>
<td>Craig Simmons</td>
<td>Microfluidics</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00495</td>
<td>Laboratory based quantitative outcome assessment in orthopaedic trials</td>
<td>Peter Augat</td>
<td>Quantitative outcome assessment in orthopaedic trials</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Ecocem</td>
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<tr>
<td>00496</td>
<td>Free field based quantitative outcome assessment in orthopaedic trials.</td>
<td>Bernd Grimm</td>
<td>Quantitative outcome assessment in orthopaedic trials</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Ecocem</td>
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<tr>
<td>00511</td>
<td>What Have In Vivo Knee Contact Force Measurements Taught Us about Neuromusculoskeletal Modeling?</td>
<td>B.J. Fregly</td>
<td>Incorporating in vivo load variability in modelling</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00512</td>
<td>From human motion to bone strains: the effect of intra- and inter-subject load variability and how to take it into account.</td>
<td>Fulvia Taddei</td>
<td>Incorporating in vivo load variability in modelling</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00518</td>
<td>Differential roles of Nck1 and Nck2 in shear stress-induced proinflammatory signaling</td>
<td>Wayne Orr</td>
<td>Flow-mediated cellular biomechanics 1</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00519</td>
<td>Fluid shear flow with spatial gradient regulates vascular endothelial mecanoresponses</td>
<td>Daisuke Yoshino</td>
<td>Flow-mediated cellular biomechanics 1</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00525</td>
<td>25 years of physiome: the clinical translation and the Virtual Physiological Human</td>
<td>Marco Vicentini</td>
<td>VPH Institute session: 25 years of Physiome</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR1</td>
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<tr>
<td>00526</td>
<td>Reflecting on 25 years of the Physiome Project</td>
<td>Peter Hunter</td>
<td>VPH Institute session: 25 years of Physiome</td>
<td>Monday 9th July, 15:00 - 16:30</td>
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<tr>
<td>00540</td>
<td>Designing mechanically heterogeneous scaffolds for cardiovascular tissue engineering</td>
<td>Jane Grande-Allen</td>
<td>Biomechanics of vascular tissue engineering</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR3</td>
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<tr>
<td>00541</td>
<td>Retention of seeded mesenchymal stem cells within an implanted elastomeric vascular scaffold</td>
<td>David Vorp</td>
<td>Biomechanics of vascular tissue engineering</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR3</td>
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<tr>
<td>00547</td>
<td>Nanoscale architecture of cadherin-based cell adhesions</td>
<td>Pakorn Kanchanawong</td>
<td>Inter cellular and sub cellular force transmission</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00548</td>
<td>Mechanics of cell contacts during tissue morphogenesis</td>
<td>Pierre-François Lépine</td>
<td>Inter cellular and sub cellular force transmission</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00549</td>
<td>Isometric contractile properties of individual stress fibers</td>
<td>Shinji Deguchi</td>
<td>Inter cellular and sub cellular force transmission</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00550</td>
<td>Mechanics of chromatin in situ</td>
<td>Kris Dahl</td>
<td>Inter cellular and sub cellular force transmission</td>
<td>Monday 9th July, 15:00 - 16:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00555</td>
<td>Evaluating and interpreting patient-specific neuromuscular control in cerebral palsy</td>
<td>Mike Schwartz</td>
<td>Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Auditorium</td>
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<tr>
<td>00556</td>
<td>Evaluating and interpreting patient specific mechanical muscle properties in cerebral palsy</td>
<td>Glen Lichtwark</td>
<td>Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 1</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Auditorium</td>
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<tr>
<td>00562</td>
<td>Cellular response to changes in interfacial energy at the alveolar level</td>
<td>Daniel Isabey</td>
<td>Multiscale models of the cardiopulmonary system</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey B</td>
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<tr>
<td>00563</td>
<td>Mechanisms of damage and prevention of pulmonary atelectrauma at the cellular level.</td>
<td>Donald Gaver</td>
<td>Multiscale models of the cardiopulmonary system</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey B</td>
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<tr>
<td>00564</td>
<td>Interactions between organs via the autonomic nervous system</td>
<td>Peter Hunter</td>
<td>Multiscale models of the cardiopulmonary system</td>
<td>Monday 9th July, 17:00 - 18:30</td>
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<td>00565</td>
<td>Hierarchical modeling of the heart within the circulation and cardiopulmonary systems</td>
<td>Dominique Chapelle</td>
<td>Multiscale models of the cardiopulmonary system</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey B</td>
</tr>
<tr>
<td>00569</td>
<td>Inflammation and Structural Changes in the Initiation and Healing of Painful Intervertebral Disc Degeneration in a Rat In Vivo Model</td>
<td>James Iatridis</td>
<td>Mechanosensing in injury and pain</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey Hall 1</td>
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<tr>
<td>00570</td>
<td>Regulating Redundant Mechanical and Thermal Sensitization Pathways in Discogenic Pain</td>
<td>Robby Bowles</td>
<td>Mechanosensing in injury and pain</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey Hall 1</td>
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<tr>
<td>00576</td>
<td>Role of microcalcifications in atherosclerotic plaque rupture: evolution of a longstanding paradigm</td>
<td>Luis Cardoso</td>
<td>Atherosclerotic plaque: Mechanism and modelling</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00577</td>
<td>A novel apparatus for the multifaceted evaluation of human brachial artery functions through transmural pressure manipulation: Toward early-stage diagnosis of atherosclerosis</td>
<td>Takeo Matsumoto</td>
<td>Atherosclerotic plaque: Mechanism and modelling</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00592</td>
<td>Generating Subject-specific Predictions of Human Movement</td>
<td>B.J. Fregly</td>
<td>Predictive human movement simulation 1</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow Hall 2B</td>
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<tr>
<td>00593</td>
<td>Computationally efficient simulations of human movement to study the interaction between motor control and musculoskeletal dynamics</td>
<td>Friedl De Groote</td>
<td>Predictive human movement simulation 1</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow Hall 2B</td>
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<tr>
<td>00599</td>
<td>The Futility of Pursuit of Truth in the Lymphatic System</td>
<td>James Moore</td>
<td>Vascular, lymphatic, and ocular transport</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00600</td>
<td>A New Ex Vivo Glioma Model Showing Reduced Trabecular Meshwork Cellularity and Impaired Fluid Drainage from the Eye</td>
<td>C. Ross Ethier</td>
<td>Vascular, lymphatic, and ocular transport</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey MR3</td>
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<tr>
<td>00606</td>
<td>Improvement of screw anchorage by augmentation, from macroscopic to nanoscopic level</td>
<td>Werner Schmoel</td>
<td>ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Ecocem</td>
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<tr>
<td>00607</td>
<td>Current Achievements in Hierarchical Bone Biomechanics - the Engineering Mechanics Perspective</td>
<td>Christian Hellmich</td>
<td>ESB-ANC multiscale biomechanics for orthopedics - from molecules to patients</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Ecocem</td>
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<tr>
<td>00622</td>
<td>Time-lapsed in vivo imaging of bone adaptation and regeneration</td>
<td>Ralph Müller</td>
<td>In vivo bone remodelling mechanics</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00623</td>
<td>Osteocytes, Microdamage and Bone Remodeling - Messages from Within</td>
<td>Mitchell Schaffler</td>
<td>In vivo bone remodelling mechanics</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Liffey MR2</td>
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<tr>
<td>00638</td>
<td>In-silico observation of bone metabolism and remodeling based on mechano-biochemical coupling models</td>
<td>Taiji Adachi</td>
<td>JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR1</td>
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<tr>
<td>00639</td>
<td>Emerging Functions of Electrically-induced Bubbles</td>
<td>Yoko Yamanishi</td>
<td>JSME session: Commemorative Lectures on Emerging Technologies for Biomechanics: Beyond the 120th anniversary of the JSME</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR1</td>
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<tr>
<td>00646</td>
<td>Biomechanics of soft tissue by MR elastography</td>
<td>Armando Manduca</td>
<td>Biomechanics of soft tissue by Elastography (MRI, US)</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR2</td>
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<tr>
<td>00653</td>
<td>Tissue engineering strategies inspired by evolution</td>
<td>Celeste Nelson</td>
<td>Mechanobiology and Tissue engineering of the respiratory tract</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR3</td>
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<tr>
<td>00654</td>
<td>Cell-Matrix mechanotransduction in lung remodeling and fibrosis</td>
<td>Thomas Barker</td>
<td>Mechanobiology and Tissue engineering of the respiratory tract</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR3</td>
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<tr>
<td>00660</td>
<td>Mechanical phase transitions and anomalous stress in extracellular matrices</td>
<td>Fred MacKintosh</td>
<td>Non-equilibrium biomechanics - from molecules to cells</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00661</td>
<td>Role of bond reversibility in biopolymer network elasticity, fracture and plasticity</td>
<td>Gijssje Koenderink</td>
<td>Non-equilibrium biomechanics - from molecules to cells</td>
<td>Monday 9th July, 17:00 - 18:30</td>
<td>Wicklow MR4</td>
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<tr>
<td>00679</td>
<td>Clinical personalization of multiscale models of total heart function</td>
<td>Gernot Plank</td>
<td>From physiology to clinics: Clinical applications of multiscale modelling of the heart</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey B</td>
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<tr>
<td>00680</td>
<td>Modelling Cardiac Mechanics in the Human heart</td>
<td>Steven Niederer</td>
<td>From physiology to clinics: Clinical applications of multiscale modelling of the heart</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey B</td>
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<tr>
<td>00686</td>
<td>Simplified oblique helmet test methods for short duration direct head impacts based on real accident data and biomechanical understanding</td>
<td>Peter Halldin</td>
<td>Head impact biomechanics and head protection 1</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
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<td>00694</td>
<td>Novel mechanosensitive pathways involved in aortic valve fibrosis and calcification</td>
<td>Craig Simmons</td>
<td>Mechanobiology of heart valves</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00695</td>
<td>Mechanobiology of in-situ heart valve tissue engineering using degradable polymeric scaffolds</td>
<td>Carlijn Bouten</td>
<td>Mechanobiology of heart valves</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00701</td>
<td>Biophysics of mechanosensitive cadherin adhesion and its regulation</td>
<td>Sanjeevi Sivasankar</td>
<td>Molecular force transduction</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey MR1</td>
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<tr>
<td>00702</td>
<td>Transducing matrix mechanical and spatial properties from integrins to the nucleus.</td>
<td>Pere Roca-Cusachs</td>
<td>Molecular force transduction</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey MR1</td>
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<tr>
<td>00717</td>
<td>In vivo imaging of interstitial flow and histological correlation within the brain tumor microenvironment</td>
<td>Jennifer Munson</td>
<td>Brain biotransport</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey MR3</td>
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<tr>
<td>00718</td>
<td>Dynamic blood brain barrier regulation in sub-concussive brain injuries</td>
<td>Matthew Campbell</td>
<td>Brain biotransport</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Liffey MR3</td>
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<tr>
<td>00724</td>
<td>Experimental measurements versus model predictions of fiber rotations in soft tissues</td>
<td>Stéphane Avril</td>
<td>Image-based multiscale modelling of fibrous tissues – tools and theories</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
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<tr>
<td>00735</td>
<td>Application of biomechanical modelling for the analysis of fastball pitching</td>
<td>DirkJan Veeger</td>
<td>Shoulder biomechanics 1</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 2B</td>
</tr>
<tr>
<td>00736</td>
<td>Contribution of biomechanics for the choice of the vertical orientation of the sphere during the implantation of a reverse shoulder arthroplasty (RSA)</td>
<td>Favard Luc</td>
<td>Shoulder biomechanics 1</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 2B</td>
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<tr>
<td>00742</td>
<td>Mechanosensing drives αβ T cell recognition</td>
<td>Yinnian Feng, Matthew Lang</td>
<td>USNCB - Cell mechanosignaling in immunological diseases</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00743</td>
<td>Mechanogenetics For The Remote And Non-Invasive Control Of Cancer Immunotherapy</td>
<td>Yingxiao Wang</td>
<td>USNCB - Cell mechanosignaling in immunological diseases</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00744</td>
<td>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</td>
<td>John Magnani</td>
<td>USNCB - Cell mechanosignaling in immunological diseases</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00745</td>
<td>Single-molecule measurements reveal how adhesion composition regulates force transmission by individual integrin heterodimers</td>
<td>Alexander Dunn</td>
<td>USNCB - Cell mechanosignaling in immunological diseases</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00749</td>
<td>Pediatric cardiac shear wave elastography: Healthy controls</td>
<td>James Greenleaf</td>
<td>Cardiovascular imaging 1</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow MR1</td>
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<tr>
<td>00750</td>
<td>A Doppler-based regularization problem for intraventricular vector flow mapping</td>
<td>Damien Garcia</td>
<td>Cardiovascular imaging 1</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow MR1</td>
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<tr>
<td>00768</td>
<td>Mechanical regulation of chondroprogenitor fate</td>
<td>Martin J. Stoddart</td>
<td>Physical regulators and transport cues in tissue engineering</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow MR4</td>
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<tr>
<td>00770</td>
<td>Frequency and duration of mechanical stimulation influence mineralisation of developing chick limbs cultured in vitro</td>
<td>Cristian Parisi</td>
<td>Physical regulators and transport cues in tissue engineering</td>
<td>Tuesday 10th July, 09:20 - 10:50</td>
<td>Wicklow MR4</td>
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<tr>
<td>00780</td>
<td>How rehabilitation robots can be used to quantify and understand post-stroke balance and gait</td>
<td>Herman van der Kooij</td>
<td>Human locomotion in diseased/injured populations - post-stroke</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Auditorium</td>
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<tr>
<td>00781</td>
<td>Relearning to walk: training with or without errors?</td>
<td>Laura Marchal-Crespo</td>
<td>Human locomotion in diseased/injured populations - post-stroke</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Auditorium</td>
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<tr>
<td>00788</td>
<td>Quantifying Blood Flow and Pressure in the Coronary Arteries of Patients with Nonobstructive Coronary Artery Disease</td>
<td>Charles Taylor</td>
<td>Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Liffey B</td>
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<tr>
<td>00794</td>
<td>Frequency-Dependent Changes in Resting State EEG Functional Networks in Piglets After Rapid Head Rotations - Implications for Identifying Traumatic Brain Injury</td>
<td>Susan Margulies</td>
