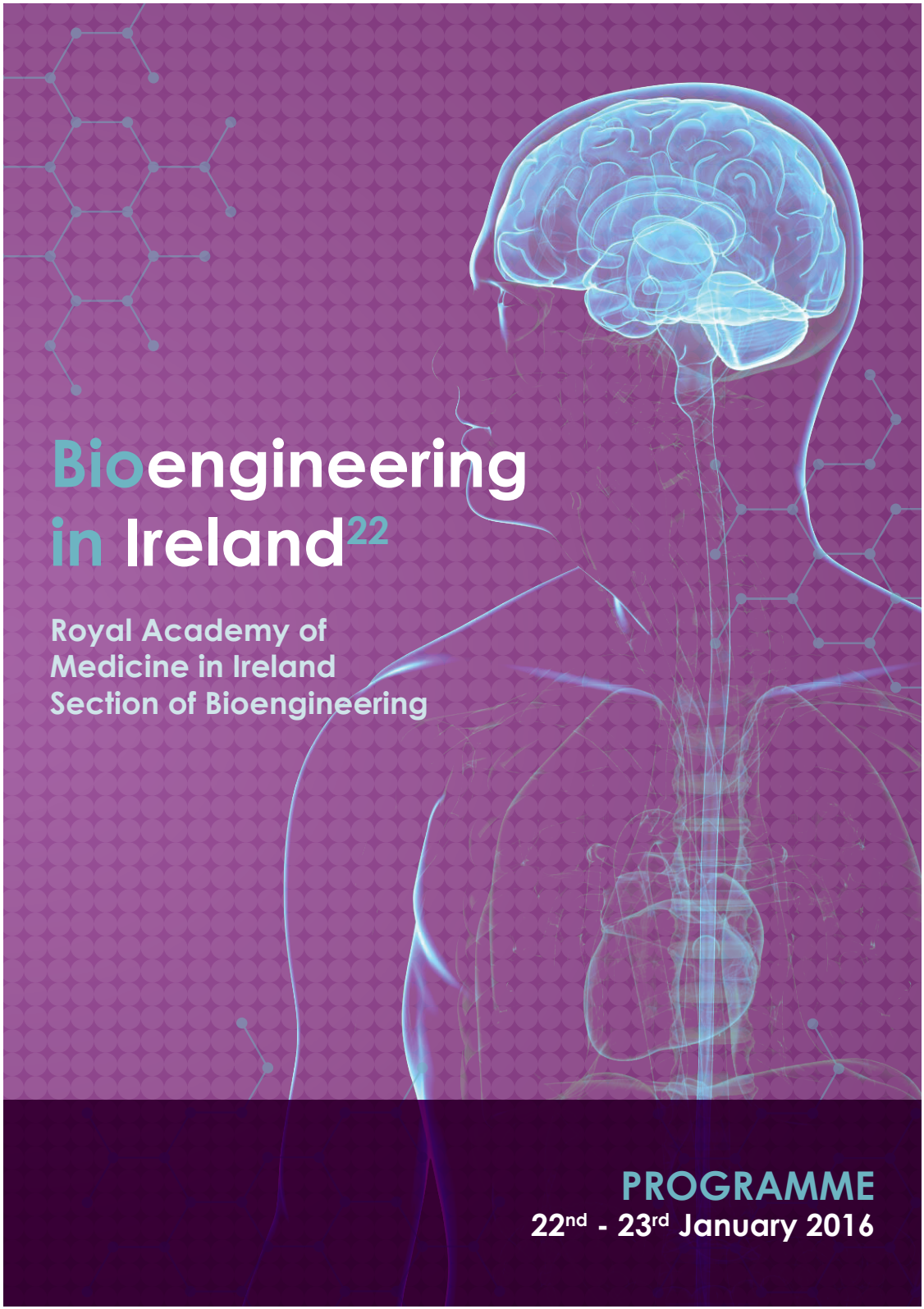

Bioengineering in Ireland[22]

Royal Academy of
Medicine in Ireland
Section of Bioengineering

PROGRAMME

22nd - 23rd January 2016

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WELCOME NOTE

On behalf of the National University of Ireland Galway, I am delighted to welcome you to Galway for the 22nd Annual Conference of the Bioengineering Section of the Royal Academy of Medicine in Ireland.

The Bioengineering in Ireland Conference is now established as one of Ireland's longest-running and largest conferences in engineering and science. This year the conference boasts a record number of presentations (155 podium and 31 poster presentations), with over 200 registered delegates.

We are honoured to announce two highly distinguished global leaders in the field of biomedical engineering as keynote speakers: **Professor Elazer R. Edelman**, M.I.T. and Harvard Medical School, and **Professor Gerhard A. Holzapfel**, Institute of Biomechanics at Graz University of Technology.

This year the Royal Academy of Medicine in Ireland Bioengineering Section has awarded the 2016 RAMI Silver Medal to **Professor Tim O'Brien**. As the distinguished recipient of this prestigious award, Professor O'Brien will deliver the Samuel Haughton Honorary Lecture.

Finally, I would like to thank all sponsors for financial support. The active participation in the conference of representatives from the medical device sector provides an ideal platform to explore potential areas of collaboration between industry and academia.

Patrick McGarry

Conference Chair

GENERAL INFORMATION

Conference Organising Committee

Dr. Patrick McGarry (Conference Chair), Dr. Laoise McNamara, Dr. Ted Vaughan, Dr. Martin O'Halloran, Dr. Brian McGinley, Dr. Nicola Kelly, Eoin McEvoy, Brian O'Reilly, Rosa Shine, Catherine O'Connor, Orla McGee, Irene Simfia.

Registration

All attendees must be registered and are required to wear their official conference nametags at all times. Access to all sessions, tea/coffee breaks, lunch and the social events will only be granted to delegates wearing nametags.

Social Events

Social events are complementary for all participants wearing a conference badge. Additional dinner tickets are available on request.

On Friday at 20:00 a Buffet Dinner will take place at 8pm in the Rockbarton Suite, followed by a table quiz.

On Saturday at 20:00 the BINI Gala Ball and Banquet dinner will take place in the Rockbarton Suite at 8 pm. Dress code: formal (black-tie optional).

Twitter and WiFi

You can use the hashtag **#bini2016** to tweet about the conference.

Please follow **@BIO_ENG_NUIG** for news, updates and photos from the conference.

Open-access WiFi internet is available in all areas of the conference venue.

PROGRAMME OVERVIEW, FRIDAY 22nd JANUARY

9:00 - 13:00	**Registration**			
10:00 - 11:00	MSc in Bioengineering Poster Session (Rockbarton Suite)			
11:00 - 12:00	Clinical trial/Device development Workshop (Rockbarton Suite)			
11:45 - 12:30	**Lunch** (Amber and Prom Restaurants)			
12:30 - 13:30	Engineers Ireland Biomedical Engineering Research Medal Chair: Dr. David Hoey, Venue: Rockbarton Suite			
13:45 - 14:30	**Keynote Lecture:** Prof. Elazer Edelman, MIT/Harvard Medical School Chair: Dr. Patrick McGarry, Venue: Rockbarton Suite			
14:30 - 15:00	**Coffee break**			
15:00-16:30	**Parallel Sessions 1**			
Session	Tissue Engineering of Cartilage and Bone I	Gene/Drug Delivery I	Mechanical Behaviour of Biological Tissue I	Biomedical Imaging and Sensors
Venue	Rockbarton	Aran Suite	Promenade Suite	Courtyard Suite
Chairs	M. Biggs C. Buckley	M. Haugh C. Murphy	M. Destrade T. Vaughan	M. O'Halloran E. Dunn
16:45-18:15	**Parallel Sessions 2**			
Session	Tissue Engineering of Vascular Networks and Nerves	Biomaterials I	Mechanical Behaviour of Biological Tissue II	Mechanobiol-ogy I
Venue	Rockbarton	Aran Suite	Promenade Suite	Courtyard Suite
Chairs	D. Kelly D. Devine	F. Buchanan T. Vaughan	A. Ní Annaidh L. Morris	L. McNamara C. Lally
20:00	Buffet Dinner (Rockbarton Suite), Table Quiz, Presentation of EI Medala			

