

UKSB2022 Conference Programme

The Edge

The Endcliffe Village, Endcliffe Crescent,
Sheffield S10 3ED (See **page 85** for details)

Day 1: Monday 27th June 2022

09.00	Registration and Coffee	
10.00	Welcome <i>Roach</i>	<i>Prof. Cheryl Miller and Dr Paul</i>
Session 1. Innovative biomaterial manufacture		
		<i>Chairs: Prof. Cheryl Miller and Dr Victoria Workman</i>
10.05	Keynote: Manufacturing Microspheres from Bioactive Glasses and their Potential Orthobiologic Applications Dr Ifty Ahmed	Pg. 9
10:35	<i>Flash talks</i>	<i>Pg. 10-18</i>
	1. Laetitia Raynal, University of York, <i>Developing new functional ligands for protein modification</i>	
	2. Luis Marco, Loughborough University <i>Effects of surface chemistry interaction on neural stem cell derived retinal organoids</i>	
	3. Christopher Chong, La Trobe University <i>Incorporation of arginine-glycine-aspartic acid (RGD) ligands into diphenylalanine (FF) nanofibers scaffolds – exploration of nanoscale properties for tissue engineering</i>	
	4. Moira Lorenzo-Lopez, University of Liverpool <i>Label-free nanoparticle tracking for eye drug delivery</i>	
	5. Anna Rhodes, Imperial College London <i>Using silk fibroin/collagen composite biomaterials to promote in vivo-like healthy and fibrotic gene expression in fibroblasts</i>	
	6. Barber, University of York <i>Investigation of current strategies for N-terminal protein modification</i>	
	7. Cagla Erdas, UCL <i>Understanding the specific role of immunoglobulins in nanoparticle protein corona formation and biological interactions</i>	
	8. Ben Almquist, Imperial College London <i>Biomaterials for rewiring pathologic microRNA signaling in diabetic foot ulcers</i>	
	9. Noelia Falcon, University of East Anglia <i>Investigation into the effect of BMP-12 and TGF-β1 on stimulation of tenogenic markers in serum-free cultured human adipose-derived stem cells</i>	
11.05	Coffee/Tea & Posters	
Session 2. Antibacterial Biomaterials		
		<i>Chairs: Prof. Raechelle D'Sa and Dr George Bullock</i>
11.35	Thomas Swift, University of Bradford <i>Highly branched biologically responding additives that lead to deformation in polyurethane wound dressings</i>	<i>Pg. 19</i>
	Man Li, University of Liverpool <i>Antimicrobial electrospun bandages for the treatment of wound infections</i>	<i>Pg. 20</i>
12.00	Gold sponsor talk: Elliot Gibson, Biopharma	

12.10	<i>Flash talks</i>	Pg. 21-27
	10. Siyun Liu, University of Birmingham <i>Alginate-silica hybrid hydrogels employing novel reagents and a “soft chemistry” sol-gel process</i>	
	11. Chloe Stewart, University of Nottingham <i>Hydrogel formulations to modulate the foreign body response</i>	
	12. Christopher Merrett, University of Nottingham <i>3D cell culture: hydrogels capable of in situ functionalisation with a single “click”</i>	
	13. Saudah Hafeji, University of Leeds <i>Ankle ligament repair for restoration of function: exploring the application of decellularised grafts</i>	
	14. Aoife McFerran, Ulster University <i>Multi-functional layered nanocomposite coatings for bioactive tissue scaffold development</i>	
	15. Joe Woodley, University of Sheffield <i>Reduced fibroblast activation on electrospun polycaprolactone scaffolds</i>	
	16. Joseph Barnes, University of Liverpool <i>Micro-CT characterisation of a dual antimicrobial-osteoinductive ‘bone wrap’ using a novel ex vivo chick femur defect model</i>	

12:35 YSF update

12.45 Lunch & Posters

- Young Scientists Forum (YSF) lunch in bar (upstairs)
- Standard lunch in ground floor

Session 3. Innovative Biomaterial Manufacture

Chairs: Prof. Julian Jones and Dr Annalisa Tirelli

13.45	Keynote: Moving additive manufacturing beyond anatomical customisation	Pg. 28
	Nicola Contessi Negrini, Imperial College London <i>Handheld bioprinting of bioorthogonally crosslinked hydrogels</i>	Pg. 29
	Amirpasha Moetazedian, University of Birmingham <i>Microfluidic-based 3D bioprinting to fabricate blood vasculature</i>	Pg. 30
14.40	Gold sponsor talk: Dr Marlin Magallanes, Glass Technology Services <i>Glasses for biomedical applications: from early stage to commercialisation</i>	
15.50	<i>Flash talks</i>	Pg. 31-37
	17. Turuvekere Krishnamurthy, Indian Institute of Technology Madras <i>Tetracycline-loaded isabgol (psyllium) nanoparticles functionalised with hyaluronic acid for accelerating wound healing</i>	
	18. Jonathan Wilson, University of Nottingham <i>Calcium phosphate coatings for the degradation control and functionalisation of Magnesium-based alloys</i>	
	19. George Bullock, University of Sheffield <i>Peptide-enhanced calcium phosphates for the promotion of bone tissue regeneration in vivo</i>	
	20. Maria Florez Martin, University College London <i>Quantifying the effects of Si, B, and Co-releasing bioactive glasses on in vitro bone formation</i>	
	21. Joshua Lau, University College London <i>The role of intermittent hypoxia on bone nodule formation in vitro</i>	
	22. Morgan Thornber, University of Nottingham	