<td>Head impact biomechanics and head protection 2</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Liffey Hall 1</td>
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<tr>
<td>00802</td>
<td>Genotype-to-Phenotype Multiscale Biomechanical Models for Inherited Cardiomyopathies</td>
<td>Stuart Campbell</td>
<td>Cardiac growth and remodelling mechanics</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00803</td>
<td>Post-infarction remodeling: looking for growth in all the wrong places?</td>
<td>Jeffrey Holmes</td>
<td>Cardiac growth and remodelling mechanics</td>
<td>Tuesday 10th July, 11:20 - 12:50</td>
<td>Liffey Hall 2</td>
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<td>00895</td>
<td>Continuously parameterizing the timing and task adaptations of human locomotion for the control of powered prosthetic legs</td>
<td>Robert Gregg</td>
<td>Motor control 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
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<tr>
<td>00896</td>
<td>A Functional and Holistic Approach to the Identification of Human Motor Control</td>
<td>Antonie J. van den Bogert</td>
<td>Motor control 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
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<tr>
<td>00902</td>
<td>Modelling Blood Flow and Pressure in the Coronary Arteries: From the Academy to the Clinic</td>
<td>Charles Taylor</td>
<td>Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey B</td>
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<tr>
<td>00903</td>
<td>Fluid Delivery and Mass Transport across Multiple Scales at the Interfaces of the Blood and Lymphatic Systems</td>
<td>James Moore</td>
<td>Multiscale modelling of the Cardiovascular System: Disease development, progression, and clinical intervention</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey B</td>
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<tr>
<td>00909</td>
<td>The role of multiphysics computational modeling in pressure ulcer prevention</td>
<td>Amit Gofen</td>
<td>Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities.</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey Hall 1</td>
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<tr>
<td>00917</td>
<td>Elastin in developmental vascular growth and remodeling</td>
<td>Jessica Wagenseil</td>
<td>Vascular growth and remodelling mechanics</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00918</td>
<td>A Credibility Plan of Vascular Growth and Remodeling Simulation Tool</td>
<td>Seungik Baek</td>
<td>Vascular growth and remodelling mechanics</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey Hall 2</td>
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<tr>
<td>00924</td>
<td>Multiscale modeling of traumatic brain injuries</td>
<td>Svein Kleiven</td>
<td>USNCB Neuromechanics: Integrating across spatial and temporal scales</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>00925</td>
<td>Multiscale perspectives on mild traumatic brain injury and recovery</td>
<td>David Meaney</td>
<td>USNCB Neuromechanics: Integrating across spatial and temporal scales</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>00931</td>
<td>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</td>
<td>Alberto Minetti</td>
<td>Locomotion and human movement energetics in sports 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey MR2</td>
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<tr>
<td>00932</td>
<td>Comparison of the anthropometrics, kinematics and kinetics in young swimmers of different competitive levels</td>
<td>Tiago M. Barbosa</td>
<td>Locomotion and human movement energetics in sports 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Liffey MR2</td>
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<tr>
<td>00938</td>
<td>Drug delivery to brain tumors</td>
<td>Jiabing Zhou</td>
<td>Biotransport diagnostics and therapeutics</td>
<td>Tuesday 10th July, 15:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>00939</td>
<td>Arterial wall oxygen transport and vascular disease revisited</td>
<td>John M. Tarbell</td>
<td>Biotransport diagnostics and therapeutics</td>
<td>Tuesday 10th July, 15:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>00945</td>
<td>Statistical and musculoskeletal models to support decision making in gait analysis</td>
<td>Morgan Sangeux</td>
<td>From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Ecocem</td>
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<tr>
<td>00946</td>
<td>Allies or adversaries? The role of biomechanics and data science in improving mobility</td>
<td>Jennifer Hicks</td>
<td>From models to decisions - How musculoskeletal, or statistical, models may inform clinical decision making 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Ecocem</td>
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<tr>
<td>00952</td>
<td>How does mechanical loading influence the biological microenvironment of the disc leading to failure?</td>
<td>Hans-Joachim Wilke</td>
<td>IVD degeneration / regeneration / repair mechanobiology 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>00953</td>
<td>Repair and Regeneration of the Anulus Fibrosus of the Intervertebral Disc</td>
<td>James Iatridis</td>
<td>IVD degeneration / regeneration / repair mechanobiology 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>00959</td>
<td>Do we have a complete kinematic model of the carpus yet? And if so, can it help advance total wrist arthroplasties?</td>
<td>Joseph Crisco</td>
<td>Hand and wrist biomechanics 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 2B</td>
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<tr>
<td>00960</td>
<td>Biomechanics of the Transverse Carpal Ligament</td>
<td>Zong-Ming Li</td>
<td>Hand and wrist biomechanics 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 2B</td>
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<tr>
<td>00966</td>
<td>Microparticle Delivered miR-27a Induced by Cyclic Stretch Modulates the Proliferation of Endothelial Cells in Hypertension</td>
<td>Ying-Xin Qi</td>
<td>Cell deformation and cell signalling</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00967</td>
<td>Cadherin-11 mechanobiology in cardiac fibrosis and disease</td>
<td>W. David Merryman</td>
<td>Cell deformation and cell signalling</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>00974</td>
<td>How technological advances have led to innovative new products</td>
<td>Arthur G Erdman</td>
<td>Technology innovation in medical devices 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow MR1</td>
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<tr>
<td>00975</td>
<td>Neural Prosthesis to Assist People with Muscle Weakness</td>
<td>Martin L. Tanaka</td>
<td>Technology innovation in medical devices 1</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow MR1</td>
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<tr>
<td>00993</td>
<td>Design and manufacture of 3D-printed scaffolds for regeneration of massive craniofacial bone loss.</td>
<td>Warren Grayson</td>
<td>Functional bone and cranio-facial tissue engineering</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>00994</td>
<td>The role of dynamic hydrogel mechanical properties and bone defect mechanical loading on cell behavior and tissue regeneration</td>
<td>Eben Alisberg</td>
<td>Functional bone and cranio-facial tissue engineering</td>
<td>Tuesday 10th July, 15:10 - 16:40</td>
<td>Wicklow MR4</td>
</tr>
<tr>
<td>01009</td>
<td>The exquisite design of the endothelial glycoalyx and its amazing application to a jet ski train</td>
<td>Sheldon Weinbaum</td>
<td>Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey B</td>
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<tr>
<td>01010</td>
<td>Leveraging Fluid Dynamics to Improve Cardiovascular Devices: Tarbell’s Contributions</td>
<td>Keefe Manning</td>
<td>Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey B</td>
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<tr>
<td>01016</td>
<td>Opportunities for Biomechanics, Tissue Injury, and Rehabilitation Research in Obstetrics and Gynecology</td>
<td>Steven Abramowitch</td>
<td>Injuries and tissue mechanics in the lower abdomen</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey Hall 1</td>
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<tr>
<td>01017</td>
<td>A data driven micro-structural model for the bladder wall in health and disease</td>
<td>Anne Robertson</td>
<td>Injuries and tissue mechanics in the lower abdomen</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey Hall 1</td>
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<tr>
<td>01032</td>
<td>Generation and Validation of subject-specific finite element models for preclinical and clinical assessment of bone mechanical properties</td>
<td>Enrico Dall’Ara</td>
<td>Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01033</td>
<td>Computational Challenges in Clinical Cardiovascular Mathematics: integration of data and mathematical models for clinical applications</td>
<td>Alessandro Veneziani</td>
<td>Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01048</td>
<td>Model-based personalized Decision Support for heart valve interventions</td>
<td>David Rodney Hose</td>
<td>From the microcirculation to large artery flows: Challenges for clinical applications</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01049</td>
<td>Hemorheology, red blood cells dynamics and their membrane in plane elasticity: the necessary triptych to understand blood flow</td>
<td>Manouk Abkarian</td>
<td>From the microcirculation to large artery flows: Challenges for clinical applications</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01082</td>
<td>Mechanobiology of tumor invasion: Lessons from glioblastoma</td>
<td>Sanjay Kumar</td>
<td>Cell biomechanics and oncology 1</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>01083</td>
<td>Mechanical guidance of collective cell migration and invasion</td>
<td>Xavier Trepat</td>
<td>Cell biomechanics and oncology 1</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow Hall 1</td>
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<tr>
<td>01106</td>
<td>Mechanotransduction in embryonic development: from mesoderm mechanotransductive evolutionary origins to tumorigenic mechanical induction</td>
<td>Emmanuel Farge</td>
<td>Mechanobiology and embryogenesis 1</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR3</td>
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<tr>
<td>01107</td>
<td>How to fold a tube</td>
<td>Celeste Nelson</td>
<td>Mechanobiology and embryogenesis 1</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR3</td>
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<tr>
<td>01113</td>
<td>Image-based computational design and 3D biomaterial printing for patient specific devices and regenerative medicine</td>
<td>Scott Hollister</td>
<td>Technologies for validation in space and time of multiscale models of tissue engineering</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>01114</td>
<td>Talking to cells via surface topography: from in vitro experiments to in silico models</td>
<td>Aurélie Carlier</td>
<td>Technologies for validation in space and time of multiscale models of tissue engineering</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>01115</td>
<td>The new paradigm in multiscale biomechanical modelling of biological tissues: coupling different physics through different scales</td>
<td>Giuseppe Vairo</td>
<td>Technologies for validation in space and time of multiscale models of tissue engineering</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>01116</td>
<td>Modelling and in-vitro experiments in bone regeneration</td>
<td>Laoise McNamara</td>
<td>Technologies for validation in space and time of multiscale models of tissue engineering</td>
<td>Tuesday 10th July, 17:10 - 18:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>01134</td>
<td>Experimental investigation of the biomechanical response and the microstructure of the ventricular myocardium</td>
<td>Gerhard Sommer</td>
<td>Cardiac mechanics and heart modelling 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<tr>
<td>01135</td>
<td>Modeling Viscoelasticity and Frequency Response in Cardiac Muscle</td>
<td>David Nordsetten</td>
<td>Cardiac mechanics and heart modelling 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey B</td>
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<tr>
<td>01141</td>
<td>Real-time multiscale computational models for mechanobiological-targeted training of musculoskeletal tissues</td>
<td>David Lloyd</td>
<td>The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programs</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey Hall 1</td>
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<tr>
<td>01142</td>
<td>New clinical perspectives for MRI based patient-specific musculo skeletal models</td>
<td>Claudia Mazzà</td>
<td>The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programs</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<tr>
<td>01148</td>
<td>Echo-Derived Biomechanics to Stratify Thoracic Aortic Aneurysm Patients</td>
<td>Kevin Lachapelle</td>
<td>Thoracic aortic aneurysms and aortic dissection 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey Hall 2</td>
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<tr>
<td>01149</td>
<td>Computational studies of hemodynamic performance of thoracic endograftsComputational studies of hemodynamic performance of thoracic endografts</td>
<td>C Alberto Figueroa</td>
<td>Thoracic aortic aneurysms and aortic dissection 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey Hall 2</td>
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<tr>
<td>01155</td>
<td>An inter-population morphometric study between African and European glenohumeral articulating surfaces.</td>
<td>Sudesh Sivarsu</td>
<td>Biomedical engineering research and education in Africa</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<tr>
<td>01156</td>
<td>Affordable Polymeric Transcatheter Heart Valves for LMICs</td>
<td>Deon Beuzidenhout</td>
<td>Biomedical engineering research and education in Africa</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<td>O1162</td>
<td>Dual-task, Concussion, and Sports Injuries: Connecting Mind and Movement to Better Understand Sports Injuries</td>
<td>David Howell</td>
<td>Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey MR2</td>
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<tr>
<td>O1163</td>
<td>Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries</td>
<td>Robert Lynall</td>
<td>Dual-task, concussion, and sports injuries: Connecting mind and movement to better understand sports injuries</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey MR2</td>
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<tr>
<td>O1169</td>
<td>Mapping 3D Mechanical Strains during Tissue Morphogenesis with a Novel Fibronectin-based Nanomechanical Biosensor</td>
<td>Adam Feinberg</td>
<td>Cardiovascular development</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Liffey MR3</td>
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<tr>
<td>O1176</td>
<td>Biomechanics of Human Trabecular Bone: Advances and Limitations</td>
<td>Philippe Zysset</td>
<td>Bone fracture mechanics (in vitro and in vivo) 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<tr>
<td>O1177</td>
<td>Advancing matrix-sensitive techniques to assess the fracture resistance of bone</td>
<td>Jeffry Nyman</td>
<td>Bone fracture mechanics (in vitro and in vivo) 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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<tr>
<td>O1183</td>
<td>3D bioprinting of scaled-up tissues that mimic the structure, composition and biomechanics of articular cartilage</td>
<td>Daniel Kelly</td>
<td>Biomimetic implants for articular cartilage repair / regeneration</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>O1184</td>
<td>Targeted genome engineering of pluripotent stem cells as a basis for self-regulating, functional engineered tissues</td>
<td>Farshid Guiilak</td>
<td>Biomimetic implants for articular cartilage repair / regeneration</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Wicklow Hall 2A</td>
</tr>
<tr>
<td>O1190</td>
<td>Biomechanics of the Skeletal Muscle Extracellular Matrix</td>
<td>Richard Lieber</td>
<td>Mechanics of passive muscle and connective tissue 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Wicklow Hall 2B</td>
</tr>
<tr>
<td>O1191</td>
<td>Composition-dependent mechanisms of multiscale tendon mechanics</td>
<td>Spencer Lake</td>
<td>Mechanics of passive muscle and connective tissue 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Wicklow Hall 2B</td>
</tr>
<tr>
<td>O1197</td>
<td>Nanokick: stimulation of osteogenesis by mesenchymal stem cells using a nanovibrational bioreactor</td>
<td>Matthew Dalby</td>
<td>Multiscale biomechanics of scaffolds 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
<td>Ecocem</td>
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<tr>
<td>O1198</td>
<td>Regenerating bone with biomimetic scaffolds in large defects</td>
<td>Hanna Isaksson</td>
<td>Multiscale biomechanics of scaffolds 1</td>
<td>Wednesday 11th July, 09:20-10:50</td>
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</tr>
<tr>
<td>O1253</td>
<td>Modeling overuse injuries in sport as a mechanical fatigue phenomenon</td>
<td>W. Brent Edwards</td>
<td>Multiscale biomechanics of sport and sport injuries</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey Hall 1</td>