PROGRAMME OVERVIEW, SATURDAY 23rd JANUARY

9:00-10:30	Parallel Sessions 3			
Session	Gene/Drug Delivery II	Biomaterials II	Stem Cells and Tissue Engineering	Mechanobiol-ogy II
Venue	Rockbarton	Aran Suite	Promenade	Courtyard
Chairs	N. Dunne C. Kearney	A. Lennon E. Parle	G. Duffy J. Gleeson	D. Hoey C. Murphy
10:45-11:30	**Keynote Lecture:** Prof. Gerhard Holzapfel, TU Graz, Austria Chair: Dr. Patrick McGarry Venue: Rockbarton Suite			
11:30-11:45	**Coffee break**			
11:45-13:00	**Parallel Sessions 4**			
Session	Mechanical Behaviour of Biological Tissue III	Biomaterials for Tissue Engaineering Applications	Biomaterials II	Bioelectronics I
Venue	Rockbarton	Aran Suite	Promenade	Courtyard
Chairs	G. Holzapfel P. McHugh	F. O'Brien O. Brennan	P. Walsh M. Biggs	G. O'Laighin B. McGinley
13:00-14:00	**Lunch** (Amber and Prom Restaurants) **Poster Session** (Rockbarton Suite)			
14:00-15:00	**Parallel Sessions 5**			
Session	Tissue Engineering of Cartilage and Bone II	Tissue Engineering of Soft Tissues I	Orthopaedic Biomechanics	Bioelectronics II
Venue	Rockbarton	Aran Suite	Promenade	Courtyard
Chairs	L. McNamara P. Walsh	B. Murphy C. Kearney	D. Taylor A. Lennon	G. O'Laighin B. McGinley
15:15-16:00	**Haughton Lecture:** Prof. Tim O'Brien, REMEDI, NUIG Chair: Prof. Fergal O'Brien, Venue: Rockbarton Suite			

16:15-17:30	Parallel Sessions 6			
Session	Tissue Engineering of Soft Tissues II	Mechanical Analysis of Medical Devices	Early Stage Research I	Bioelectron-ics III
Venue	Rockbarton	Aran Suite	Promenade	Courtyard
Chairs	M. Aherne A. Cameron	E. O'Cearbhaill M. Walsh	D. Nolan E. Cunnane	M. O'Halloran B. McGinley
17:45-18:30	**Parallel Sessions 7**			
Session	Early Stage Research II		Early Stage Research III	
Venue	Promenade Suite		Courtyard Suite	
Chairs	F. Freeman, A. Cameron		G. Cunniffe, J. Costello	
20:00	BINI Gala Ball and Banquet Dinner, Presentation of Prizes Dress code: Black Tie/Formal Wear, Venue: Rockbarton Suite			

PODIUM PRESENTATIONS
FRIDAY 22nd JANUARY

Friday 12:30-13:30	Engineers Ireland Biomedical Engineering Research Medal Chair: Dr. David Hoey	Rockbarton Suite
EI1 12:30-12:45	MSC fate following non-viral transfection with therapeutic genes strongly depends on the choice of delivery vector *T Gonzalez-Fernandez, BN Sathy, M O'Doherty, H McCarthy, FJ O'Brien, DJ Kelly*	
EI2 12:45-13:00	Longitudinal evaluation of the clinical applicability of non-linguistic assessment of cochlear implant performance *A Lopez Valdes, M Mc Laughlin, C Simoes-Franklin, L Flood, J Smith, P Walshe, L Viani, RB Reilly*	
EI3 13:00-13:15	Dynamic stimulation allows development of a functional tissue engineered heart valve *CM Brougham, R Moreira, TJ Levingstone, S Jockehnhoevel, P Mela, FJ O'Brien*	
EI4 13:15-13:30	3D bioprinting of developmentally inspired templates for organ regeneration *AC Daly, MG Cunniffe, BN Sathy, O Jeon, E Alsberg, DJ Kelly*	

Friday 15:00-16:30	Session 1TE, Tissue Engineering of Cartilage and Bone I Chairs: Dr. Manus Biggs and Dr. Conor Buckley	Rockbarton Suite
1TE1 15:00-15:15	TE1: Synthesis and characterisation of hydrogel/bioceramic composites for bone regeneration applications *T Geever, M Canillas-Perez, K Vierira, MA Rodríguez Barbero, MD Nugent, DM Devine*	
1TE2 15:15-15:30	Fused deposition modelling of tailored composite filaments for hard tissue bioresorbable scaffolds *H Little, SA Clarke, E Cunningham, F Buchanan*	

1TE3 **15:30-15:45**	A bi-phasic scaffold derived from growth plate & articular cartilage ECM for osteochondral defect repair in a caprine model *PJ Díaz-Payno, GM Cunniffe, EJ Sheehy, HV Almeida, T Levingstone, C Moran, R Brady, PAJ Brama, DJ Kelly*
1TE4 **15:45-16:00**	Mimicking the biochemical and mechanical extracellular environment of the endochondral ossification process can enhance the mineralisation potential of human MSCs *F Freeman, LM McNamara*
1TE5 **16:00-16:15**	Directed osteogenesis and chondrogenesis in a multi-layered osteochondral scaffold facilitates joint regeneration in a goat model using both cell-free and cell-seeded approaches *TJ Levingstone, C Moran, RT Brady, GM Cunniffe, HV Almeida, PAJ Brama, D Kelly, JM O'Byrne, FJ O'Brien*
1TE6 **16:15-16:30**	Regeneration of Osteochondral Defects By Spatial Modulation of Endochondral Ossification within Engineered Cartilage Grafts *S Critchley, A O' Reilly, G Cunniffe, P G. Diaz Payno, A McAlinden, H Almeida, DJ Kelly*

Friday **15:00-16:30**	**Session 1GDD, Gene/Drug Delivery I** **Chairs: Dr. Matthew Haugh and Dr. Ciara Murphy**	**Aran Suite**
1GDD1 **15:00-15:15**	Gene therapy accelerates bone and cartilage regeneration: design of a non-viral gene-activated scaffold platform for orthopaedic tissue engineering *RM Raftery, SA Cryan*	
1GDD2 **15:15-15:30**	Modification of Living Diatom, Thalassiosira weissflogii by Calcium Precursor as a Sacrificial Template for Development of Artificial Antigen Presenting Cell *A Abdul Rahman, SAM Tofail, B Lukasz, BJ Rodriguez, MJ Biggs, A Pandit*	
1GDD3 **15:30-15:45**	The development of a novel, non-viral gene activated matrix for bone tissue engineering applications *D Walsh, R Murphy, A Heise, SA Cryan, FJ O'Brien*	
1GDD4 **15:45-16:00**	Effective extraction of lipids and pigments from macroalgae, using low toxicity solvents, for use in bone regeneration and health *AP O'Kane, GN Sheldrake, MD Garrett, PJ Walsh*	

1GDD5 **16:00-16:15**	Increasing the lifetime of neural probes via cooling technology and long term drug eluting coatings to allow their utilisation as a chronic therapy *L Frey, SR Shin, K O'Kelly, A Khademhosseini*
1GDD6 **16:15-16:30**	Development of hydrogels for drug and cell delivery to the distal airways *C Payne, SA Cryan, HM Kelly*

