



UK Society for Biomaterials (UKSB)

Annual Conference Programme 2023

20th and 21st June 2023

**Co-Hosted by the School of Engineering,
Ulster University, Belfast.**

Event Sponsors:



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UKSB President's Welcome

Dear #UKSB2023 delegates,

Our annual event is always a good time to reflect on the past year, and look to the future to see where we might be headed. I always consider this to be particularly relevant in the field of biomaterials, as it is so multidisciplinary and is continuing to diversify, drive innovation and support future healthcare in so many ways. As I welcome you to our 23rd annual UK Society for Biomaterials conference, I ask you to make this personal reflection, and make absolutely the best use of your time at the event to support your own development. The scientific programme this year covers a broad range of topics and will hopefully provide a basis for better understanding across the different areas, whilst stimulating discussion and collaboration. With covid now hopefully in the distant past I'm mindful that some of our more junior members have had restricted access to physical meetings, so please do take every opportunity again this year to welcome new members into the UKSB.

The UKSB has received many applications this year for our awards, which is excellent to see. Our travel awards have supported a number of members to attend this conference and we will also be helping others to attend other events, carry out joint research projects with members from other groups through the lab2lab scheme, and celebrate the achievements of our biomaterials community. Our prize winners have been selected based on their outstanding achievements, but also their commitment and dedication to support the biomaterials field as a whole. I hope that you will all agree we have some outstanding winners this year, although I want also to celebrate the activities and contributions of all our members – we will do so through the presentations and discussions during the event and throughout the year.

I would also like to draw attention to thank our council members who dedicate a lot of their own time to grow and develop the society, in order to support our members. There is a lot of planning, organising and administration going on behind the scenes, with the committee always listening to member feedback to further develop the Society to help its members. We also link with many of the other national societies to share best practice. I would ask that you all attend the (usually very brief) annual general meeting (AGM) during this event, to hear of our activities and feed in your thoughts about how we can better support the biomaterials community in the UK.

We look forward to the European Society for Biomaterials event later this year, and the 12th World Biomaterials Congress in 2024. If you are planning on attending these events, please be an ambassador as a member of the UKSB.

I hope that you enjoy #UKSB2023.

With best wishes,



Paul Roach
UKSB President



Welcome Note from the Local Organising Committee for #UKSB2023

The local organising committee would like to extend a very warm welcome to you all for the 23rd UKSB Annual Conference being held this year at the new Ulster University campus in Belfast city centre. This important national meeting is held every year to provide a forum for those working in the field of biomaterials (academia, industry and clinicians) to meet, discuss ideas, build new collaborations or consolidate those that already exist. This year the meeting is being hosted by the School of Engineering from Ulster University with delegates attending from across the UK, Ireland and well beyond. The UKSB network is very welcoming of new people, and as such the annual conference is organised to give maximum support for developing students and early career researchers who are engaging in biomaterials research. This area is very diverse, so we will encounter work across the full spectrum, from materials and surface science, polymer and ceramics chemistry, to tissue engineering and medical device manufacture and regulation. We hope you all enjoy the conference, (both the scientific session and the social programme) and have some time to soak up the atmosphere of Belfast.

As part of commitment to be as sustainable as possible at this year's conference, we are largely paperless and have liaised with Visit Belfast to ensure we provide details of green accredited hotels for your stay. In addition to this, we are encouraging you to walk between venues (where possible) and all left-over fruit from the conference will be donated to a local foodbank (People's Kitchen: <https://peopleskitchenbelfast.org/>) immediately after the conference to help support those in need in the local community here in Belfast.