</tr>
<tr>
<td>O1254</td>
<td>Use of Shear Wave Tensiometers to Track Tendon Tissue Loads during Running</td>
<td>Darryl Thelen</td>
<td>Multiscale biomechanics of sport and sport injuries</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey Hall 1</td>
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<tr>
<td>O1269</td>
<td>Experience of Biomedical Engineering Education in the United Arab Emirates</td>
<td>Tim McGloughlin</td>
<td>Biomedical engineering education 1</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR1</td>
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<tr>
<td>O1270</td>
<td>Incorporating classroom based research experiences into biomechanical engineering education</td>
<td>Alisa Clyne</td>
<td>Biomedical engineering education 1</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR1</td>
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<tr>
<td>O1271</td>
<td>Emerging Trends and Future Landscape of Biomedical Engineering Education</td>
<td>James Goh</td>
<td>Biomedical engineering education 1</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR1</td>
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<tr>
<td>O1275</td>
<td>Can responses to gait perturbations be used to discriminate between older adults with and without history of falls?</td>
<td>Sanne Roeles</td>
<td>Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR2</td>
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<tr>
<td>O1282</td>
<td>Hemodynamics controls thrombosis to cause heart attacks and strokes</td>
<td>David Ku</td>
<td>Challenges of thrombosis modelling</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR3</td>
</tr>
<tr>
<td>O1283</td>
<td>A predictive multiscale model for simulating platelet activation and aggregation in shear flow</td>
<td>Danny Bluestein</td>
<td>Challenges of thrombosis modelling</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Liffey MR3</td>
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<tr>
<td>O1298</td>
<td>A Paradigm for Using Physiological Inputs to In Vitro Models for Assessment of Cartilage Tribology</td>
<td>Suzanne Maher</td>
<td>Cartilage tribology</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Wicklow Hall 2A</td>
</tr>
<tr>
<td>O1299</td>
<td>Motion is lotion: New insights into how movement helps maintain joint lubrication and health</td>
<td>David Burris</td>
<td>Cartilage tribology</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>O1332</td>
<td>Invasion-Mutation: DNA Damage Portends Genome Variation in Cancer Cells after Pore Migration</td>
<td>Dennis Discher</td>
<td>Mechanogenetics for cell therapy</td>
<td>Wednesday 11th July, 11:20-12:50</td>
<td>Wicklow MR2</td>
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<td>01332</td>
<td>Outside-in/Inside-out signaling loop of the TCR mechanosensor induced by negative selecting ligands in the thymus</td>
<td>Cheng Zhu</td>
<td>Mechanogenetics for cell therapy</td>
<td>Wednesday 11th July, 12:50</td>
<td>Wicklow MR2</td>
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<tr>
<td>01333</td>
<td>Dose-dependent Effects of Irisin on Osteoblast Proliferation and Differentiation</td>
<td>Zhang Yuwei</td>
<td>Cell interaction with microenvironment 1</td>
<td>Wednesday 11th July, 12:50</td>
<td>Wicklow MR4</td>
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<tr>
<td>01340</td>
<td>Dynamic filodipodial traction forces induce fast extracellular fibrous matrix remodeling that can be predicted with viscoelasticity</td>
<td>Andrea Malandrino, Roger D Kamm</td>
<td>Cell interaction with microenvironment 1</td>
<td>Wednesday 11th July, 12:50</td>
<td>Wicklow MR4</td>
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<tr>
<td>01350</td>
<td>Movement Coordination after Unilateral Transplant Amputation</td>
<td>Anne Silverman</td>
<td>Amputee biomechanics 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Auditorium</td>
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<tr>
<td>01351</td>
<td>Robust control of active upper limb prostheses by real-time neuromusculoskeletal modeling</td>
<td>Dario Farina</td>
<td>Amputee biomechanics 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Auditorium</td>
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<tr>
<td>01357</td>
<td>Engineering heart muscle for heart failure repair</td>
<td>Wolfram-Hubertus Zimmermann</td>
<td>Cardiac regeneration and healing</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey B</td>
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<tr>
<td>01358</td>
<td>Designing better post-infarction scar</td>
<td>Jeffrey Holmes</td>
<td>Cardiac regeneration and healing</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey B</td>
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<tr>
<td>01369</td>
<td>Research into running injuries</td>
<td>Tim Derrick</td>
<td>Running Injuries 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey Hall 1</td>
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<tr>
<td>01371</td>
<td>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?</td>
<td>Joy Roy</td>
<td>Abdominal aortic aneurysms 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey Hall 2</td>
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<tr>
<td>01372</td>
<td>Angiotensin II and the heterogeneity of the aorta - the basis for aneurysmal locations?</td>
<td>Alan Daugherty</td>
<td>Abdominal aortic aneurysms 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey Hall 2</td>
</tr>
<tr>
<td>01374</td>
<td>Design as a Feature of BME Education: Satisfying ABET and Preparing Students to Solve Clinical Needs</td>
<td>Michele Grimm</td>
<td>Biomedical engineering education 2</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01379</td>
<td>Biomedical Engineering education at Eindhoven University of Technology</td>
<td>Cees Oomens</td>
<td>Biomedical engineering education 2</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01380</td>
<td>A case study in the growth of BME curricula in the United States</td>
<td>William Guilford</td>
<td>Biomedical engineering education 2</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01381</td>
<td>The design of a biomedical engineering programme at Queen Mary, University of London</td>
<td>Julia C. Shelton</td>
<td>Biomedical engineering education 2</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01384</td>
<td>Massively Parallel Models of Multiscale Hemodynamics in the Human Vasculature</td>
<td>Amanda Randles</td>
<td>Computational challenges in multiscale modelling in biomechanics</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR2</td>
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<tr>
<td>01385</td>
<td>Computational Challenges in Multi-scale Modelling of the Neuromuscular System</td>
<td>Oliver Roehrle</td>
<td>Computational challenges in multiscale modelling in biomechanics</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR2</td>
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<tr>
<td>01391</td>
<td>Aortic Arches after Coarctation Repair - Geometry and Haemodynamics</td>
<td>Michael Quail</td>
<td>Arterial pulse wave mechanics and ventriculo-arterial interaction</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01392</td>
<td>Ventricular wave reflection and its effects on outflow patterns and external work</td>
<td>Jonathan Mynard</td>
<td>Arterial pulse wave mechanics and ventriculo-arterial interaction</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01407</td>
<td>Individual Trabecula Segmentation (ITS) and Micronindentation Testing Reveal Structural and Mechanical Deteriorations in the Subchondral Trabecular Bone under Moderately Degenerated Cartilage in Osteoarthritis (OA)</td>
<td>X. Edward Guo</td>
<td>Bone-cartilage cross-talk</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Wicklow Hall 2</td>
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<tr>
<td>01408</td>
<td>Deconstructing the mechanobiology of bone/cartilage cross-talk to identify therapeutic targets for musculoskeletal diseases</td>
<td>Farshid Gulak</td>
<td>Bone-cartilage cross-talk</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Wicklow Hall 2</td>
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<tr>
<td>01411</td>
<td>Probing Molecular Damage and Failure of Collagen in Connective Tissues</td>
<td>Jeffrey Weiss</td>
<td>Tendon, ligament and enthesis biomechanics 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Wicklow Hall 2</td>
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<tr>
<td>01422</td>
<td>Extrusion-based 3D printing of biodegradable hydrogels</td>
<td>Jason Burdick</td>
<td>Biofabrication for musculoskeletal tissue engineering</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Ecocem</td>
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<tr>
<td>01423</td>
<td>Designing bio-ink and bio-resin platforms for 3D bioprinting and bioassembly</td>
<td>Tim BF Woodfield</td>
<td>Biofabrication for musculoskeletal tissue engineering</td>
<td>Wednesday 11th July, 15:10-16:40</td>
<td>Ecocem</td>
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<tr>
<td>01429</td>
<td>Coronary drug eluting stents - time for some personalised medicine?</td>
<td>Keith Oldroyd</td>
<td>Stenting within the cardiovascular system 1</td>
<td>Wednesday 11th July, 15:10-16:40</td>
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<tr>
<td>01430</td>
<td>A novel computational method for simulating arterial remodelling around a biodegradable magnesium stent utilising multiple remodelling stimuli.</td>
<td>Peter McHugh</td>
<td>Stenting within the cardiovascular system 1</td>
<td>Wednesday 11th July, 15:10 - 16:40</td>
<td>Wicklow MR1</td>
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<tr>
<td>01436</td>
<td>Multiscale imaging-based computational modeling of knee joint, articular cartilage and chondrocyte</td>
<td>Rami Korhonen</td>
<td>Synergy of image-based modelling and model-based imaging for probing biological systems</td>
<td>Wednesday 11th July, 15:10 - 16:40</td>
<td>Wicklow MR2</td>
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<tr>
<td>01437</td>
<td>Imaging hearing in plants: integrated imaging and modeling to identify acoustic detection in Arabidopsis thaliana</td>
<td>Guy Genin</td>
<td>Synergy of image-based modelling and model-based imaging for probing biological systems</td>
<td>Wednesday 11th July, 15:10 - 16:40</td>
<td>Wicklow MR2</td>
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<tr>
<td>01454</td>
<td>Fluid mechanics of left-right symmetry breaking in the zebrafish embryo</td>
<td>David Smith</td>
<td>Prenatal cardiovascular fluid mechanics and flow mechanobiology</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey B</td>
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<tr>
<td>01464</td>
<td>Selective Filopodia Adhesion Ensures Robust Cell Matching in the Drosophila Heart</td>
<td>Timothy Saunders</td>
<td>Prenatal cardiovascular fluid mechanics and flow mechanobiology</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey B</td>
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<tr>
<td>01487</td>
<td>Applying a science capital approach to increase engagement with biomechanics</td>
<td>Laura-Anne Furlong</td>
<td>Public engagement with biomechanics</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01488</td>
<td>Finding the balance between education outreach and research goals</td>
<td>Sarah Shultz</td>
<td>Public engagement with biomechanics</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR1</td>
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<tr>
<td>01493</td>
<td>Uncertainty quantification and sensitivity analysis for cardiovascular model predictions</td>
<td>Leif Rune Hellevis</td>
<td>Modelling uncertainty and propagation of data for biomechanics systems</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR2</td>
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<tr>
<td>01494</td>
<td>Computational methods for uncertainty quantification of complex biological systems</td>
<td>Jennifer Rowson</td>
<td>Modelling uncertainty and propagation of data for biomechanics systems</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR2</td>
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<tr>
<td>01500</td>
<td>An approach for uncertainty quantification in computational biomechanics feasible for complex, large scale models</td>
<td>Wolfgang A. Wall</td>
<td>Verification, validation and uncertainty quantification in cardiovascular CFD</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01501</td>
<td>New trends for advanced reduced order methods in CFD: applications to optimisation, control, uncertainty quantification and data assimilation of parametric cardiovascular flows</td>
<td>Gianluigi Rozza</td>
<td>Verification, validation and uncertainty quantification in cardiovascular CFD</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Liffey MR3</td>
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<tr>
<td>01516</td>
<td>Dynamic remodeling of a biomaterial niche alters hematopoietic stem cell lineage specification</td>
<td>Brendan Harley</td>
<td>Bone marrow properties and mechanobiology</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>01517</td>
<td>MSCs and bone versus fat: Coordinated increase of nuclear tension and lamin-A with matrix stiffness outcompetes lamin-B receptor which favors soft tissue phenotypes</td>
<td>Dennis Discher</td>
<td>Bone marrow properties and mechanobiology</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Wicklow Hall 2A</td>
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<tr>
<td>01531</td>
<td>A model to describe the heterogeneous mechanical behaviour of human skin</td>
<td>C.W.J. Oomens</td>
<td>Multiscale biomechanics and modeling of engineered tissues</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
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<tr>
<td>01532</td>
<td>On the relationship between fiber-level and network-level fatigue behavior of collagen networks</td>
<td>V.H. Barocas</td>
<td>Multiscale biomechanics and modeling of engineered tissues</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Ecocem</td>
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<tr>
<td>01547</td>
<td>Harmonic waves in anisotropic poroelastic and viscoelastic anisotropic tissues: Magnetic Resonance Elastography and Dynamic Nanoindentation</td>
<td>Pasquale Vena</td>
<td>Nano- and micro-mechanics of biological tissue, biomechanical and bioinspired materials and systems 1</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Wicklow MR2</td>
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<tr>
<td>01548</td>
<td>Micromechanics of collagen rich-tissues and nanomechanics of individual collagen fibrils as a function of hydration, cross-linking, age and tissue function</td>
<td>Philipp Thurner</td>
<td>Nano- and micro-mechanics of biological tissue, biomechanical and bioinspired materials and systems 1</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Wicklow MR2</td>
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<tr>
<td>01554</td>
<td>Mechano-Active Materials to Direct Stem Cell Differntiation</td>
<td>Robert Mauck</td>
<td>Mechanotransduction in engineered tissue</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
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<tr>
<td>01555</td>
<td>A macro-micro modeling approach to determine in-situ heart valve interstitial cell contractile behaviors in native and synthetic environments</td>
<td>Michael Sacks</td>
<td>Mechanotransduction in engineered tissue</td>
<td>Wednesday 11th July, 17:10 - 18:40</td>
<td>Wicklow MR4</td>
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<tr>
<td>01565</td>
<td>Personalised biomechanical modelling for the early intervention of knee osteoarthritis</td>
<td>Thor Besier</td>
<td>Human locomotion in diseased/injured populations - osteoarthritis</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Auditorium</td>
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<tr>
<td>01566</td>
<td>Effects of obesity and subsequent intentional weight loss on gait biomechanics in knee OA patients</td>
<td>Stephen P. Messier</td>
<td>Human locomotion in diseased/injured populations - osteoarthritis</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Auditorium</td>
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<tr>
<td>01572</td>
<td>Fontan Surgical Planning: Can we Design the Future?</td>
<td>Ajit Yoganathan</td>
<td>Congenital heart defects and paediatric cardiology applications 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey B</td>
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<tr>
<td>01580</td>
<td>Strategies to fulfil a rapid change in direction</td>
<td>Wolfgang Potthast</td>
<td>ISB Session 2: Footwear biomechanics</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey Hall 1</td>
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<tr>
<td>01581</td>
<td>Use of pressure data to evaluate footwear during running</td>
<td>Sharon Dixon</td>
<td>ISB Session 2: Footwear biomechanics</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01587</td>
<td>Relationship between Local Flow Conditions and Aneurysm Wall Characteristics</td>
<td>Juan Cebal</td>
<td>Cerebral aneurysms 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey Hall 2</td>
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<tr>
<td>01588</td>
<td>History and Perspective of Cerebral aneurysms and Computational Fluid Dynamics - From a viewpoint of a physician</td>