Friday **15:00-16:30**	**Session 1MEC, Mechanical Behaviour of Biological Tissue I** **Chairs: Prof. Michel Destrade and Dr. Ted Vaughan**	**Promenade Suite**
1MEC1 **15:00-15:15**	The fracture toughness of eggshell *A Cullen, M Walsh, D Taylor*	
1MEC2 **15:15-15:30**	The effects of decellularization and cross-linking techniques on the fatigue life and calcification of mitral valve chordae tendineae *GM Gunning, BP Murphy*	
1MEC3 **15:30-15:45**	Towards the characterisation of carotid plaque tissue toughness *HE Barrett, EM Cunnane, EG Kavanagh, MT Walsh*	
1MEC4 **15:45-16:00**	Modelling of the ventricular myocardium: an approach for anisotropy, compressibility, and contractility *E McEvoy, JP McGarry*	
1MEC5 **16:00-16:15**	The mechanical evaluation of bovine thrombi models for the investigation of vascular occlusion in acute ischemic stroke *F Malone, P Delassus, J Kennedy, A Fagan, E McCarthy, P Fahy*	
1MEC6 **16:15-16:30**	Biomechanical behaviour of atherosclerotic plaque: investigating hyperelasticity and viscoelasticity *BL O'Reilly, PE McHugh, JP McGarry*	

Friday **15:00-16:30**	**Session 1EE, Biomedical Imaging and Sensors** **Chairs: Dr. Martin O'Halloran and Dr. Eleanor Dunn**	**Courtyard Suite**
1EE1 **15:00-15:15**	Assessment of model based image matching for the reconstruction of head kinematics in contact sport collisions *G Tierney, H Joodaki, J Crandall, J Forman, T Krosshaug, C Simms*	

1EE2 **15:15-15:30**	Determining the effect of treatment on Perthes disease using a novel method of radiographic analysis *A Levendale, R Flavin*
1EE3 **15:30-15:45**	Model-based analysis of closed-loop control of neural oscillations during deep brain stimulation *EM Dunn, MM Lowery*
1EE4 **15:45-16:00**	The use of ICA to combat misplaced sensors in surface EMG during a simple squat exercise: a pilot study *RM Howard, R Conway, AJ Harrison*
1EE5 **16:00-16:15**	Microwave breast imaging : initial results of first patient trials *MA Elahi, C Curtis, M Glavin, E Jones, E Fear, M O'Halloran*
1EE6 **16:15-16:30**	Optimisation of confocal microwave breast images using image focal metrics *D O'Loughlin, M Glavin, E Jones, M O'Halloran*

Friday **16:45-18:00**	**Session 2TE, Tissue Engineering of Vascular Networks and Nerves** **Chairs: Dr. Daniel Kelly and Dr. Declan Devine**	**Rockbarton Suite**
2TE1 **16:45-17:00**	The use of a dynamic flow perfusion bioreactor to enhance and stabilise pre-vascularisation of a collagen-chondroitin sulphate scaffold. *T Alekseeva, RT Brady, C Lloyd-Griffith, FJ O'Brien*	
2TE2 **17:00-17:15**	A shape-controlled tunable microgel cell delivery platform for low-dose delivery of primed stem cells for in vivo therapeutic neovascularization *D Thomas, G Marsico, A Thirumaran, B Lukasz, K Thompson, P Dockery, F Quondamatteo, B Rodriguez, M Marchetti-Deschmann, T O'Brien, A Pandit*	
2TE3 **17:15-17:30**	Biofabrication of physiologically relevant vascular grafts using natural polymers and a custom vascular bioreactor *AJ Ryan, SW Sheridan, BP Murphy, FJ O'Brien*	
2TE4 **17:30-17:45**	Studying regeneration in tadpole *xenopus laevis* for improved biomaterial therapy design for the injured spinal cord *R Ronan, A Kshirsagar, AL Rebelo, G Schlosser, S McMahon, A Pandit*	
2TE5 **17:45-18:00**	Novel hyaluronic acid (HA) based Nerve guidance conduit (NGC) for the advanced treatment of peripheral nerve injuries (PNI) *W Lackington, T Alekseeva, A Ryan, A Hibbitts, A Matsiko, FJ O'Brien*	

Friday 16:45-18:15	Session 2MAT, Biomaterials I Chairs: Prof. Fraser Buchanan and Dr. Ted Vaughan	Aran Suite
2MAT1 **16:45-17:00**	A co-simulation degradation model for the computational analysis of a bioresorbable poly (l-lactic acid) stent *R Shine, CA Sweeney, N Kelly, PE McHugh*	
2MAT2 **17:00-17:15**	Load induced changes in collagen fibre architecture in arteries characterised by small angle light scattering *R Gaul, C Lally*	
2MAT3 **17:15-17:30**	PEDOT polymeric coatings for neuroelectrodes: topographical and biologic *C Vallejo-Giraldo, E Dowd, D Papy-Garcia, A Pandit, MJP Biggs*	
2MAT4 **17:30-17:45**	Effective delivery of pre-mixed calcium phosphate cement in trauma indications *K Murray, G Insley, C O'Sullivan, C Woods, C Helbert*	
2MAT5 **17:45-18:00**	A preliminary study on the in-vitro cell behaviour of beta titanium (TNZT) alloy *CL Donaghy, CW Chan, A Margariti, S Malinov*	
2MAT6 **18:00-18:15**	Formulation and synthesis of chemically cross-linked poly(*N*-vinylcaprolactam) hydrogels for use in targeted drug delivery applications *MJ Frost, C Higginbotham, S Lyons*	

Friday 16:45-18:15	Session 2.3, Mechanical Behaviour of Biological Tissue II Chairs: Dr. Aisling Ní Annaidh and Dr. Liam Morris	Promenade Suite
2MEC1 **16:45-17:00**	Clot physical behaviour - implications in the treatment of acute ischemic stroke *M Gilvarry, K McArdle, M Mirza, S Duffy, P Brouwer*	
2MEC2 **17:00-17:15**	Age-related changes in the stiffness of insect cuticle *E Parle, C Dooley, M O'Neill, D Taylor*	
2MEC3 **17:15-17:30**	Addressing iatrogenic injury due to traumatic urethral catheterisation *EM Cunnane, NF Davis, CV Cunnane, RO'C Mooney, JA Thornhill, MT Walsh*	

2MEC4 **17:30-17:45**	Optimising suture-based wound closure using a surrogate abdominal rig *G Cooney, D Winter, C Simms*
2MEC5 **17:45-18:00**	An anisotropic contractile model for arterial tissue *C O'Connor, DR Nolan, JP McGarry*
2MEC6 **18:00-18:15**	Computer simulation of the mechanical behaviour of implanted biodegradable stents in a remodelling artery *EL Boland, JA Grogan, PE McHugh*

Friday **16:45-18:00**	**Session 2MB, Mechanobiology I** **Chairs: Dr. Laoise McNamara and Dr. Caitriona Lally**	**Courtyard Suite**
2MB1 **16:45-17:00**	The effect of static and dynamic pressure on early osteogenesis in osteoprogenitors and osteoblasts in-vitro *E Stavenschi, DA Hoey*	
2MB2 **17:00-17:15**	Stem cell-mediated endochondral bone defect repair is enhanced by mechanical stimulation *A McDermott, S Herberg, D Mason, E Alsberg, J Boerckel*	
2MB3 **17:15-17:30**	Simulation of the stomatocyte-discocyte-echinocyte transformation of red blood cells: a new spring-particle modelling approach *M Chen, F Boyle*	
2MB4 **17:30-17:45**	Understanding the role of substrate stiffness in macrophage polarization *R Sridharan, AR Cameron, P Fox, DJ.Kelly, FJ O'Brien*	
2MB5 **17:45-18:00**	The role of adenylyl cyclase 6 in mesenchymal stem cell mechanotransduction *GP Johnson, M Corrigan, DA Hoey*	