Conference Location Address:

Ulster University,
2-24 York Street,
Belfast
BT15 1AP

Lecture Theatre 1 (Block BC) - Further Details: [Belfast campus \(ulster.ac.uk\)](https://www.ulster.ac.uk/)

Conference Dinner Details and Location:

Drinks Reception: 7 pm – 8 pm, 20th June 2023
Dinner: 8 pm – late, 20th June 2023

Europa Hotel (Ground Floor)
Great Victoria St,
Belfast
BT2 7AP

Further Details: <https://www.europahotelbelfast.com/>

Local Organising Committee:

Dr Adrian Boyd, Dr Jonathan Acheson, Dr Joanna Ward, Prof Brian J Meenan, Dr Ming-Wei Chang, Dr Patrick Lemoine, Dr Krzysztof Rodzen, Dr Mary Josephine McIvor, Miss Aoife McFerran, Miss Kirsty Muldoon, Miss Reshma McMullan, Miss Frances Hasson and Miss Eiméar O'Donnell.

Event Sponsors for #UKSB2023:

The local organising committee would like to thank all our sponsors for their generous support for this year's annual conference. The gold sponsors are all detailed below, please make sure you visit their stands at the conference during breaks and lunchtimes (which are all located in the poster viewing area of the meeting).



Prizes:

Prizes will be awarded for 1st, 2nd and 3rd best student papers for oral presentations, rapid-fire presentations and posters. These prizes are generously sponsored by Anton Parr Ireland, PeproTech, Zwick Roell and NIBES.

Special Journal Edition:

We are pleased to announce the Special Issue entitled “ Selected Papers from 23rd UK Society for Biomaterials Annual Conference 2023” to be published in the Journal “*Biomaterials and Biosystems*.” Papers submitted to this conference and leading opinion manuscripts from attendees are invited to be submitted to the Special Issue in the *Biomaterials and Biosystems* Journal. This collection aims to collect state-of-the-art research work or comprehensive review papers in the field of biomaterials, including materials in medicine, medical devices, biosensors, implants, scaffolds for tissue engineering, drug delivery systems, as well as antibacterial and dental materials. All articles published in this Special Issue are subject to careful editorial selection.

Biomaterials and Biosystems: <https://www.sciencedirect.com/journal/biomaterials-and-biosystems>

UKSB Conference Programme 2023

Day 1 – 20th June

8.30-9.30 **Registration**

9.30-9.40 **Welcome note**

9.40-10.55 **Session 1**
(Chairs: Prof Paul Roach and Prof Brian J Meenan)

Time	Presentation
9.40-10.05	Presidents Prize – Liam Grover, University of Birmingham At the interface of materials science and biology
10.05-10.15	Dan Sun, Queen’s University Belfast (Talk 1) Design Of Nanocomposite Implants for Multi-modal Bone Therapy
10.15-10.25	Tom Robinson, University of Birmingham (Talk 2) Self-delivering Microstructured Iota-Carrageenan Spray Inhibits Fibrosis at Multiple Length Scales
10.25-10.35	Jonathan Acheson, Ulster University (Talk 3) Multilayer Nanocomposite Coatings Deposited via LbL Assembly to Tailor Hydrated Mechanical Properties of Open Cell Tissue Scaffolds
10.35-10.45	Bin Zhang, Brunel University London (Talk 4) Direct-ink-write 3D Printing of Bone Tissue Scaffold: Influence of Material Composition
10.45-10.55	Rosie Lester, University of Cambridge (Talk 5) Influence of Acid Type and pH on Lyophilised Collagen I Scaffold

10.55 - 11.30 **Coffee/Tea session and Poster viewing**

11.30 - 12.50 **Session 2 Rapid-fire Presentations**
(Chairs: Prof Cheryl Miller, Dr Joanna Ward and Miss Kirsty Muldoon)

Time	Presentation
11.30-11.45	Invited Talk Dr Kristine Salma-Ancane, Riga Technical University, Latvia From hydroxyapatite nanoparticles to advanced hydrogel composites
11.45-11.50	Victor M Villapun, University of Birmingham (RF 1) Design of High Throughput Techniques for Functional Additively Manufactured Medical Devices
11.50-11.55	Rahimi Aryako, University of Brighton (RF 2) A Systematic Study of the Effect of Extracellular Matrix Proteins and Substrates on Skeletal Muscle Satellite Cell Phenotype
11.55-12.00	Katie Staunton, University of Cambridge (RF 3) Production of Mineralised Collagen Films using Electrophoretic Deposition
12.00-12.05	Ella-Louise Handley, University of Edinburgh (RF 4) Enhancing The Conductivity of Antioxidant Polyurethane Fibres for Myocardial Regeneration