<td>Masaaki Shojima</td>
<td>Cerebral aneurysms 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey Hall 2</td>
</tr>
<tr>
<td>01594</td>
<td>Fluid mechanics of ureteroscopes</td>
<td>Sarah Waters</td>
<td>Modelling of biofluid transport 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey MR1</td>
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<tr>
<td>01602</td>
<td>Fluid-Structure Interaction Simulation of Heart Valve Dynamics</td>
<td>Wei Sun</td>
<td>Fluid-structure interactions in cardiovascular mechanics 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey MR2</td>
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<tr>
<td>01603</td>
<td>Computational fluid-structure interaction methods and their use in the design of cardiovascular assist devices</td>
<td>Yuri Bazilevs</td>
<td>Fluid-structure interactions in cardiovascular mechanics 1</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey MR2</td>
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<tr>
<td>01609</td>
<td>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.</td>
<td>John Moore</td>
<td>The biomechanics of pregnancy and parturition</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey MR3</td>
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<tr>
<td>01610</td>
<td>Personalized biomechanical models of human pregnancy – integrating with clinical care</td>
<td>Kristin Myers</td>
<td>The biomechanics of pregnancy and parturition</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Liffey MR3</td>
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<tr>
<td>01616</td>
<td>Protecting Soft Tissues from Breakdown: Design Concepts for Medical Devices Claiming Pressure Ulcer Prevention</td>
<td>Amit Gefen</td>
<td>Medical device - soft tissue interaction</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
<td>Wicklow Hall 1</td>
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<td>01617</td>
<td>Tribology of human soft tissue and implications for medical device development</td>
<td>Matt Carre</td>
<td>Medical device - soft tissue interaction</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01623</td>
<td>New players and concepts in musculoskeletal biomechanics</td>
<td>Elazar Zeitzer</td>
<td>Biomechanics of musculoskeletal development</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01624</td>
<td>Using in vitro and ex vivo models to study the influence of the mechanical environment on the development of bone and cartilage</td>
<td>Alicia El Haj</td>
<td>Biomechanics of musculoskeletal development</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01630</td>
<td>The endothelial glycoalkaly and pecam-1 collaborate to induce nitric oxide production in response to shear stress</td>
<td>John Tarbell</td>
<td>Cardiovascular cell mechanics and its role in human disease</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01631</td>
<td>Dynamic Interaction Between Vascular Endothelial Cells and Leukocytes During Diapedesis</td>
<td>Juan C. Lasheras</td>
<td>Cardiovascular cell mechanics and its role in human disease</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01637</td>
<td>Multi-scale Mechanics in Tendon: Structure-Function Specialisations</td>
<td>Hazel Screen</td>
<td>Biomechanics of muscle, tendon and ligament tissue engineering</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01638</td>
<td>Biomaterial and Biomechanical Considerations in Ligament Tissue Engineering</td>
<td>Helen Lu</td>
<td>Biomechanics of muscle, tendon and ligament tissue engineering</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01644</td>
<td>Toward Subject-Specific Imaging to Improve Diagnosis and Rehabilitation for Shoulder Pathology in Manual Wheelchair Users</td>
<td>Kristin Zhao</td>
<td>Rehabilitation methods, tools, and devices for shoulder</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01645</td>
<td>Rotator cuff tears: using computational modeling as a tool to inform rehabilitation</td>
<td>Meghan Vidt</td>
<td>Rehabilitation methods, tools, and devices for shoulder</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01660</td>
<td>Engineering Tissue Connectivity via Interface Tissue Engineering</td>
<td>Helen Lu</td>
<td>Mechanical issues in interfacial tissue engineering</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01661</td>
<td>Molecular Mechanics of Mussel Inspired Polymers and Coatings</td>
<td>Phillip Messersmith</td>
<td>Mechanical issues in interfacial tissue engineering</td>
<td>Thursday 12th July, 08:30 - 10:00</td>
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<td>01670</td>
<td>Planetary scale smartphone data reveal relationships between physical activity, environment, and health</td>
<td>Scott Delp</td>
<td>Mobile monitoring of biomechanical phenomena 1</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>01671</td>
<td>Why use an accelerometer to monitor mobility 24/7? Evidence from aging and neurological cohorts</td>
<td>Jeffrey Hausdorff</td>
<td>Mobile monitoring of biomechanical phenomena 1</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>01686</td>
<td>Computational Modeling to Evaluate Occupant Response and the Potential for Injury in Automotive Crash Scenarios</td>
<td>Duane Cronin</td>
<td>Automotive safety biomechanics 1</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>01687</td>
<td>Challenges in automobile injury biomechanics and adaptation of traditional biomechanics research tools</td>
<td>Jason Forman</td>
<td>Automotive safety biomechanics 1</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>01720</td>
<td>Preterm birth: a growing global problem that requires a team approach</td>
<td>Helen Feltopich</td>
<td>USNCB Global women’s health biomechanics</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>01721</td>
<td>Effects of elastase digestion on vaginal wall biaxial mechanical response</td>
<td>Kristin S. Miller</td>
<td>USNCB Global women’s health biomechanics</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>Meniscal mechanics in degenerated joints: A gap in knowledge?</td>
<td>Lutz Duerselen</td>
<td>Meniscal mechanics</td>
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<td>O1728</td>
<td>Reprogramming cell and ECM physical properties to promote dense connective tissue repair</td>
<td>Robert Mauck</td>
<td>Meniscal mechanics</td>
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<td>O1734</td>
<td>Exploring links between tissue loading and motor control at the patellofemoral joint</td>
<td>Thor Besier</td>
<td>Sensorimotor function and neuromechanics of joints</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>O1735</td>
<td>Current neuromotor concepts to prevent 1st and 2nd ACL injury in young athletes</td>
<td>Timothy E. Hewett</td>
<td>Sensorimotor function and neuromechanics of joints</td>
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<td>O1741</td>
<td>Non-Coding Genomic Regulation Identified in Human Cardiomyocytes</td>
<td>Adam Engler</td>
<td>Cardiovascular mechanobiology and molecular mechanisms</td>
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<td>O1742</td>
<td>Mechanotransduction through LFA-1/ICAM-1 bonds on arrested neutrophils elicits outside-in signaling via Kindlin-3 and Rack-1 to mediate Ca2+flux and cell migration</td>
<td>Scott Simon</td>
<td>Cardiovascular mechanobiology and molecular mechanisms</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>O1748</td>
<td>Synthetic human embryology in a dish</td>
<td>Jianping Fu</td>
<td>Biomechanical microengineering of tissue mimics for human disease modelling</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>O1749</td>
<td>Biomechanical Responses of Engineered Human Skeletal Muscle Myobundles</td>
<td>George Truskey</td>
<td>Biomechanical microengineering of tissue mimics for human disease modelling</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>O1755</td>
<td>Biomechanical simulation is an effective means to generate scientific hypotheses and novel insights valuable for hand rehabilitation</td>
<td>Wendy Murray</td>
<td>Rehabilitation methods, tools, and devices for hand/wrist</td>
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<td>Prospects of Soft Robotics for Assisting Hand Rehabilitation</td>
<td>Muthu Wijesundara</td>
<td>Rehabilitation methods, tools, and devices for hand/wrist</td>
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<td>O1762</td>
<td>Application of dynamic stereo-radiographic imaging: Effects of ACL injury and reconstruction on joint arthrokineatics and implications for osteoarthritis development</td>
<td>Scott Tashman</td>
<td>Dynamic medical imaging techniques for biomechanics systems 1</td>
<td>Thursday 12th July, 10:30 - 12:00</td>
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<td>O1763</td>
<td>Automatic quantitative assessment for patellofemoral joint within dynamic TT-TG distance of 4D CT data</td>
<td>Hao Chen</td>
<td>Dynamic medical imaging techniques for biomechanics systems 1</td>
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<td>O1769</td>
<td>Directing cartilage growth in vitro: learning from developmental biology</td>
<td>Niamh Nowlan</td>
<td>Functional tissue engineering of articular cartilage and fibrocartilage</td>
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<td>O1770</td>
<td>Cartilage Tissue Engineering Versus Osteochondral Allografts: Challenges and Strategies for Viable Long-Term Solutions</td>
<td>Gerard Ateshian</td>
<td>Functional tissue engineering of articular cartilage and fibrocartilage</td>
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<td>O1789</td>
<td>The history of mechanical circulatory support: game changers and magic moments</td>
<td>Heinrich Schima</td>
<td>Mechanical circulatory support</td>
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<td>O1790</td>
<td>Mechanical circulatory support: The landscape of our horizon</td>
<td>Francisco A. Arabia</td>
<td>Mechanical circulatory support</td>
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<td>O1805</td>
<td>A new method for non-invasive measurement of arterial wave speed, intensity and reflection</td>
<td>Peter Weinberg</td>
<td>Arterial stiffness and disease</td>
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<td>O1806</td>
<td>Coupling between the micro-structure of the cerebral aneurysm wall and its stiffness and failure properties</td>
<td>Anne Robertson</td>
<td>Arterial stiffness and disease</td>
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<td>O1812</td>
<td>Biological Propulsion in (and of?) the Ocean</td>
<td>John Dabiri</td>
<td>Biolocomotion and flows</td>
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<td>O1813</td>
<td>Life in rough terrain—principles of leg control for agile and robustly stable bipedal locomotion among ground birds from quail to ostrich</td>
<td>Monica Daley</td>
<td>Biolocomotion and flows</td>
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<td>O1819</td>
<td>Biomechanics of Cough Clearance</td>
<td>Peter Krumpe</td>
<td>Airway flows and lung transport 1</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>O1820</td>
<td>Superimposed pressure oscillation therapy-acute and chronic asthmatic model responses</td>
<td>Ahmed Al-Jumaily</td>
<td>Airway flows and lung transport 1</td>
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<td>O1826</td>
<td>Fracture behaviour of soft biological tissues</td>
<td>Edoardo Mazza</td>
<td>Integrated approaches for reproductive biomechanics</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>O1827</td>
<td>Modelling the second stage of labour using statistical shape analysis</td>
<td>Poul M. F. Nielsen</td>
<td>Integrated approaches for reproductive biomechanics</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>O1842</td>
<td>'Walking with a giant': the continuing impact of an exceptional zoologist and biomechanistic</td>
<td>Peter Aerts</td>
<td>Biomechanics in nature I: a tribute to Professor R. McNeill Alexander</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>01843</td>
<td>Manoeuvre dynamics in flying insects: from take-off to free flight</td>
<td>Florian T Muijres</td>
<td>Biomechanics in nature I: a tribute to Professor R. McNeill Alexander</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>01849</td>
<td>Microtissue Platforms as Cardiovascular Disease Models</td>
<td>Viola Vogel</td>
<td>Cardiovascular cell mechanics, adhesion and mechanotransduction</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>01850</td>
<td>Biaxial hysteresis in vascular smooth muscle cells</td>
<td>Patrick Alford</td>
<td>Cardiovascular cell mechanics, adhesion and mechanotransduction</td>
<td>Thursday 12th July, 14:20 - 15:50</td>
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<td>01856</td>
<td>Mechanisms of pelvic organ prolapse development: biomechanics and biochemistry</td>
<td>Margot Damaser</td>
<td>Biomechanics of pelvic floor / bladder engineering</td>
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<td>Quo Vadis Female Pelvic Floor Biomechanics?</td>
<td>James Ashton-Miller</td>
<td>Biomechanics of pelvic floor / bladder engineering</td>
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<td>01863</td>
<td>The effects of stiffness of an Ankle Foot Orthosis on gait performance</td>
<td>Jaap Harlaar</td>
<td>Rehabilitation methods, tools, and devices for ankle/foot 1</td>
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<td>01864</td>
<td>Compact, integrated hydraulic systems for wearable rehabilitation robots</td>
<td>William Durfee</td>
<td>Rehabilitation methods, tools, and devices for ankle/foot 1</td>
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<td>Biologically-engineered tissue tubes for cardiovascular grafts</td>
<td>Robert Tranquillo</td>
<td>Biofabrication and bioreactors for functional tissue systems 1</td>
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<td>Redefining identity of disease, tissues and cells – a Biofabrication paradigm</td>
<td>Abhay Pandit</td>
<td>Biofabrication and bioreactors for functional tissue systems 1</td>
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<td>01899</td>
<td>Identification of lung tissue mechanics using stereoscopy and optical coherence tomography</td>
<td>Poul M. F. Nielsen</td>
<td>Lung biomechanics</td>
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<td>Characterisation of blast lung injury through mechanical measurement and volumetric imaging</td>
<td>Hari Arora</td>
<td>Lung biomechanics</td>
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<td>01924</td>
<td>Sensing Tissue Microstructure with Shear Waves: Application of MR-Elastography in Oncology for Lesion Characterization and Therapy Follow-up</td>
<td>Ralph Sinkus</td>
<td>Multiscale cancer mechanobiology and biomechanics</td>
<td>Thursday 12th July, 16:20 - 17:50</td>
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<td>Cancer Mechano-pathology: Bringing biomechanics to the clinic</td>
<td>Triantafyllos Stylianosopoulos</td>
<td>Multiscale cancer mechanobiology and biomechanics</td>
<td>Thursday 12th July, 16:20 - 17:50</td>
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<td>Towards SCI Prevention: Combining Ex Vivo and Human Subject Studies of the Cervical Spine</td>
<td>Peter Cripton</td>
<td>Traumatic loading of the spine and/or spinal cord injury</td>
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<td>Painful neck trauma: multiscale biomechanics of injury and dysfunction</td>
<td>Beth A Winkelstein</td>
<td>Traumatic loading of the spine and/or spinal cord injury</td>
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<td>Revisiting Alexander’s dynamic similarity hypothesis to interpret the effects of body mass and leg posture on bipedal gaits of running birds</td>
<td>Monica Daley</td>
<td>Biomechanics in nature II: a tribute to Professor R. McNeill Alexander</td>
<td>Thursday 12th July, 16:20 - 17:50</td>
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<td>01939</td>
<td>Beyond bouncy gaits: the role of compliance in contractile performance of skeletal muscle</td>
<td>Natalie Holt</td>
<td>Biomechanics in nature II: a tribute to Professor R. McNeill Alexander</td>
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<td>01946</td>
<td>Remote controlled activation of stem cell mechanotransduction via magnetic nanoparticles; applications for injectable cell therapies for osteoarthritis and bone repair</td>
<td>Alicia El Haj</td>
<td>Mechanical regulation of stem cells</td>
<td>Thursday 12th July, 16:20 - 17:50</td>
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<td>01970</td>
<td>Biomechanical modeling of endovascular aortic aneurysm repair: transfer towards clinical practice</td>
<td>Stéphane Avril</td>
<td>Patient-specific biomechanical interaction of cardiovascular devices with surrounding tissues</td>
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<td>01977</td>
<td>The Biomechanics of Sharp Force Injuries</td>
<td>Sarah Hainsworth</td>
<td>General musculoskeletal biomechanics</td>
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<td>01978</td>
<td>Bottom-Up Bone Tissue Mechanics and Fracture: Fundamental Underpinnings to Translation</td>
<td>Deepak Vashisht</td>
<td>General musculoskeletal biomechanics</td>
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<td>Systemic bone changes following fracture in mice</td>
<td>Blaine Christansen</td>
<td>General musculoskeletal biomechanics</td>
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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
Cartijn Bouten