PODIUM PRESENTATIONS
SATURDAY 23rd JANUARY

Saturday 9:00-10:30	Session 3GDD, Gene/Drug Delivery II Chairs: Dr. Nicholas Dunne and Dr. Cathal Kearney	Rockbarton Suite
3GDD1 **9:00-9:15**	Multifunctional drug delivery nanosystem development for biomedical applications *T EufrásiodaSilva, GP Duffy, BP Murphy, E Ruiz-Hernández*	
3GDD2 **9:15-9:30**	Development of fibrin-based glucose-responsive gene delivery system *M Moery, A Larrañaga, A Pandit*	
3GDD3 **9:30-9:45**	Combinatorial non-viral microRNA-therapy for enhancing bone formation by mesenchymal stem cell-mediated osteogenesis and angiogenesis coupling *I Mencía Castaño, CM Curtin, GP Duffy*	
3GDD4 **9:45-10:00**	Electro hydrodynamic atomisation controlled fabrication of particles' morphology for Anti-tuberculosis inhalation therapy using benign solvents *A Fagan-Murphy, S Cryan*	
3GDD5 **10:00-10:15**	On-demand delivery of pdna-nanoparticles from polymer based delivery systems *F O'Gorman, R Raftery, FJ O'Brien, CJ Kearney*	
3GDD6 **10:15-10:30**	Delivery of self-assembling osteogenic nanoparticles via a thermo-responsive hydrogel system *N Dunne, P Chambers, S Pentlavalli, M O'Doherty, M Chalanqui, B Sathy, H Pauly, D Kelly, TL Haut Donahue, HO McCarthy*	

Saturday 9:00-10:30	Session 3MAT, Biomaterials II Chairs: Dr. Alex Lennon and Dr. Eoin Parle	Aran Suite
3MAT1 **9:00-9:15**	Development of a soft sensor to predict the molecular weight of polylactide (PLA) in a melt extrusion process *K Mulrennan, D Whitaker, E Talvite, I Lyyra, T Annala, M Kellomaki, M McAfee*	
3MAT2 **9:15-9:30**	Assessment of the suitability of poly-vinylpyrrolidone/poly-ethylene glycol based polymer blends for melt extrusion applications *C Coffey, L Geever, J Yoon*	
3MAT3 **9:30-9:45**	Investigating a novel PHA/MWCNTs nanocomposite as an electrically conducting implant coating for neuroprosthetic devices *G Tadayon, A Larranaga, M Fernandez-Yague, C Vallejo-Giraldo, E Pugliese, MJP Biggs*	
3MAT4 **9:45-10:00**	Influence of gamma sterilisation variables on mechanical and chemical properties of PLGA *K L Davison, E Cunningham, F Buchanan*	
3MAT5 **10:00-10:15**	A multi-scale experimental and numerical modelling study on biofilm detachment *A Safari, Z Tukovic, E Casey, A Ivankovic*	
3MAT6 **10:15-10:30**	Biophysical, biochemical and biological properties of nano-textured collagen fibres *A Sorushanova, A Mullen, A Pandit, D Zeugolis*	

Saturday 9:00-10:30	Session 3.3, Stem Cells and Tissue Engineering Chairs: Dr. Garry Duffy and Dr. John Gleeson	Promenade Suite
3TE1 **9:00-9:15**	Multifactorial Approaches for Cell Phenotype Maintenance and Function *Ryan, C.N.M, Biggs, M.J., Pandit, A, Zeugolis, D.I.*	
3TE2 **9:15-9:30**	Cryopreservation of microencapsulated and differentiated bone marrow stem cells- an in vitro co-culture model of the intervertebral disc *SM Naqvi, CT Buckley*	
3TE3 **9:30-9:45**	A multifactorial approach towards mesenchymal stem cell phenotype maintenance and enhanced matrix deposition in vitro *D Gaspar, M Griffin, T O'Brien, A Pandit, D Zeugolis*	

3TE4 **9:45-10:00**	Three-dimensional interpenetrating networks to modulate chondrogenic and myogenic fate of mesenchymal stem cells *P Aprile, BN Sathy, SF Carroll, DJ Kelly*
3TE5 **10:00-10:15**	Stem cell response to 3D printed PLA scaffolds functionalised with polydopamine and collagen *BN Teixeira, P Aprile, RMSM Thiré, DJ Kelly*
3TE6 **10:15-10:30**	Macromolecular modulation in an engineered tissue-to-tissue interface model system induces differential hBMSC behaviour *DR Pereira, RL Reis, JM Oliveira, A Pandit*

Saturday **9:00-10:30**	**Session 3.4, Mechanobiology II** **Chairs: Dr. David Hoey and Dr. Ciara Murphy**	**Courtyard Suite**
3MB1 **9:00-9:15**	TRPV4 is required for flow mediated calcium signalling and osteogenic lineage commitment in mesenchymal stem cells *MA Corrigan, GP Johnson, E Stavenschi*	
3MB2 **9:15-9:30**	Strain mediated phenotypic changes in porcine smooth muscle cells *PS Mathieu, PA Cahill, C Lally*	
3MB3 **9:30-9:45**	The role of ROCK signalling in osteoporotic bone cells *I Simfia, LM McNamara*	
3MB4 **9:45-10:00**	Characterising the rheotaxis response of progressive bovine sperm using a microfluidic device *J Costelloe, A Lynch, S Fair, D Newport*	
3MB5 **10:00-10:15**	Towards exposure of endothelial cells to physiologically realistic shear stress in a parallel plate flow device *G Boyle, MJ O'Rourke, A Ivankovic*	
3MB6 **10:15-10:30**	TGFβ1-induced chemotaxis in human mesenchymal stem cells requires the primary cilium and is defective in osteoporosis *M Labour, S Coyle, B Lenehan, ST Christensen, DA Hoey*	

Saturday **11:45-13:00**	**Session 4MEC,** **Mechanical Behaviour of Biological Tissue III** **Chairs: Prof. Gerhard Holzapfel** **and Prof. Peter McHugh**	**Rockbarton Suite**
4MEC1 **11:45-12:00**	Investigating tension/compression asymmetry in skeletal muscle *M Mohammadkhah, P Murphy, C Simms*	
4MEC2 **12:00-12:15**	Active dynamic contractility of stress fibres *N Reynolds, JP McGarry*	

4MEC3 12:15-12:30	Dynamic response of brain tissue and influence on head response under different head impact directions *DB MacManus, B Pierrat, JG Murphy, MD Gilchrist*
4MEC4 12:30-12:45	Non-destructive evaluation of the non-linear elastic parameters of brain matter, using shear wave elastography *M Destrade, Y Cao, Y Jiang, G Li, LX Qian, S Liang*
4MEC5 12:45-13:00	Bridging the gap: wound healing in insects restores mechanical strength by targeted cuticle deposition *E Parle, JH Dirks, D Taylor*