12.05-12.10	Fatih Eroglu, University of Manchester (RF 5) Development of bone marrow-derived mesenchymal stem cell spheroids and osteogenic differentiation in natural hydrogels: potential as an in vitro bone model
12.10-12.15	Amelia R Rivers, University of Hull (RF 6) The Use of Graphite Electrodes in Delivering Electrical Stimulation to Enhance Wound Healing
12.15-12.20	Susiana Melanie, Imperial College London (RF 7) β -Chitosan Nanofiber Scaffolds for Wound Healing
12.20-12.25	Mingzu Du, University of Leeds (RF8) Parameter Optimisation In 3D Bioprinting of Polyhydroxybutyrate Using Design of Experiment Methodology
12.25-12.30	Genevieve Schleyer, University of Liverpool (RF 9) Label Free Particle Tracking to Determine the Influence of Surface Charge and Viscosity on Nanoparticle Diffusion Through Simple and Biological Media
12.30-12.35	Yasemin Acar, Loughborough University (RF 10) Polymer Coatings for Small Diameter Drug Eluting Stents
12.35-12.40	Jessica Moore, Queen's University Belfast (RF 11) Quaternary Ammonium-Functionalised Poly(Vinyl Chloride) for the Prevention of Biomedical Device-Associated Infections
12.40-12.45	Muntha Alhazmi, University of Sheffield (RF 12) Enhanced Calcium Phosphates for the Treatment and Prevention of Medication Related Osteonecrosis of the Jaw
12.45-12.50	Haoyu Wang, University College London (RF 13) A Novel Encapsulation Technology for Liposomes for Cartilage Tissue Engineering

12.50-14.00 **Lunch session and Poster viewing (posters and rapid-fire day 1 posters)**

14.00-15:25 **Session 3**

(Chairs: Dr Victoria Kearns and Dr Pamela Walsh)

Time	Presentation
14.00-14.15	Invited Talk: Prof Chaozong Liu, University College London Biomaterials innovation for early intervention of osteoarthritis: from bench to bedside
14.15-14.25	Lucy Arkinstall, University of Birmingham (Talk 6) Surface Coating of Orthopaedic Implants for Improved Osseointegration
14.25-14.35	Anushree Ghosh Dastidar, Queen's University Belfast (Talk 7) In-vitro Regenerative Potential of 3D-printed PLLGA/Alginate Composite Constructs for Cartilage Tissue Engineering Applications
14.35-14.45	Graeme Pitt, University of Liverpool (Talk 8) Antifouling Coatings for the Prevention of Catheter-Associated Urinary Tract Infections (CAUTI's)
14.45-14.55	Adriana-Monica Radu, University College London (Talk 9) Restoring Hyperglycaemia-induced Inhibition of Bone Resorption Using HIF-1 α Regulating Bioactive Glasses

14.55-15.05	Maria Heim, University of Edinburgh (Talk 10) Development Of Oestrogen Scaffolds as a Niche for Thyroid Cell Proliferation
15.05-15.15	Aoife McFerran, Ulster University (Talk 11) Dual Functional LbL Assembly Nanocomposite Coatings for Mechanical Reinforcement of Bone Tissue Scaffolds and Enhancement of Bone Defect Reparation via Incorporation of Therapeutic Agents
15.15-15.25	Kayley Jaworska, University of Huddersfield (Talk 12) Towards a 3D Bioengineered Glioblastoma Model to Evaluate Cell Migration

15.25-15.55 **Coffee/Tea session and poster viewing (posters and rapid-fire day 1 posters)**