Locomotion and Human Movement
Walter Herzog
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<td>14:30</td>
<td>Locomotion and human movement</td>
<td>Society</td>
<td>Sport biomechanics, injury and rehabilitation</td>
<td>Cardiovascular</td>
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<td>Biofluid and transport</td>
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<td>Locomotion and falling in the elderly 1</td>
<td>Starts at 14:15 ASME Mow/Fung/Woo/Verem Awards</td>
<td>Brain injury mechanics 1</td>
<td>Biomechanics of cardiovascular tissues 1</td>
<td>Ocular biomechanics of aging and disease</td>
<td>Skeletal muscle properties and function during human movement (in vivo muscle properties)</td>
<td>Hyperthermia and heat-mediated transport</td>
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<td>15:00</td>
<td>Refreshment Break</td>
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<td>Cardiovascular</td>
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<td>Challenges of working across scales in patient and animal-specific cardiovascular modeling</td>
<td>Brain injury mechanics 2</td>
<td>Biomechanics of cardiovascular tissues 2</td>
<td>Ocular trauma</td>
<td>ISB Session 1 - Computer simulation of human movement</td>
<td>Cryotherapy and cryopreservation (Boris Rubinsky 70th birthday session)</td>
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<tr>
<td>17:00</td>
<td>Invited Plenary &quot;Jay Humphrey&quot; USA</td>
<td>Invited Plenary Toni Arndt Sweden</td>
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## Programme / Sunday 8th July 2018