Saturday 11:45-13:00	**Session 4MAT, Biomaterials III Chairs: Dr. Pamela Walsh and Dr. Manus Biggs**	**Promenade Suite**
4MAT1 11:45-12:00	Piezoelectric nanoscaffolds: mediating tendon regeneration through activation of piezoresponsive receptors *MA Fernandez-Yague, D Zeugolis, A Pandit, MJP Biggs*	
4MAT2 12:00-12:15	Modified halloysite nanotubes (HNTs) / polylactic acid (PLA) composite for use in biodegradable coronary stent *Y Chen, LM Geever, GJ Lyons, DM Devine*	
4MAT3 12:15-12:30	Magnetically responsive biomaterials for stem cell stimulation *DA Gilroy, CT Buckley, FJ O'Brien, CJ Kearney*	
4MAT4 12:30-12:45	Analysis of micro porous 316L stainless steel as a microneedle drug delivery material *EM Cahill, S Keaveney, ED O'Cearbhaill*	
4MAT5 12:45-13:00	Isolation and characterization of pepsin solubilised type ii collagen from porcine cartilage and cartilaginous fish for cartilage repair *Z Wu, A Mullen, A Pandit, D Zeugolis*	

Saturday 11:45-13:00	**Session 4EE, Bioelectronics I Chairs: Prof. Gearóid Ó'Laighin and Dr. Brian McGinley**	**Courtyard Suite**
4EE1 11:45-12:00	The use of technology for the analysis of swimming performance: implications for device design *R Mooney, G Corley, A Godfrey, C Osborough, J Newell, L Quinlan, G Ó'Laighin*	
4EE2 12:00-12:15	Acute haemodynamic responses to electrical stimulation and intermittent pneumatic compression *R Senaratne, S O'Connell, A Coneys, R Gallagher, BJ Broderick, F Quondamatteo, G Ó'Laighin, LR Quinlan*	

4EE3 **12:15-12:30**	*Electro-thermal equivalent implementation of the cable equation and application to the modelling of nerve electrical activity* *I Cinelli, M Duffy, PE McHugh*
4EE4 **12:30-12:45**	Therapeutics application of electromagnetics: hyperthermia for the treatment of head and neck cancer *G Cappiello, B McGinley, MM Paulides, M Glavin, M O'Halloran, E Jones*
4EE5 **12:45-13:00**	Analysis of parkinsonian surface electomyography through advanced signal processing and nonlinear methods *MW Flood, MM Lowery*

Saturday 14:00-15:00	**Session 5TEa, Tissue Engineering of Cartilage and Bone II Chairs: Dr. Laoise McNamara and Dr. Pamela Walsh**	**Rockbarton Suite**
5TE1 **14:00-14:15**	Development of Scaffolds Recapitulating the Zonal Architecture and Depth-Dependant Properties of Articular Cartilage *Chu, J. S. Karl, K., Sathy, B., Kelly, D.J*	
5TE2 **14:15-14:30**	Osteoblasts hyper mineralise when infected by Staphylococcus aureus in a 3D extracellular matrix environment *Kavanagh N, Widaa A, O'Brien FJ, Kerrigan SW*	
5TE3 **14:30-14:45**	Developing a platform that coaxes adult stem cells to recapitulate the bone-ligament interface *DP Olvera, BN Sathy, DJ Kelly*	
5TE4 **14:45-15:00**	PTH(1-34) Treatment Increases Bisphosphonate Turnover in Fracture Repair in Rats *Murphy, CM., Cantrill, LC. Schindeler, A., Little, DG.*	

Saturday 14:00-15:00	**Session 5TEb, Tissue Engineering of Soft Tissues I Chairs: Dr. Bruce Murphy and Dr. Cathal Kearney**	**Aran Suite**
5TE5 **14:00-14:15**	Development of a collagen-based film for corneal regeneration requiring limbal stem cell transplantation *AR Cameron, C Gallagher, F O'Sullivan, R Sridharan, PJ Fox, WJ Power, CC Murphy, M Clynes, FJ O'Brien*	
5TE6 **14:15-14:30**	Development of novel electrospun scaffolds for corneal tissue engineering *KE Kador, M Ahearne*	

5TE7 14:30-14:45	Developing a single stage intraoperative procedure for intervertebral disc repair using nasal septal chondrocytes *S Vedicherla, CT Buckley*
5TE8 14:45-15:00	Engineering a functional tendon in vitro *K Spanoudes, Y Bayon, A Pandit, D Zeugolis*

Saturday 14:00-15:00	**Session 5MEC, Orthopaedic Biomechanics Chairs: Prof. David Taylor and Dr. Alex Lennon**	**Promenade Suite**
5MEC1 14:00-14:15	Calculation of hip joint contact pressures using a high resolution finite volume model with CT-based properties. *K Fitzgerald, P Cardiff, R Flavin, A Ivanković*	
5MEC2 14:15-14:30	Post-yield hardening behaviour of trabecular bone *DR Nolan, JP McGarry*	
5MEC3 14:30-14:45	The bone-cement interface - an overlooked feature in computational models of balloon kyphoplasty *P Purcell F McEvoy S Tiernan, M Tyndyk, D Sweeney*	
5MEC4 14:45-15:00	A finite volume model for the calculation of ankle joint stresses *L Muralidharan, P Cardiff, R Flavin, A Ivanković*	

Saturday 14:00-15:00	**Session 5EE, Bioelectronics II Chairs: Prof. Gearóid Ó'Laighin and Dr. Brian McGinley**	**Courtyard Suite**
5EE1 14:00-14:15	Breast cancer diagnosis: development of a dedicated computer-aided detection and diagnosis system for microwave breast imaging *BL Oliveira, M O'Halloran, M Glavin, E Jones*	
5EE2 14:15-14:30	Effectiveness of a smartphone application to promote physical activity in primary care: the smart move randomised controlled trial *LG Glynn, PS Hayes, M Casey, G Ó'Laighin*	
5EE3 14:30-14:45	A case study examining the application of a human-centered design methodology to the development of a connected health smartphone application *R Harte, L Quinlan, L Glynn, G Ó'Laighin*	
5EE4 14:45-15:00	Evaluation of the accuracy of two activity monitors for performance assessment in swimming *R Mooney, G Corley, A Godfrey, C Osborough, L Quinlan, G Ó'Laighin*	

Saturday 16:15-17:30	Session 6TE, Tissue Engineering of Soft Tissues II Chairs: Dr. Mark Ahearne and Dr. Andrew Cameron	Rockbarton Suite
6TE1 **16:15-16:30**	Coupling infrapatellar fat pad-derived mesenchymal stem cells and glyoxal cross-linked type ii collagen scaffolds for articular cartilage repair *DC Browe, I Dudurych, CT Buckley, DJ Kelly*	
6TE2 **16:30-16:45**	3D Bioprinting for meniscus regeneration *S Romanazzo, S Vedicherla, C Moran, DJ Kelly*	
6TE3 **16:45-17:00**	Modulating fibrinogen concentration to enhance nucleus pulposus-like tissue formation of articular chondrocytes *J Gansau, CT Buckley*	
6TE4 **17:00-17:15**	Intraoperative processing strategies For the biological augmentation of Actifit™ meniscus replacement *S Vedicherla, S Romanazzo, DJ Kelly, C Moran*	
6TE5 **17:15-17:30**	Extracellular-matrix gene expression profiling using novel droplet-based microfluidic quantitative polymerase chain reaction for colorectal carcinoma stratification. *CJ Hayes, CM Dowling, M Mc Cumisky, C Hannan, JC Coffey, PA Kiely, TM Dalton*	

Saturday 16:15-17:30	Session 6MEC, Mechanical Analysis of Medical Devices Chairs: Dr. Eoin O'Cearbhaill and Dr. Michael Walsh	Aran Suite
6MEC1 **16:15-16:30**	High-resolution measurements of leakage velocity and shear stress in hinge of st.jude medical bileaflet mechanical heart valve. *E Klusak, I Okafor, V Raghav, A Bellofiore, AP Yoganathan, NJ Quinlan*	
6MEC2 **16:30-16:45**	A preliminary study to determine if arteriovenous fistula configuration generates helical flow and if helical flow is a surrogate marker of exposure to disturbed shear *CV Cunnane, LD Browne, SP Broderick, MT Walsh*	
6MEC3 **16:45-17:00**	A computational investigation of the positioning of transcatheter aortic heart valves to enhance long term performance *OM McGee, PS Gunning, LMcNamara*	

