



One Day Meeting on Bone and Enamel Tissue Science and Engineering

Wednesday 13 December 2017

Registration/refreshments - School of Electronic and Electrical Engineering
Presentations - Mechanical Engineering Lecture Theatre A

PROGRAMME

08:15 – 08:45	Registration
08:45 – 09:00	Welcome and opening remarks
Clinical Dentistry	
09:00 – 09:30	Regeneration of the dental hard/soft tissue interface using Photobiomodulation (Keynote) <i>Dr Mike Milward, University of Birmingham</i>
09:30 – 09:45	Treatment of dental plaque biofilms using photodynamic therapy <i>Jinous Tahmasebi, University of Leeds</i>
09:45 – 10:00	Periodontal restoration using femtosecond pulsed lasers and ceramic biomaterials <i>Antonios Anastasiou, University of Leeds</i>
10:00 – 10:15	Enamel wear and current practice <i>Brian Nattress, University of Leeds</i>
Industry Session	
10:15 – 10:25	Engineering and development of a novel medical device for restoring damaged dental enamel by combining materials and laser power delivery <i>Ing. Claudio Amorese, ICMEA Srl</i>
10:25 – 10:45	<i>Coffee and poster session</i>
Materials, Fabrication and Characterisations	
10:45 – 11:05	Novell poly(butylene succinate) nanocomposites for tissue engineering applications (Invited Speaker) <i>Professor Dimitrios Bikiaris, Aristotle University of Thessaloniki</i>
11:05 – 11:25	Bioactive glasses with therapeutic ion release for bone regeneration: progress and challenges (Invited Speaker) <i>Professor Aldo Boccaccini, University of Erlangen-Nuremberg</i>
11:25 – 11:40	Novel in-situ polymerisable binder system for 3D inkjet powder printing of biomaterials: quantitative process physics <i>Srimanta Barui, Indian Institute of Science</i>
11:40 – 11:50	Understanding the predictive value of testing cell-material interactions, from a biologist's perspective: Learnings, challenges, and scientific networks <i>Dr Priya Kalia, SciTribe Ltd.</i>
11:50 – 12:10	Electro active scaffolds for bone regeneration (Invited Speaker) <i>Professor Paulo Bartolo, University of Manchester</i>
12:10 – 12:25	Bone tissue engineering in vitro and in vivo using a novel multilayer cell sheet technology <i>Elizabeth Kapasa, University of Leeds</i>
12:25 – 12:45	Application of analytical electron microscopy to hybrid soft/hard matter and tissue characterisation (Invited Speaker) <i>Professor Rik Brydson, University of Leeds</i>
12:45 – 13:45	<i>Lunch and poster session</i>

Industry Session	
13:45 – 13:50	Emerging ultrafast laser technology for novel tissue engineering applications <i>James Bain, M-Squared</i>
13:50 – 13:55	Laser microtomy for histology and histochemistry of implants and hard tissue <i>Dr Heiko Richter, LLS ROWIAK LaserLabSolutions GmbH</i>
Bone Tissue and Materials Engineering I	
13:55 – 14:10	Effect of fluorapatite coatings combined with platelet-rich plasma on osteoblast cells <i>Aseel Al-Jaboori, University of Leeds</i>
14:10 – 14:30	Bearing surfaces in hip arthroplasty (Invited Speaker) <i>Professor Hemant Pandit, University of Leeds</i>
14:30 – 14:45	3D printed PLLA scaffolds with an ECM-mimicking strand topography for cartilage and bone tissue engineering <i>Jing Yang, University of Nottingham</i>
14:45 – 15:15	Managing bone defects and infection after long bone fractures: issues and challenges (Keynote) <i>Professor Peter Giannoudis, University of Leeds</i>
15:15 – 15:35	<i>Tea and poster session</i>
Industry Session	
15:35 – 15:45	Developments in glass for biomedical applications <i>Rob Ireson, Glass Technology Services Ltd (GTS)</i>
Bone Tissue and Materials Engineering II	
15:45 – 16:00	Osteogenic and endothelial differentiation capacity of monocyte-derived multipotential cells on poly(ϵ-caprolactone) thin films containing nano-bioglass and silica nanotubes <i>Eleni Gounari, Aristotle University of Thessaloniki</i>
16:00 – 16:15	Effectiveness of bone marrow MSCs for bone fracture non-union therapy <i>Jehan El-Jawhari, University of Leeds</i>
16:15 – 16:30	Development of novel antibacterial mesoporous silicate bioactive glass/polymer films as wound dressings <i>Seray Kaya, University of Erlangen-Nuremberg</i>
16:30 – 16:45	Empirical optimisation of electrical stimulation regime to minimise faradic by-products for bone tissue engineering <i>Kasama Srirussamee, University of Manchester</i>
16:45 – 17:00	Antibiotic-free antibacterial porous chitosan-based composite scaffolds <i>Lukas Gritsch, University of Erlangen-Nuremberg</i>
17:00 – 17:15	Biocompatible PCL/nano-bioglass composites for tissue engineering applications <i>Zoi Terzopoulou, University of Thessaloniki</i>
17:15 – 17:30	Transcription factor-driven osteogenesis in mechanically strong 3D printable and injectable biodegradable scaffolds <i>James Dixon, University of Nottingham</i>
17.30 – 17.40	Proliferate®, Proliferex® and SpheriSomes® – novel scaffolds for regenerative medicine <i>Animesh Jha on behalf of Don Wellings, SpheriTech</i>
17.40-17.50	Poster prize award and meeting close <i>Chaired by Animesh Jha</i>