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<tr>
<th>Time</th>
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<tr>
<td>10:00-13:00</td>
<td>Wicklow Hall 1 Level 2</td>
<td>WCB General Assembly Private Meeting</td>
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<td>13:30-19:00</td>
<td>Wicklow MR1 Level 2</td>
<td>Registration Opens The Convention Centre Dublin</td>
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<tr>
<td>13:30-16:00</td>
<td>Wicklow Hall 2B Level 2</td>
<td>Locomotion and human movement, Sport biomechanics, injury and rehabilitation</td>
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<td>Cardiovascular, Emerging areas</td>
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<td>Wicklow MR3 Level 2</td>
<td>Biofluid and transport, Cell biomechanics</td>
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<td>Wicklow MR4 Level 2</td>
<td>Musculoskeletal, Tissue engineering</td>
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### Schedule

#### 14:30-16:00
- Locomotion and human movement
- Sport biomechanics, injury and rehabilitation
- Cardiovascular, Emerging areas
- Biofluid and transport
- Cell biomechanics
- Musculoskeletal, Tissue engineering
- Imaging and devices
- Emerging areas
- Molecular biomechanics

#### 16:00-16:30
- Refreshment Break

#### 16:30-18:00
- Locomotion and human movement
- Sport biomechanics, injury and rehabilitation
- Cardiovascular, Emerging areas
- Biofluid and transport
- Cell biomechanics
- Musculoskeletal, Tissue engineering
- Imaging and devices
- Emerging areas
- Molecular biomechanics

#### 18:30-18:45
- Invited Plenary: Jay Humphrey, USA
- Invited Plenary: Toni Arndt, Sweden

### Invited Plenaries
- Jay Humphrey, USA
- Toni Arndt, Sweden
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<td>08:20 - 09:00</td>
<td>Opening Ceremony</td>
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<td>Lori Setton USA</td>
<td>Takui Ishikawa</td>
<td>Japan</td>
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<td>09:55 - 11:15</td>
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<td>Sport biomechanics, injury and rehabilitation</td>
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<td>Falls – prediction and prevention 1</td>
<td>Multiscale modeling of vascularisation and atherosclerosis</td>
<td>High rate injury biomechanics 1</td>
<td>Biomechanics of cardiovascular tissues 3</td>
<td>Biomechanics of ocular pathologies 1</td>
<td>Multiscale biomechanics of articular degenerative diseases</td>
<td>Cancer microenvironments and tumor transport</td>
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<td>Multiscale mechanics of cardiovascular materials and structures</td>
<td>High rate injury biomechanics 3</td>
<td>Mechanical thrombectomy for emergent large vessel occlusion in acute ischemic stroke</td>
<td>Computer models of growth and remodeling 1</td>
<td>Incorporating in vivo load variability in modelling</td>
<td>Microfluidics</td>
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<td>Gaits in cerebral palsy: Neuromuscular control versus muscle mechanics 1</td>
<td>Multiscale models of the cardiopulmonary system</td>
<td>Mechanosensing in injury and pain</td>
<td>Atherosclerotic plaque: Mechanism and modeling</td>
<td>Computer models of growth and remodeling 2</td>
<td>In vivo bone remodeling mechanics</td>
<td>Vascular, lymphatic, and ocular transport</td>
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<tr>
<td>18:30 - 20:00</td>
<td>Welcome Reception</td>
<td>The Convention Centre Dublin</td>
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<td>Time</td>
<td>Auditorium</td>
<td>Human Movement</td>
<td>Locomotion and Cerebral Palsy</td>
<td>Musculoskeletal</td>
<td>Advanced Bioimaging</td>
<td>TERMIS Session: Biomaterials and Biomechanics 1</td>
<td>Connecting Molecular Interactions and Mechanosensing to Cell Behaviors</td>
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<td>09:00</td>
<td>Wicklow Hall 1 Level 2</td>
<td>Locomotion and human movement</td>
<td>Musculoskeletal Society</td>
<td>Imaging and devices</td>
<td>Tissue Engineering</td>
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<td>10:00</td>
<td>Wicklow Hall 2A Level 2</td>
<td>Joint loading during locomotion and human movement (effects on joint and tissue adaptation)</td>
<td>Multiscale biomechanics of age-related bone fractures</td>
<td>Asian-Pacific Association for Biomechanics: The Yamaguchi Medal for Young Investigators</td>
<td>Digital volume correlation strain measurements in biological tissues and biomaterials</td>
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<tr>
<td>11:00</td>
<td>Wicklow Hall 2B Level 2</td>
<td>Joint loading during locomotion and human movement (effects on joint and tissue adaptation)</td>
<td>Orthopaedic Research Society: Injury and Joint Degeneration: Initiation, Progression and Intervention</td>
<td>Société de Biomecanique: Christian Oddou Award Lecture and Young Investigator Awards</td>
<td>Advanced Bioimaging 1</td>
<td>TERMIS Session: Biomaterials and Biomechanics 2</td>
<td>Analytical tools for nanoscale force transduction</td>
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<tr>
<td>12:00</td>
<td>Wicklow MR1 Level 2</td>
<td>Human spine, characterization and modeling</td>
<td>Joint loading during locomotion and human movement (effects on joint and tissue adaptation)</td>
<td>Société de Biomecanique Meeting: 14.00 – 14.45 Society de Biomecanique General Assembly</td>
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<td>Private Meeting</td>
<td>USDNCB (U.S. National Committee on Biomechanics)</td>
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<td>13:00</td>
<td>Wicklow MR2 Level 2</td>
<td>Joint loading during locomotion and human movement (effects on joint and tissue adaptation)</td>
<td>Quantitative outcome assessment in orthopaedic trials</td>
<td>VPH Institute Session: 25 years of physiose</td>
<td>Advanced Bioimaging 2</td>
<td>Biomechanics of Vascular Tissue Engineering</td>
<td>Intercellular and Subcellular Force Transmission</td>
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<td>Human spine, characterization and modeling</td>
<td>Joint loading during locomotion and human movement (effects on joint and tissue adaptation)</td>
<td>ESB-ANC Multiscale Biomechanics for Orthopedics - from Molecules to Patients</td>
<td>Japan Society of Mechanical Engineers Session: Comprehensive Lectures on Emerging Technologies for Biomechanics: Beyond the 50th Anniversary of the JSME Session runs until 1900</td>
<td>Biomechanics of Soft Tissue by Elastography (MRI, US)</td>
<td>Mechanobiology and Tissue Engineering of the Respiratory Tract</td>
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<td>Wicklow MR4 Level 2</td>
<td>Human spine, characterization and modeling</td>
<td>Predictive human movement simulation</td>
<td>ESB-ANC Multiscale Biomechanics for Orthopedics - from Molecules to Patients</td>
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**Programme / Monday 9th July 2018**