6MEC4 17:00-17:15	Validation of computational simulations of treated aortic arch aneurysms USING ultrasonography on bench top models *A Elhelali, N Hynes, EP Kavanagh, S Sultan, P Delassus, L Morris*
6MEC5 17:15-17:30	Comparison of drilled and moulded screw holes in carbon fibre peek laminates *EA Gallagher, JP McGarry*

Saturday 16:15-17:30	**Session 6EE, Bioelectronics III Chairs: Dr. Martin O'Halloran and Dr. Brian McGinley**	**Courtyard Suite**
6EE1 16:15-16:30	Step detection sensitivity of four commercially available physical activity monitors *S O'Connell, S Beirne, N Burke, O Kilgannon, BJ Broderick, F Quondamatteo, G Ó'Laighin, L Quinlan*	
6EE2 16:30-16:45	Design of a smartphone app to perform blind randomisation and allocation during clinical evaluation of fes applications *D Sweeney, LR Quinlan, G Corley, P Brown, J Burridge, G Ó'Laighin*	
6EE3 16:45-17:00	Smartphone app use case development to support physical activity behavioural change in type ii diabetes *K Cradock, G Ó'Laighin, F Finucane, H Gainforth, LR Quinlan, K Martin-Ginis*	
6EE4 17:00-17:15	Evaluation of the accuracy of two activity monitors for performance assessment in swimming *R Mooney, G Corley, A Godfrey, C Osborough, L Quinlan, G Ó'Laighin*	
6EE5 17:15-17:30	A multi-stage human factors and comfort assessment of instrumented insoles designed to continuously assess gait variability *L Quinlan, R Harte, L Glynn, G Ó'Laighin*	

KEYNOTE SPEAKERS

Elazer R. Edelman, MIT Cabot Professor of Health Sciences and Technology MIT, and Harvard Medical School Professor of Medicine, is a cardiac care unit cardiologist at Brigham and Women's Hospital and director of MIT's Biomedical Engineering Center. His research melds clinical and medical training, focusing on how tissue architecture and local biochemical regulation maintain homeostasis.

Edelman and his students were amongst the first to validate that vascular diseases are the sum of effects from endogenous growth promoters like heparin and suppressors like heparin-binding growth factors, to define the nomenclature and kinetics of the FGF-2 receptor complex, and demonstrate that mode of growth factor or inhibitor delivery determines biologic effect. Applied research flows from recapitulating natural regulation. The development and mathematical characterization of perivascular and stent-based drug delivery mimicked natural control of chemomediators, and design of endovascular stents from first principles leveraged understanding of vascular repair and innovations in computational modeling. Basic and applied aspects are intimately joined as exemplified by work with antisense oligonucleotides, HDL receptor biology and tissue engineered endothelial implants in vascular and cancer diseases.

Almost 300 students and fellows have passed through Edelman's laboratory. Edelman is fellow of the American College of Cardiology, American Heart Association, American Institute for Medical and Biological Engineering, American Society for Clinical Investigation, National Academy of Medicine, National Academy of Engineering and National Academy of Inventors.

As Chief Scientific Advisor of *Science: Translational Medicine* and member of the FDA Scientific Board he has set the tone for the national debate on translational research and innovation.

Gerhard A. Holzapfel is Professor of Biomechanics and Head of the Institute of Biomechanics at Graz University of Technology (TUG), Austria, since 2007. He is also Visiting Professor at the University of Glasgow, Scotland.

Until 2013, he was Adjunct Professor at the Royal Institute of Technology (KTH) in Stockholm, Sweden for 7 years. After his PhD in Mechanical Engineering in Graz, he received an Erwin-Schrödinger Scholarship for foreign countries to be a Visiting Scholar at Stanford University (1993-95). He achieved his Habilitation at TU Vienna in 1996 and received the START-Award in 1997, which is the most prestigious research award in Austria for young scientists.

In the following years (1998-2004), he was the Head of the research group on "Computational Biomechanics" at TUG. Among several awards and honors in the past years, he is listed in "The World's Most Influential Scientific Minds: 2014" (Thomas Reuters) and he received the Erwin Schrödinger Prize 2011 from the Austrian Academy of Sciences for his lifetime achievements.

Professor Holzapfel's research includes experimental and computational biomechanics and mechanobiology with an emphasis on soft biological tissues, the cardiovascular system including blood vessels in health and disease, therapeutic interventions such as balloon angioplasty and stent implantation, polarized light and second-hormonic imaging microscopy, magnetic resonance imaging and medical image processing; nonlinear continuum mechanics, constitutive (multi-scale) modeling of solids at finite strains such as cross-linked actin networks, growth and remodeling, nonlinear finite element methods, fracture and material failure.

Professor Holzapfel has authored a graduate textbook entitled "Nonlinear Solid Mechanics. A Continuum Approach for Engineering" (John Wiley & Sons), and co-edited six books. He contributed chapters to 20+ other books, and published 150+ peer-reviewed journal articles. He is the co-founder and co-editor of the International Journal "Biomechanics and Modeling in Mechanobiology" (Springer-Verlag, Berlin, Heidelberg).

The Samuel Haughton Honorary Lecture

The **Royal Academy of Medicine in Ireland Silver Medal** is presented to a distinguished clinician or engineer who has made a significant contribution to the field of bioengineering through academic endeavour and research. The recipient delivers the distinguished Samuel Haughton Honorary Lecture at the annual Bioengineering in Ireland conference.

2016 Recipient: Professor Tim O'Brien, NUI Galway

Professor O'Brien is the Director of REMEDI, the regenerative medicine programme in NUI Galway. He is a Consultant Physician in Endocrinology, Metabolism and Diabetes Mellitus at Galway University Hospital and Saolta University Healthcare Group. He is Professor and Head of Medicine and Dean of the College of Medicine, Nursing and Health Sciences at NUI Galway. He directs the Centre for Cell Manufacturing Ireland, a licensed GMP production facility and is a PI at the HRB Galway Clinical Research Facility and is Co-direct of Curam, a Science Foundation Ireland research centre designing the next generation of 'smart' medical devices.

Prof. O'Brien's research interests include the translation of basic research findings in stem cell biology and gene therapy to regenerative approaches to peripheral vascular disease and diabetic complications in partnership with industry and the health service. Laboratory research programmes focus on the therapeutic potential of mesenchymal stem cells and the development of next generation MSC therapeutics in combination with gene therapy, biomaterials and medical device technology. He is interested in development of novel therapeutic approaches to the macro- and microvascular complications of diabetes mellitus. He is coordinator of two EU programmes studying the use of mesenchymal stem cells in diabetic complications. He is Director of the GMP facility, Centre for Cell Manufacturing Ireland (CCMI) at NUI Galway and has an interest in stem cell manufacturing.

Diabetes mellitus is approaching pandemic proportions and complications involving small and large blood vessels are responsible for substantial morbidity and mortality. He is PI on an SFI/HRB translational award studying the use of mesenchymal stem cells in critical limb ischemia. He is also PI on EU programmes which are funded to test the safety and efficacy of mesenchymal stromal cells in diabetic complications. Trials are currently planned in diabetic foot ulcer disease and diabetic nephropathy. Prof. O'Brien has been responsible for the introduction of innovative clinical and educational initiatives, management

of a successful multidisciplinary research programme from 1995-present, and since his return from the USA is Head of the Department of Medicine at NUI, Galway.