15.55-17.30 **Session 4**
(Chairs: Dr John Hardy and Dr Lucy Arkinstall)

Time	Presentation
16.00-16.20	Larry Hench Award Dr Caroline Taylor, University of Sheffield Developing intraluminal guidance scaffolds for Peripheral Nerve Repair and Nerve Tissue Engineering
16.20-16.30	Timothy Douglas, Lancaster University (Talk 13) Calcium silicate-whey protein isolate hydrogels for bone regeneration
16.30-16.40	Joanna Ward, Ulster University (Talk 14) Polymer Demixed Coatings for Patient-Specific Sensing within a Whole Blood Assay
16.40-16.50	Susan A Clarke, Queen's University Belfast (Talk 15) Female Inclusion in Biomedical Research
16.50-17.30	Early Career Forum (ECF) Event - 'How to stand out from the crowd' Tips and tricks to get your CV noticed for jobs/PDRA positions. Event Chairs: Dr Caroline Taylor and Dr Adam Celiz

19.00 **UKSB Reception (Europa Hotel, Belfast)**

20.00 **UKSB Conference Dinner (Europa Hotel, Belfast)**

Day 2 – 21st June

9.20-10.45

Session 5

(Chairs: Prof Jie Huang and Dr Colin Scotchford)

Time	Presentation
9.20-9.45	Alan Wilson Memorial Prize - Prof Michele Barbour, University of Bristol
9.45-9.55	John G Hardy, Lancaster University (Talk 16) Stimuli-Responsive Polymers for Drug Delivery
9.55-10.05	Sabrina Roussel, Laval University/Queen's University Belfast (Talk 17) Insight onto the Development and Use of a New Polymer for Lipid-based Nanotechnology Drug Delivery Platforms
10.05-10.15	Pravin Bhattarai, University of Galway (Talk 18) A Resorbable Ultrasound Powered Energy Harvester
10.15-10.25	Sam Moxon, University of Birmingham (Talk 19) Biowool – Electrospun Bioactive Glass for Dental Bone Regeneration
10.25-10.35	James Warren, University of Leeds (Talk 20) Self-Assembling Peptide Gels for Articular Patella Cartilage Repair
10.35-10.45	Anna Korelidou, Queen's University Belfast (Talk 21) 3D-Printed Reservoir-Type Implants for Curcumin Delivery

10.45-11.15

Coffee/Tea session and Poster viewing

11.15-12.40

Session 6 Rapid-fire Presentations

(Dr Sam Moxon, Dr Ming-Wei Chang and Dr Mary Josephine Mclvor)

Time	Presentation
11.15-11.20	Anna Johnston, University of Birmingham (RF 14) Production of Electrospun PCL Nanofibre Sheets with Nano- and Micro-Topography for Oesophageal Tissue Regeneration
11.20-11.25	Giordana Peregrino, University of Brighton (RF 15) A Novel Microfluidic Device for the Scaled-up and Highly Reproducible GMP Manufacturing of Alginate Microbead Drug Carriers
11.25-11.30	Luke Malone, University of Cambridge (RF 16) Hotting up: The importance of temperature on Poly-L-lactide (PLLA) degradation
11.30-11.35	Lorna Westwood, University of Edinburgh (RF 17) Effect of Surface Topography on Electrospun Antioxidant Scaffolds for Salivary Gland Repair
11.35-11.40	Cadhan O'Garra, University of Liverpool (RF 18) Fabrication of Antibacterial NO Releasing Cellulose Acetate Nanofibers for Wound Healing Applications