**Cell Biomechanics**

**Musculoskeletal**

**Locomotion and Human Movement**

**Musculoskeletal**

**Society**

**Imaging and Devices**

**Tissue Engineering**

**Molecular Biomechanics**

**Refreshment Break and Poster Session Group 1**

The Forum (Ground Floor) & Liffey A (Level 1)

**Lunch Break and Poster 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**

**Human Spine, Characterization and Modeling**

**Joint loading during locomotion and human movement (effects on joint and tissue adaptation)**

**Quantitative outcome assessment in orthopaedic trials**

**ESB-ANC Multiscale Biomechanics for Orthopedics - from molecules to patients**

**Japan Society of Mechanical Engineers Session: Comprehensive Lectures on Emerging Technologies for Biomechanics: Beyond the 50th 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 of biomolecules from Molecules to Cells**

**Welcome Reception**

The Convention Centre Dublin
The Forum (Ground Floor) & Liffey A (Level 1)
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<tr>
<td>08:30 - 09:15</td>
<td>ASME Lissner Award</td>
<td>ESB Perren Award</td>
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<td>09:30 - 10:50</td>
<td>Locomotion and human movement</td>
<td>Cardiovascular</td>
<td>Sport biomechanics, injury and rehabilitation</td>
<td>Cardiovascular</td>
<td>Molecular biomechanics</td>
<td>Locomotion and human movement</td>
<td>Biofluid and transport</td>
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<td>Gait in cerebral palsy: Neuromuscular control versus muscle mechanics 2</td>
<td>From physiology to clinics: clinical applications of multiscale modelling of the heart</td>
<td>Head impact biomechanics and head protection 1</td>
<td>Mechanobiology of heart valves</td>
<td>Molecular force transduction</td>
<td>Predictive human movement simulation 2</td>
<td>Brain biotransport</td>
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<td>Refreshment Break and Poster Session Group 2</td>
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<td>Biofluid and transport</td>
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<td>Human locomotion in diseased/injured populations - post-stroke</td>
<td>Beyond vFFR: Emerging clinical applications of multiscale vascular biomechanics</td>
<td>Head impact biomechanics and head protection 2</td>
<td>Cardiac growth and remodeling mechanics</td>
<td>Mechanobiology of tissue development on a chip</td>
<td>Pediatric injury</td>
<td>Biomechanics of the Central Nervous System</td>
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<td>14:20 - 15:05</td>
<td>Invited Plenary</td>
<td>Xaver Trepal Spain</td>
<td>ESB Best Thesis Award</td>
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<td>Motor control 1</td>
<td>Multiscale modeling of the Cardiovascular System: Disease development, progression, and clinical intervention</td>
<td>Soft tissue injury mechanics: Skin injuries and wound formation associated with disabilities</td>
<td>Vascular growth and remodeling mechanics</td>
<td>USNCB biomechanics: integrating across spatial and temporal scales</td>
<td>Locomotion and human movement energetics in sports 1</td>
<td>Biotransport diagnostics and therapeutics</td>
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<td>Motor control 2</td>
<td>Biomechanics of the Cardiovascular System: The Tarbell effect (John Tarbell 70th birthday session)</td>
<td>Injuries and tissue mechanics in the lower abdomen</td>
<td>Prosthetic heart valve</td>
<td>Biomechanics for the bedside: A snapshot of recent experimental and modelling trends with clinical impact</td>
<td>Locomotion and human movement energetics in sports 1</td>
<td>From the microcirculation to large artery flows: Challenges for clinical applications</td>
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**Cell biomechanics**

- **USNCB - Cell mechanosignaling in immunological diseases**
  - **European Society of Biomechanics (ESB) Clinical Biomechanics 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 - Cardiovascular Imaging and Modelling**
  - **Physical regulators and transport cues in 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**

**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**

**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**

**Refreshment Break and Poster Session Group 2**

- The Forum (Ground Floor) & Liffey A (Level 1)
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<td>The role of multiscale subject-specific models in the planning and monitoring of rehabilitation programmes</td>
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<td>Biomedical engineering research and education in Africa</td>
<td>Dual-task concuss, and sports injuries: Connecting mind and movement to better understand sports injuries</td>
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<td>Advances in rehabilitation technology using virtual reality and perturbations to assess and train gait and balance</td>
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<td>Modeling uncertainty and propagation of data for biomechanics systems</td>
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### PROGRAMME / WEDNESDAY 11th July 2018

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<td>The Forum (Ground Floor) &amp; Liffey A (Level 1)</td>
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<td>Merryn Tawhai</td>
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### Congress Party

The Guinness Storehouse
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<td>Cardiovascular</td>
<td>Sport biomechanics, injury and rehabilitation</td>
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<td>Human locomotion in diseased/injured populations - osteoarthritis</td>
<td>Congenital heart defects and pediatric cardiology applications 1</td>
<td>ISB Session 2 - footwear biomechanics</td>
<td>Cerebral aneurysms 1</td>
<td>Modeling of biofluid transport 1</td>
<td>Fluid-structure interactions in cardiovascular mechanics 1</td>
<td>The biomechanics of pregnancy and parturition</td>
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<td>Mobile monitoring of biomechanical phenomena 1</td>
<td>Congenital heart defects and pediatric cardiology applications 2</td>
<td>Automotive safety biomechanics 1</td>
<td>Cerebral aneurysms 2</td>
<td>Modeling of biofluid transport 2</td>
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<td>Mobile monitoring of biomechanical phenomena 2</td>
<td>Mechanical circulatory support</td>
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<td>Arterial stiffness and disease</td>
<td>Biocommotion and flows</td>
<td>Airway flows and lung transport 1</td>
<td>Integrated methods for reproductive biomechanics</td>
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<td>Lung biomechanics</td>
<td>Imaging and device biomechanics: Modelling, diagnosis, rehabilitation</td>
<td>Airway flows and lung transport 2</td>
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## 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 mechanics: 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-P1144 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-P1402 TERMIS session: Biomaterials and biomechanics 1
- P1403-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
- 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
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**Awards**

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- 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 transport
- 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: 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
## THE FORUM

### Cell biomechanics
- P3000-P3027: Cell interaction with microenvironment
- P3028-P3029: Mechanogenerics 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
P4036-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 Bioluminiscence and flows
P4521-P4537 Fluid-structure interactions in cardiovascular mechanics
P4538-P4564 Modeling 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

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<th>Outdoor Motion Capture and Musculoskeletal Simulation</th>
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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 ennmodes 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 PARAVALVUAR 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

**Speakers**
Jason Konrath - Xsens
Ananth Gopalakrishnan - Anybody Technology

**www.materialise.com**

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.

**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.simii.com
IndUstry Sessions
Thursday 12th July

Body (A)symmetries: Is There a Link Between Local and Integral Movement Function?
10:30 - 11:15

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 an 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

Integrating IMUs with Optical Motion Capture: Clinical and Sporting Applications
11:15 - 12:00

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
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 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

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### 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

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<th>Event</th>
<th>Location</th>
<th>Time</th>
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<tbody>
<tr>
<td>BED Executive*</td>
<td>Pegasus 1&amp;2, 1st Floor</td>
<td>7:00 am – 9:30 am</td>
</tr>
<tr>
<td>SB3C Organizing &amp; Programme (NOTE:1)</td>
<td>Pegasus 1&amp;2, 1st Floor</td>
<td>9:30 am – 10:20 am</td>
</tr>
<tr>
<td>SB3C Oversight* (NOTE: 2)</td>
<td>Columba 2, Lwr Ground</td>
<td>10:30 am – 11:20 am</td>
</tr>
<tr>
<td>Industry Advisory</td>
<td>Onion 2, Ground Floor</td>
<td>10:30 am – 11:20 am</td>
</tr>
<tr>
<td>New Directions</td>
<td>Onion 2, Ground Floor</td>
<td>11:30 am – 12:20 am</td>
</tr>
<tr>
<td>Biotransport</td>
<td>Columba 2, Lwr Ground</td>
<td>11:30 am – 12:20 pm</td>
</tr>
<tr>
<td>Solid Mechanics</td>
<td>Pegasus 1&amp;2, 1st Floor</td>
<td>11:30 am – 12:20 pm</td>
</tr>
<tr>
<td>Cell &amp; Tissue Engineering</td>
<td>Columba 2, Lwr Ground</td>
<td>12:30 pm – 1:20 pm</td>
</tr>
<tr>
<td>Design, Dynamics &amp; Rehabilitation</td>
<td>Onion 2, Ground Floor</td>
<td>12:30 pm – 1:20 pm</td>
</tr>
<tr>
<td>Fluid Mechanics</td>
<td>Pegasus 1&amp;2, 1st Floor</td>
<td>12:30 pm – 1:20 pm</td>
</tr>
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### Tuesday, July 10, 2018

<table>
<thead>
<tr>
<th>Event</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open Executive Business Meeting</td>
<td>Wicklow MR 2, CCD</td>
<td>6:45pm – 7:45 pm</td>
</tr>
<tr>
<td>Among other business, revisions to the Bylaws of ASME BED will be discussed at this meeting.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Wednesday, July 11, 2018

<table>
<thead>
<tr>
<th>Event</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Student Leadership Committee</td>
<td>Wicklow MR 3, CCD</td>
<td>6:45pm – 7:45 pm</td>
</tr>
<tr>
<td>Open to all Students, Post-docs, and Faculty interested in Student Affairs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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.

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
Van C. Mow Medal Information

**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

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/multiaxial 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.

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
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.