He has extensive experience in basic gene therapy research since 1994, with a particular focus on vascular applications and has established a research group at NUI, Galway with substantial extramural financial support (€73 million in extramural grants). In addition, he was the local Principal Investigator of a phase 2/3 human gene therapy trial of myocardial therapeutic angiogenesis and has received all of the necessary Local and National regulatory and ethical approvals for this study. He has developed a stem cell research programme and directs the only licensed GMP manufacturing facility in Ireland. He is PI on a clinical trial of mesenchymal stem cells in critical limb ischemia. He is also coordinator or 2 EU research programmes (REDDSTAR and NEPHSTROM) He is a founder and Director of Orbsen Therapeutics, a stem cell research company.

Prof. O'Brien has published over 240 manuscripts including 179 research articles and 76 reviews. He has contributed chapters to 21 books. His h index is 43. He is author on 6 patents. Editorial Board: 4 Journals (including Stem Cell Research & Therapy, Human Gene Therapy); Referees: 25 Journals; Grant Reviewer: 13 Funding Agencies; Keynote Lectures: 23; Invited Talks: 153

EARLY STAGE RESEARCH PRESENTATIONS

Saturday 16:15-17:30	Early Stage Research I Chairs: Dr. David Nolan, Dr. Eoin Cunnane	Promenade Suite
In-vivo stretch of the skin: a non-invasive method of evaluation *Trotta, A., Destrade, M., Ni Annaidh, A.*		
Scoliosis surgery force characterisation *McDonagh, D., McEvoy, F. , Tansey, T., Kiely, P*		
Finete element analysis for the manufacture of angioplasty balloons *Wei, H., Menary, G.*		
Review of mechanical testing and modelling of thrombus material *Johnson, S., McHugh, P.E.*		
Development of flexible microneedle electrodes as wearable sensors for long-term evaluation of dynamic muscle performance *Krieger, K., Lowery, M., O'Cearbhaill, E.D.*		
Development of a biofidelic FE head model to predict the initiation and propagation of skull fracture in adults in accident reconstruction *Zambrano, L., Ní Annaidh, A.*		
Quantification of oscillatory neuromuscular activity in Parkinson`s disease *Locatelli, M., Lowery, M.M.*		
An investigation into the existence of an optimised location for the inferior and superior vena cavae to the right pulmonary artery seen within the fontan procedure *McHugo, S., Fahy, P., Delassus, P., McMahon, C., Morris, L.*		
The development of a smartphone controlled drop foot stimulator with embedded gait sensing *Sweeney, D., Fahy, R., Hyslop, E., MacGilchrist, C. , Loftus, B.G., Quinlan, L.R.,* ÓLaighin, G.		
Development of a test bed for the examination of minimally invasive devices used in the treatment of peripheral artery disease *Cahalane, RME., Cunnane, EM., Walsh, MT.*		

Saturday 17:45-18:30	Early Stage Research II Chairs: Dr. Fiona Freeman, Dr. Andrew Cameron	Promenade Suite
A review of arterial tissue remodelling *Ghasemi, M., Nolan, D.R., Lally, C.*		
Osteoblast regulation of osteoclast differentiation under loading and estrogen deficiency *Allison, H, Deepak, V.,Griffin F, McNamara, L.M*		
Novel antibiotic-free scaffold for the treatment of infection and regeneration of bone *Ryan, E., Ryan, A.J, Widaa, A., Kerrigan S.W, Kearney, C.J, O'Brien, F.J*		
Influence of biochemical factors on corneal cell behaviour and scaffold design *Fernández-Pérez, J., Ahearne, M*		
The role of integrin avb3 in bone cell mechanotransduction during oestrogen deficiency *Geoghegan, I.P., McNamara, L.M.*		
Influence of material properties on corneal cell behaviour *Kelly, C.P, Kador, K.E., Ahearne, M.*		
Micro-CT analysis of mineral distribution in the trabecular bone of normal and oestrogen deficient ovine models *O'Sullivan, L., McNamara, L.*		
Optimising the recellularization of tissue engineered vascular grafts *EufrásiodaSilva, T. , Picazo-Frutos, D., RuizHernández, E., Duffy, G. P., Murphy, B. P*		
Sustained release of targeted cardiac therapy with a replenishable, implantable reservoir. *Whyte, W., Roche, E.T, Mendez, K., O'Neill, H., Duffy, G. P., Walsh, C. J. Mooney, D.J.*		
Development and optimisation of bioinspired hydrogel scaffolds for cell and drug delivery to the ischaemic myocardium *O'Dwyer, J., Murphy, R., Ramsey, J.M., Heise, A., Duffy, G.P., Cryan, SA.*		

Saturday 17:45-18:30	Early Stage Research III Chairs: Dr. Grainne Cunniffe, Dr. Jennifer Costello	Courtyard Suite
Controlled release of anti-inflammatory drugs from chemically crosslinked hydrophilic-hydrophobic hydrogels *Burke, G., Killion, J.A. Pilkington, L. Geever, L.M. Lyons, J.G. McCullagh, E. Barron, V., Higginbotham, C*		
The development of 3D bioprinted composite constructs for large bone and osteochondral defect repair *Nulty, J., Kelly, D.J.*		
Investigating the potential use of marine derived biosilica in bone repair strategies *Han R., Buchanan, F., Walsh P.*		
Investigating biomechanics of bioresorbable coronary stents *Blair, R., Menary, G, Lennon, A., Dunne, N.*		
Biomechanical effects of pedicle hooks and screws on the reduction of proximal junctional kyphosis in idiopathic adolescent scoliosis *Rahimpour, S., McEvoy, F., Tansey, A., Kiely, P.*		
Computational modelling and pre-clinical evaluation of 3D bioprinted constructs designed to treat degenerative joint disease *Schipani, R., Kelly, D.J.*		
Setting time and compressive strength of a novel hydrogel in a heparin environment *Kumar, S.L., Clarkin, O.M.*		
Novel methodology to replicate clot analogues in acute ischemic stroke *Duffy, S., Rainsford, E., Morris, L., MacCarthy, E., Gilvarry, M.*		
Potential for poly-l-lactic acid as a coating/composite material in biodegradable stents *Kilbane, A., Vaughan, T.J., McHugh, P.E.*		

Friday 10:00-11:00	MSc in Bioengineering Poster Session Chairs: Dr. Conor Buckley, Dr. Noel Reynolds	Rockbarton Suite
The future of hearing aids: improved decoding of attentional selection in a cocktail party environment *Vanvinckenroye, A., Lalor, E.C.*		
Towards real-time monitoring of a listener's 'Engagement' with music using EEG *Marquez, P., Lalor, E.*		
Spike-timing dependant regulation of neuronal activity evoked with brain-computer interface *Maroto Villar, J., Tsanov, M.*		
Design, building and validation of a bioreactor for heart valve tissue engineering *Rodríguez, B., Brougham, C.M., O'Brien. F. J.*		
Methylcellulose: a hermoresponsive and porous substrate for the growth of cell sheets *Gaffney, A. H., Buckley C. T.*		
Development of closed-loop optogenetic brain-computer interface *Agayby, B., Tsanov, M.*		
Development of in vitro models of neural trauma and assessment of tau deposition: implications for scalp neurophysiological measurements *Ucar, B., Reilly, R.B. Campbell, M.*		
Gene-activated scaffolds for skin tissue engineering *Cristian. C., Raftery, R.M., O'Brien, F.J.*		
The use of polymers in controlling the distraction rate of springs in craniofacial surgery *Moroney, D., Murphy, B., Murray, D.*		
Injectable mini-scaffolds for minimally invasive orthobiologic repair strategies *Gibbons, D., Buckley, C.T.*		
On demand 3D printing of medical devices with anti-microbial properties for humanitarian healthcare *Sedano, E., Buckley, C.T.*		
Moving forward 'Gait, cognition and associated risk factors: insights from share and tilda' *Maguire, F., Killane, I., Reilly, RB.*		
Risk factors for hospital re-admission in chronic obstructive pulmonary disease *Bennett, G., Killane, I., Cushen, B., Reilly, R.B.*		