Ex vivo spider silk, a novel look at an ancient biomaterial

23. Sahar AlOraibi, University College London

Investigating ionic therapy for Bisphosphonate Related Osteonecrosis of the Jaw

15.15 Coffee/tea & posters

Session 4. Dental and Orthopaedic Biomaterials

Chairs: Prof. Paul Hatton and Dr Dan Merryweather

15.45 Moresche Bartley, Queen Mary University of London Pg.
Electrospun PCL coated with collagen/hydroxyapatite for bone tissue engineering 38

Eyyüp Karakurt, Brunel University London Pg.
Evaluation of biocompatibility of porous titanium-niobium alloys 39

Joanna Ward, Ulster University Pg.
Effects of strontium-substitution in sputter deposited calcium phosphate coatings on the rate of corrosion of magnesium alloys 40

16.25 Alan Wilson Memorial Lecture: The role of multifunctional polymeric dental biomaterials in tooth restoration Pg.
Prof. Sanjukta Deb 41

16.55 UKSB AGM

20.00 Conference Dinner at the Mercure Sheffield St Paul's Hotel & Spa (S1 2JE)
7:30 for 8pm

Day 2: Tuesday 28th June 2022

09:00 Arrival and coffee

Session 5. Biomaterials Chemistry and Characterisation

Chairs: Dr Adrian Boyd and Dr Sam Moxon

09.30	Sudha Varadaraj, Indian Institute of Technology Madras <i>Multiple cues in acellular amniotic membrane incorporated Embelin for tissue engineering</i>	Pg. 42
	Aram Saeed, University of East Anglia <i>Prefunctionalised biodegradable microcarriers for cell culture and cell delivery</i>	Pg. 43
	Jonathon Curd, University of Nottingham <i>Customisable peptide hydrogels as 3D biomimetic models of specific tissue microenvironments</i>	Pg. 44
	Daniel Baines, Lancaster University <i>Quantitative analysis of fluid content of pH treated whey protein isolate hydrogels in a swollen state using terahertz radiation</i>	Pg. 45
	Brian Saunders, University of Manchester <i>Highly-stretchable conductive covalent coacervate gels for electronic skin</i>	Pg. 46
10.30	Gold sponsor talk: Dr. Vladimir Korolkov, Park Systems UK Ltd <i>Park Systems AFMs: from resolving exquisite molecular structure in peptides to single capsomere imaging in viruses</i>	

10.40 Coffee/Tea Break and Posters

Session 6. Sensing and Controlling Cellular Behaviour

Chairs: Dr Paul Roach and Dr Joanna Ward

11.05	Larry Hench Young Investigators Prize: Graphene formulations: new ways for manipulating medicine at the nanoscale Dr Tanveer Tabish	Pg. 47
11.35	Akhil Jain, University of Nottingham <i>Bifunctionalised electric field responsive conductive nanoactuators for glioblastoma multiforme</i>	Pg. 48
	Pui Lai Rachel Ee, National University of Singapore <i>Antimicrobial peptide-conjugated graphene-based optical lens for prevention and treatment of bacterial infections</i>	Pg. 49
	Ben Almquist, Imperial College London <i>Bioinspired nanotechnology for cellular traction force-mediated delivery of biologics</i>	Pg. 50
	Nuria Oliva, Imperial College London <i>Nanotechnology-enabled RNA therapies for tissue engineering and regeneration</i>	Pg. 51

12.25 Lunch and Posters

Session 7. Chairs: Addressing Clinical Needs

Chairs: Dr Colin Scotchford and Dr Caroline Taylor

13.20	UKSB President's Prize: Biomaterials Solutions for Unmet Clinical Needs Prof. Paul Hatton	Pg. 52
13.50	Devon Crouch, University of Liverpool <i>Using decellularised human trabecular meshwork as a blueprint for fabricating biomimetic electrospun scaffolds</i>	Pg. 53

Jessica Senior, University of Huddersfield	Pg.
<i>Development of a complex 3D glioblastoma microenvironments</i>	54
Samuel Moxon, University of Manchester	Pg.
<i>A 3D bioprinted model of the human intervertebral disc</i>	55

14.30 Coffee/tea & posters

Session 8. Tissue Engineering

Chairs: Dr Jude Curran and Dr Nicola Contessi Negrini

14.55	Aishah Nasir, University of Nottingham	Pg.
	<i>"Chemo-topography" heart-in-a-dish platform for human cardiac modelling</i>	56
	Caroline Taylor, University of Sheffield	Pg.
	<i>Aminosilane coated polycaprolactone scaffolds for peripheral nerve repair</i>	57
	Manohar Koduri, University of Liverpool	Pg.
	<i>Functional nano glucose particle sensor (FN-GPS) in human mesenchymal stem cell (HMSC) environment</i>	58
	Dan Merryweather, Loughborough University	Pg.
	<i>Microfabrication of defined circuits of human neural progenitor cells within a brain-on-chip device</i>	59

15.45 Prizes

16.00 Meeting close