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.
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.
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EXHIBITORS LISTING

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

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<thead>
<tr>
<th>Stand</th>
<th>Organisation</th>
<th>Details</th>
</tr>
</thead>
</table>
| 66    | 1080 Motion  | Organisation 1080 Motion  
Contact Anna-Carin Månsson  
Email Anna-carin@1080motion.com  
Tel +46 709 818 210  
Web 1080motion.com |
| 16    | AMTI         | Organisation AMTI  
Contact Don Andres  
Email Don@amtimail.com  
Tel +1 617 985 6700  
Web amti.b2 |
| 42    | AnyBody Technology | Organisation AnyBody Technology  
Contact Arne Kils  
Email sales@anybodytech.com  
Tel +45 963 54 216  
Web anybodytech.com |
| 38    | APDM         | Organisation APDM Wearable Technologies  
Contact Kristen Sowalsky, PhD  
Email kristen@apdm.com  
Tel +1 888 988 2736  
Web apdm.com |
| 35    | APL Bioengineering | Organisation APL Bioengineering  
Contact Diana Schlamadinger, PhD  
Email ApLibioeng.journalmanager@aip.org  
Tel +1 516 576 2310  
Web aplibioeng.aip.org |
| 20    | ATI Industrial Automation | Organisation ATI Industrial Automation  
Contact Kristine Castle  
Email Kristine.Castle@ati-ia.com  
Tel +1 919 775 0115  
Web ati-ia.com |
| 34    | Aurora Scientific Europe | Organisation Aurora Scientific Europe  
Contact Rufus O’Brien  
Email rufus@aurorascientific.com  
Tel +353 1 525 3300  
Web aurorascientific.com |
| 43    | Bertec       | Organisation Bertec  
Contact Jeff Sobotka  
Email jeff@bertec.com  
Tel +1 614 543 1127  
Web bertec.com |
| 47    | BETA CAE Systems | Organisation BETA CAE Systems  
Contact Email ansa@beta-cae.com  
Tel  
Web beta-cae.com |
| 07    | Biomomentum  | Organisation Biomomentum  
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Email info@biomomentum.com  
Tel +450 607 2299  
Web biomomentum.com |
| 65    | Bob-Biomechanics | Organisation Bob-Biomechanics  
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Email info@bob-biomechanics.com  
Tel +44 7949 562075  
Web bob-biomechanics.com |
<table>
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| 39A | Bone & Joint Research | Organisation: Bone & Joint Research  
Contact: info@boneandjoint.org.uk  
Tel: +44 20 7782 0010  
Web: bjr.boneandjoint.org.uk |
| 73 | BTS Bioengineering | Organisation: BTS Bioengineering  
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Tel: +39 02 366 490 00  
Web: btsbioengineering.com |
| 21 | CADFEM Group | Organisation: CADFEM Group  
Contact: Barbara Leichtenstern  
Email: bbe@cadfemireland.com  
Tel: +353 1 652 2723  
Web: cadfemukandireland.com |
| 74 | Cambridge Electronic Design Ltd | 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 | CIR Systems/GAITRite | Organisation: CIR Systems/GAITRite  
Contact: Karen Toepfer  
Email: sales@gaitrite.com  
Tel: +1 973 209 0711  
Web: gaitrite.com |
| 63 | C-Motion | Organisation: C-Motion  
Contact:  
Email: info@c-motion.com  
Tel: +1 301 540 5611  
Web: c-motion.com |
| 33 | Codamotion | Organisation: Codamotion  
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Tel: +44 116 230 1060  
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| 64 | Cometa Systems | Organisation: Cometa Systems  
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Web: cometasystems.com |
| 19 | CSMi | Organisation: CSMi  
Contact: Rob Potash  
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Tel: +1 781 258 1858  
Web: csmisolutions.com |
| 15 | DELSYS | Organisation: DELSYS  
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Email: slindley@delsys.com  
Tel: +44 776 933 4485  
Web: delsys.com |
| 28 | Dunn Labortechnik GmbH | Organisation: Dunn Labortechnik GmbH  
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Email: info@dunnlab.de  
Tel: +49 (0)268 343 3094  
Web: dunnlab.de |
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Web: elsevier.com |
| LEVEL 1 - F5 | European Society of Biomechanics | Organisation: European Society of Biomechanics  
Contact: Maria Angeles Perez Anson  
Email: angesles@unizar.es  
Tel: +34 609 3450 25  
Web: esbiomech.org |
| 32 | Gait Up | Organisation: Gait Up  
Contact: Cleo Moulin  
Email: cleo.moulin@gaitup.com  
Tel: +41 21 63 527 527  
Web: gaitup.com |
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| 26    | GOM UK       | Organisation: GOM UK  
Contact: Andrew Cuffley  
Email: a.cuffley@gom.com  
Tel: +44 2476 639920  
Web: gom.com |
| 39B   | h/p/cosmos   | 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 |
Contact: Jonathan Hedges  
Email: Jonathan@hawkindynamics.com  
Tel: +1 344 623 883  
Web: hawkindynamics.com |
| 11    | HUR          | Organisation: HUR  
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Web: hur.fi |
| LEVEL 1 - F2 | IME Medical Electrospinning | Organisation: IME Medical Electrospinning  
Contact: Joris Woudberg  
Email: J.Woudberg@ime-electrospinning.com  
Tel: +31 40 28 27 958  
Web: ime-electrospinning.com |
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Contact: Instron Sales  
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Web: instron.com |
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Web: kistler.com/biomechanics |
| LEVEL 1 - F4 | Lode BV | Organisation: Lode BV  
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Tel: +31 50 572 18 11  
Web: lode.nl |
| 36    | Materialise BV | Organisation: Materialise NV  
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Web: materialise.com/en/medical |
| 68    | Mbientlab Inc. | Organisation: Mbientlab Inc.  
Contact: Sophie Kassovic  
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Web: mbientlab.com |
| 56, 57, 58, 59 | Motek | Organisation: Motek  
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Web: motekforceLink.com |
| 3     | Moticon GmbH | Organisation: Moticon GmbH  
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Web: moticon.de |
| 12    | Motion Analysis | Organisation: Motion Analysis  
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| 48    | MTS Systems Corporation | Organisation: MTS Systems Corporation  
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Web: mts.com |
<table>
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| 06    | NCSRR / OpenSim | Organisation: NCSRR / OpenSim  
Contact: Joy Ku  
Email: opensim@stanford.edu  
Tel: +1 650 736 8434  
Web: opensim.stanford.edu |
| 14    | NDI          | Organisation: NDI  
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Web: ndigital.com |
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Tel: +1 650 443 3413  
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| 44 & 45 | Novel.de     | Organisation: Novel.de  
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Email: novel@novel.de  
Tel: +49 89 8177670  
Web: novel.de |
| 13    | OptiTrack    | Organisation: OptiTrack  
Contact: Francois Asseman  
Email: sales@optitrack.com  
Tel: +1 541 753 6645  
Web: optitrack.com |
| 10A   | Orpyx Medical Technologies Inc. | Organisation: Orpyx Medical Technologies Inc.  
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Tel: +1 603 460 0216  
Web: orpyx.com |
| 04    | Optics11 Life Science | Organisation: Optics11 Life Science  
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Tel: +31 20 598 8326  
Web: optics11.com |
| 37    | ProtoKinetics Gait Analysis Walkways | Organisation: ProtoKinetics Gait Analysis Walkways  
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Web: protokinetics.com |
| 50, 51, 52, 53 | Qualisys | Organisation: Qualisys  
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Web: Qualisys.com |
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| 41    | Simi          | Organisation: Simi  
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Web: simi.com |
| 40    | Simulation Solutions Ltd | Organisation: Simulation Solutions Ltd  
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Email: joanne.spencer@simsol.co.uk  
Tel: +44 161 947 9113  
Web: simsol.co.uk |
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<th>Organisation</th>
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|       |              | Contact Elleny Byrne  
|       |              | Email ebyrne@spraybase.com  
|       |              | Tel +353 87 963685  
|       |              | Web spraybase.com |
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|       |              | Contact Email  
|       |              | Tel  
|       |              | Web springernature.com |
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|       |              | Email angelok@masholdings.com  
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|       |              | Web twinery.co |
| 70    | sTT Systems  | Organisation STT Systems  
|       |              | Contact Fernando  
|       |              | Email info@stt-systems.com  
|       |              | Tel +34 943 31 77 77  
|       |              | Web stt-systems.com |
| LEVEL 1 | SBC | Organisation Summer Biomechanics, Bioengineering and Biotransport Conference 2019  
| - F9  |              | Contact Joseph Iaquinto, PhD  
|       |              | Email info@sb3c.org  
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|       |              | Web sb3c.org |
| 05    | Synopsys     | Organisation Synopsys  
|       |              | Contact Dr Rebecca Bryan  
|       |              | Email Rebecca.Bryan@Synopsys.com  
|       |              | Tel +44 1392 428750  
|       |              | Web synopsys.com/simpleware |
| 18    | TA Instruments – ElectroForce | Organisation TA Instruments – ElectroForce  
|       |              | Contact Michael McMullan  
|       |              | Email M.McMullan@tainstruments.com  
|       |              | Tel  
|       |              | Web tainstruments.com/products/electroforce-mechanical-testers/ |
| 25    | Taylor & Francis | Organisation Taylor & Francis  
|       |              | Contact Ian Challand  
|       |              | Email ian.challand@tandf.co.uk  
|       |              | Tel  
|       |              | Web tandfonline.com/tbbe |
| 17    | Tekscan, Inc | Organisation Tekscan, Inc  
|       |              | Contact Email info@tekscan.com  
|       |              | Tel +1 817 464 4500  
|       |              | Web tekscan.com |
| LEVEL 1 | ASME | Organisation The American Society of Mechanical Engineers (ASME) / Alliance for Advanced Biomedical Engineering (AABME)  
| - F7  |              | Contact Christine Reilley  
|       |              | Email reilleyc@asme.org  
|       |              | Tel +1 212 591 8486  
|       |              | Web aabme.org |
| 23    | The MotionMonitor | Organisation The MotionMonitor  
|       |              | Contact Meredith Evans  
|       |              | Email support@TheMotionMonitor.com  
|       |              | Tel +1 773 244 6470  
|       |              | Web TheMotionMonitor.com |
| 67    | Toyota Mobility Foundation | Organisation Toyota Mobility Foundation  
|       |              | Contact Julie-Ann Burandt  
|       |              | Email julieann.burandt@toyota.com  
|       |              | Tel +1 546 413 4820  
|       |              | Web Mobilityunlimited.org |
| 60    | TSI           | Organisation TSI  
|       |              | Contact Martin Hyde  
|       |              | Email tsi.EMEA@tsi.com  
|       |              | Tel +49 341 5230 30  
|       |              | Web tsi.com |
| 62    | ULTIMUV       | Organisation ULTIMUV  
|       |              | Contact Peter Kolar  
|       |              | Email peter.kolar@ultimuv.com  
|       |              | Tel +421 948 945 115  
<p>|       |              | Web ultimuv.com |</p>
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**Contact** Sean Mc Veigh  
**Email** s.mcveigh@valdperformance.com  
**Tel** +353 83 040 9954  
**Web** Valdperformance.com |
| **09** | Vicon Motion Systems Ltd | **Organisation** Vicon Motion Systems Ltd  
**Contact** Phil Bacon  
**Email** info@vicon.com  
**Tel** +44 186 526 1800  
**Web** vicon.com |
| **61** | VOLMO LTD | **Organisation** VOLMO LTD  
**Contact** Ash Harkara  
**Email** aharkara@volmopl.com  
**Tel** +44 7790 480 798  
**Web** volmopl.com |
| **49** | Welter’s Personalised Footwear Ltd | **Organisation** Welter’s Personalised Footwear Ltd  
**Contact** Liz Dunbar  
**Email** Liz.dunbar@pedorthist.ie  
**Tel** +353 1 4434409  
**Web** pedorthist.ie |
| **LEVEL 1 - F6** | World Council of Biomechanics / World Congress of Biomechanics WCB2022 | **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** | WPI / CellScale | **Organisation** WPI / CellScale  
**Contact** Ian Davies  
**Email** idavies@wpi-europe.com  
**Tel** +44 146 242 4700  
**Web** wpi-europe.com/biomaterials |
| **10B** | Xsens | **Organisation** Xsens  
**Contact** Peter Hartman  
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| **27** | Zwick Roell | **Organisation** Zwick Roell  
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Image: A large hawkmoth (Manduca sexta) searching for a feeder with its semi-extended proboscis.
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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).
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