Development of an off-the-shelf miRNA activated biomaterial *Whelan, I., Mencía Castaño, I., O'Brien, F.J.*
Perforation catheter system used in the creation of a Potts shunt for treating primary paediatric pulmonary hypertension *Rotheram, J., Walsh K., Murphy, B.*
Development of a new minimally-invasive device to treat intracranial aneurysms *Massanés, J., Lally, C.*
Effects of transcranial direct current stimulation on behavioural and EEG measures of selective auditory attention *Keogh, C., Lalor, E.*
Manipulation of the rodent spatial representation via brain computer interface *Stumpp, L. I., Tsanov, M.*
Ryopreservation of nasal cartilage tissue for intraoperative cell therapies *Cloughley, M., Moran, C.J, Buckley, C.T.*
Electrophysiological investigation in autism spectrum disorders: focus on visual-perceptual processing *Melis, E., McDevitt, N., Reilly, R.B.*
Development of 3D printed porous scaffolds for meniscal repair *Nair, A., Moran, C.J., Buckley C.T.*
Optimisation of region of interest analysis for activation detection in functional magnetic resonance imaging of the superior colliculus *Killian, O., Narasimham, S., McGovern, E., Quinlivan, B., Butler, J., Hutchinson, M., Reilly, R.B.*
Development of a novel biomaterial for peripheral nerve regeneration *Power, R., Alekseeva, T., O'Brien F.J.*
A simpler method for the efficacious treatment of chronic total occlusions via percutaneous coronary intervention *Sebaoui, S., Lally, C.*
Research into percutaneous transcatheter transseptal control delivery systems for transcatheter mitral valve replacements (TMVR) and their effects on cardiac anatomy *Coffey, S., Murphy, B.*
Mechanical evaluation of 3D printed scaffolds for articular cartilage tissue engineering *O Neill, S., Kelly, D.*

Using natural biomaterials to improve suture retention strength of collagen scaffolds *Herbaj, S., Brougham, C.M., O'Brien, F.J.*
Real-time monitoring of a listeners engagement with speech *Dukic, S., Lalor, E.C*
Using head related transfer functions and oculus rift to measure sound localization in bilateral cochlear implant users *Sechler, S., Lopez Valdes, A., Simoes-Franklin, C., Viani, L., Reilly, R.B.*
Changes in inhaler inhalation acoustics may detect lung function decline in asthma patients *McCartan, T., Taylor, T. E., Sulaiman, I., Costello, R. W., Reilly, R.B.*
Comparison of isolated chondrocytes and minced cartilage tissue combined with fibrin for orthobiologic applications *Roden , Y.X., Moran, C.J., Murphy, B.P., Buckley, C.T.*

Friday 10:00-11:00	**Workshop: From Research Bench to Patient Bedside – Clinical Evaluation of a Medical Device**	**Rockbarton Suite**

Coordinators: Dr. Martin O'Halloran and Dr. Brian McGinley, NUI Galway
Supported by the HRB Trial Methodology Research Network (TMRN)

One of the greatest challenges in bringing a novel medical device to market is the clinical evaluation process. This workshop will introduce the basic concepts of clinical trials studies, ranging from defining the research question to ethical concerns, patient recruitment, and data analysis. The workshop will also introduce the participants to local and national resources to help support the translation of their medical technology from "bench to bedside".

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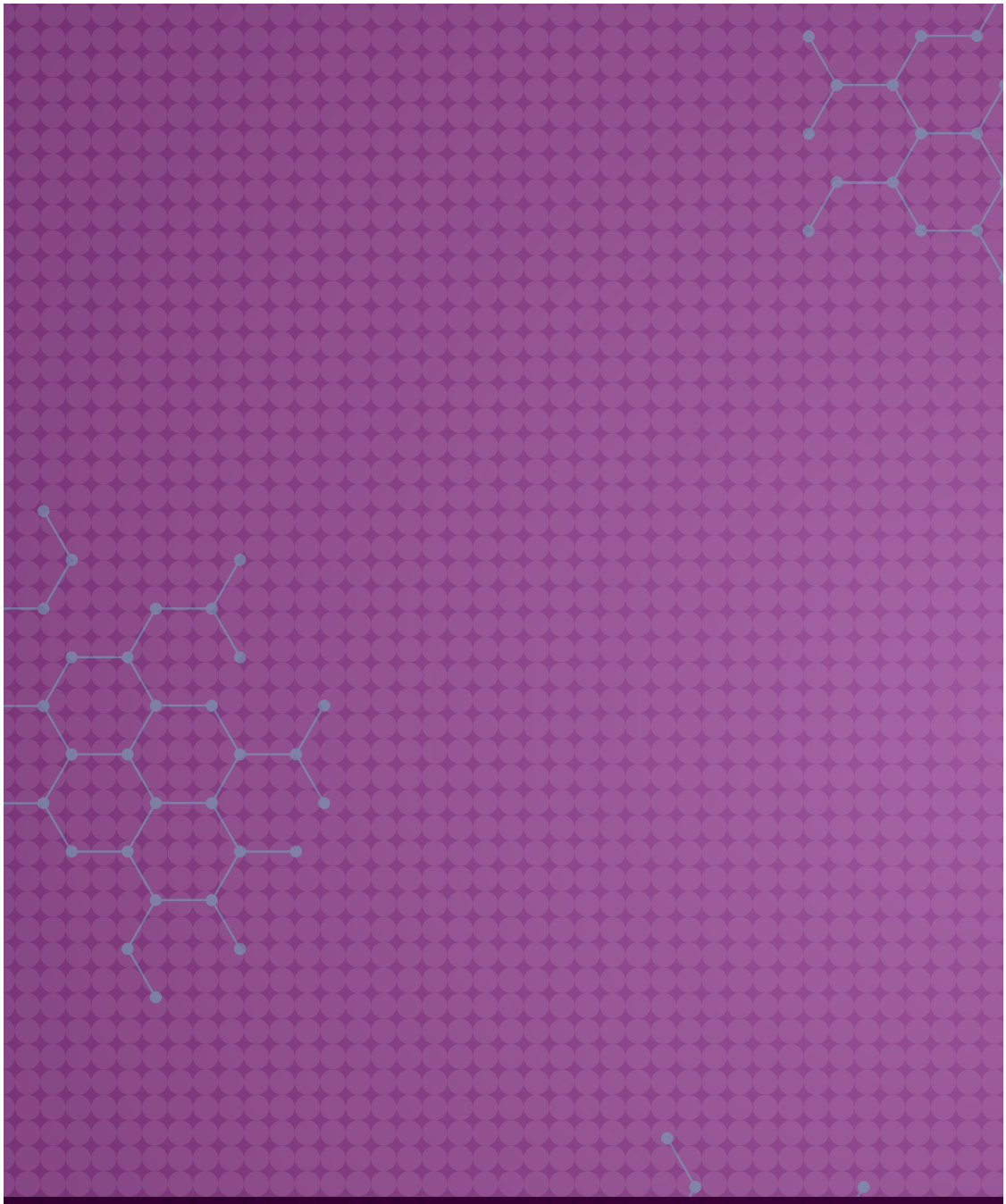
MAP OF CONFERENCE VENUE



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