11.40-11.45	Arjan Sall, University of Birmingham (RF 19) Development of Smart Polymers for Continuous Measurement of Blood Pressure
11.45-11.50	Christine Butler, Royal College of Surgeons Ireland / Queen's University Belfast (RF 20) Vaccination: In the Right Place at the Right Time
11.50-11.55	Rofida Wali, University of Sheffield (RF 21) Nanoscale Zinc-substituted Hydroxyapatite with Antimicrobial Properties for Bone Tissue Regeneration
11.55-12.00	Alexandre Watigny, University College Dublin (RF 22) Assessing the Influence of Particle Size on the Physicochemical and Biological Properties of Extracellular Matrix-Based Biomaterials
12.00-12.05	Anran Ruan, University College London (RF 23) P and P-BG Dissolution Ions Acting as a Potential Mechanism of Elevated ROS and Osteoclastogenesis
12.05-12.10	Kirsty Muldoon, Ulster University (RF 24) Development of Hybrid 3D-Printed Scaffolds with Aligned Drug-Loaded Fibres Using In-Situ Custom Designed Templates
12.10-12.15	Emily Walker, Electrospinning Company/Durham University (RF 25) Non-Woven Stent Coating Technology – No Future for the Suture?
12.15-12.20	Catherine Hill, University of Hull (RF 26) Development of Novel Test Platforms for Wound Healing Devices
12.20-12.25	Zoe Schofield, University of Birmingham (RF 27) Harnessing the Potential of Dancing Particles
12.25-12.30	Yipeng Pi, Imperial College London (RF 28) Aminoxy-functionalised Hydrogel to Reduce Cardiac Fibrosis
12.30-12.35	Joseph Barnes, University of Liverpool (RF 29) Development and Characterisation of a Dual Antimicrobial-Osteoinductive 'Bone Wrap' Using A Novel Ex-Vivo Foetal Chick Femur Defect Model
12.35-12.40	Ohud Hussain, University of Sheffield (RF 30) Antimicrobial PEEK Composites for Dental and Medical Applications

12.40-13.00 **UKSB Annual General Meeting (Lecture Theatre 1)**

13.00-14.00 **Lunch session and Poster viewing (posters and rapid-fire day 2 posters)**

14.00-15.50

Session 7

(Chairs: Dr Susan Clarke and Dr Patrick Lemoine)

Time	Presentation
14.00-14.15	Invited Talk: Dr Pamela Walsh, Queen's University Belfast 3D printed biosilica scaffolds for bone repair
14.15-14.25	Manohar Prasad Koduri, University of Liverpool (Talk 22) Functional Nano pH Sensor (FNpH) in Human Mesenchymal Stem Cell Tissue Engineering
14.25-14.35	Shuai Zhang, Queen's University Belfast (Talk 23) Influence of Fibrinogen Deposition on Antifouling Property of Silicon Oil-infused Urinary Catheters
14.35-14.45	Swastina Nath Varma, University College London (Talk 24) Jellyfish Collagen Filled Titanium Matrix for Large Bone Defect Repair
14.45-14.55	Rajiv Borah, Trinity College Dublin (Talk 25) Fabrication and Characterization of Indian Non-Mulberry Silk Based Electroconductive Hydrogel with Tunable Mechanical Property and Biodegradability
14.55-15.05	Caglar Ersanli, University of Ioannina (Talk 26) Pharmacokinetics, Antimicrobial and Biological Properties of Essential Oil-loaded Collagen Hydrogels
14.05-15.15	Ching Teng Chiang, University College London (Talk 27) The Development and Understanding of Cellular Mechanisms of Silicate-Based Bioactive Glass on Osteoclastogenesis and Bone Resorption
15.15-15.25	Robyn Macartney, Ulster University (Talk 28) Composite Nanofibrous Scaffolds for Supporting the Repair and Regeneration of Periodontal Soft Tissues in Diabetic Patients
15.25-15.35	Michael Laughton, University of Hull (Talk 29) Viscoelastically Active Sutures Promoting Wound Healing
15.35-15.50	Invited Talk: Dr Krzysztof Rodzen, Ulster University Crystallization kinetics as a key factor during 3D printing of advanced semicrystalline biomedical materials

15.50-16.00

Judging

16.00-16.15

Closing Remarks and Prizегiving