Posters

- 1. Osteochondral tissue co-culture on a novel 3D printed scaffold**
R. Xue¹, B. Chung¹, J. Carr³, M. Tamaddon², C. Liu², S. Cartmell¹
¹School of Materials, University of Manchester, UK, ²Institute of Orthopaedics and Musculo-Skeletal Science, University College London, UK, ³Henry Mosley X-ray Imaging Facility, University of Manchester, UK
- 2. Ameloblastin is effected more than amelogenin in ameloblasts of rats exposed prenatally to amoxicillin or infection**
A. Menteş¹, C. Duman², N. Özkan¹
¹Marmara University, ²Biruni University
- 3. Experiment and simulation of 4-point bending bioreactor for delivering physiological levels of tensile strain to cells seeded on different material substrates**
B. Tandon, J.A. Aguilar Tadeo, J.J. Blaker, S.H. Cartmell
University of Manchester
- 4. Iron doped calcium phosphate biomaterials for tissue engineering**
E. Alsubhe, A.D. Anastasiou, E.M. Raif, A. Jha
University of Leeds
- 5. Chitosan membranes for biodegradable microfluidics**
N. Iqbal, A. D. Anastasiou, C. Maddi, M. El-Raif, A. Jha
University of Leeds
- 6. Effect of fibre angle of 3D printed PLA scaffolds on human dental pulp stromal cells' attachment, growth and osteogenic differentiation in vitro and in vivo**
R.F. Albanna^{1,4}, J. Kirkham², J. Burke³, C. Liu⁵ and X. Yang¹
¹Biomaterials & Tissue Engineering Group, Division of Oral Biology, School of Dentistry, University of Leeds; ²Biomimetalisation Group, Division of Oral Biology, School of Dentistry, University of Leeds; ³Dept Oral Surgery, Edinburgh Dental Institute, University of Edinburgh; ⁴Department of Oral and Maxillofacial Surgery, College of Dentistry, Mosul, Iraq; ⁵John Scales Centre for Biomedical Engineering, Institute of Orthopaedics and Musculoskeletal Science, University College London
- 7. Culturing neural tissue on biocompatible graphene oxide thin films in development of tissue engineering scaffolds**
J. Brewster, X. Yang, X. Jia, J. Tipper and L-H. Jiang
University of Leeds
- 8. The Effect of crosslinker selection on the properties of GelNOR hydrogels for tissue engineering applications**
D. Secker¹, K. Lim², G. Brown², T. Woodfield², L-H. Jiang³, X. Jia⁴, X. Yang¹
¹Division of Oral Biology, University of Leeds, ²CReaTE Group, University of Otago, New Zealand, ³Faculty of Biological Science, University of Leeds, ⁴School of Chemical and Process Engineering, University of Leeds
- 9. Isolation, characterisation and osteogenic differentiation of human periodontal ligament stromal cells in vitro**
F. Al-Dabbagh^{1,2}, V. Clerehugh¹, M. Kellett¹ and X.B. Yang¹
¹School of Dentistry, University of Leeds, ²College of Dentistry, University of Mosul, Iraq
- 10. Calcium phosphate coatings deposited by ultrashort pulsed laser for bone implant applications**
C. Maddi, A. D. Anastasiou, P. V. Giannoudis, A. Jha
University of Leeds
- 11. Effects of soluble metallic ions on cells metabolism and mineralization**
T. Zhou¹, E. McCarthy², C. Soutis¹, S. Cartmell¹
¹School of Materials, University of Manchester, ²School of Engineering, University of Edinburgh
- 12. Bulk modification and surface micropatterning of poly(lactic acid): a synergistic strategy to enhance cell adhesion and proliferation**
M. Nerantzaki^{1,2}, N. Kehagias³, A. Francone³, Iro Koliakou⁴, A.R. Boccaccini⁵, D. Bikiaris¹*

¹Laboratory of Organic Chemical Technology, Aristotle University of Thessaloniki, ²Laboratory of Physical Chemistry and Electrolyte Interfacial Nanosystems, University Pierre and Marie Curie, ³Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, ⁴Laboratory of Animal Physiology, Department of Biology, Aristotle University of Thessaloniki, ⁵Institute of Biomaterials, Department of Materials Science and Engineering, University of Erlangen-Nuremberg