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| **QRW Programme**  **Medical Devices and Technology**  Thursday 5 September – Friday 6 September, 2019  Rydges Hotel, Queenstown, New Zealand |

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| **Thursday 5 September** | | |
| **Time** | **Details** | **Location** |
| 10.00am-10.30am | **Morning Tea** | **Trades Area** |
| 10.30am-10.45am | **Welcome: Simon Malpas**  University of Auckland | **Queenstown Room** |
| **Implant Technology**  **Chaired by Dr Ata Meshkinzar (AUT)** | | |
| 10.45am-11.15am | **Key Note**: **Robert Shepherd (M1)**  Medical Bionics, University of Melbourne  ***Implantable devices: lessons in taking devices to the clinic*** | **Queenstown Room** |
| 11.15am-11.30am | **Reza Sedehi (M2)**  University of Auckland  *A transcutaneous energy transfer method for deeply implanted miniaturised biomedical devices* | **Queenstown Room** |
| 11.30am-11.45am | **Sameer Bhat (M3)**  University of Auckland  *A Novel Passive Stoma Output Recycling Device for Managing Ileostomies: Design and Feasibility Study* | **Queenstown Room** |
| 11.45am-12.00pm | **Shun Long Cyril Au (M4)**  University of Auckland  *Safety of a Wireless Power Transfer System for Powering Heart Pumps* | **Queenstown Room** |
| 12.00pm-12.15pm | **Bryon Wright (M5)**  University of Auckland  *Package-integrated MEMs sensors for long-term implantation: Use of nanoscale profilometry to verify performance* | **Queenstown Room** |
| 12.15pm-12.30pm | **Maziar Ramezani (M6)**  Auckland University of Technology  *Design and Manufacturing of Alginate-Polyacrylamide Hydrogel Matrix Composites as Minimally Invasive Cartilage Implants* | **Queenstown Room** |
| 12.30pm-1.30pm | **Lunch + Poster Session 1** | **Trades Area** |
| **Primary Health Technology**  **Chaired by Dr Sandra Grau-Bartual (AUT).** | | |
| 1.30pm-2.00pm | **Daniel McCormick (M7)**  University of Auckland  ***TBA*** | **Queenstown Room** |
| 2.00pm-2.15pm | **Yang Yu (M8)**  Auckland University of Technology  *A review of PWV-based cuffless blood pressure measurement* | **Queenstown Room** |
| 2.15pm-2.30pm | **Kenzie Baer (M9)**  University of Otago  *Site specific bone mineral density assessment using MARS spectral photon-counting imaging* | **Queenstown Room** |
| 2.30pm-2.45pm | **Carrie Burgess (M10)**  TOKU Eyes  *Lasers, Hot Glue, and Legos: Designing a Device to Predict Myopia in Children* | **Queenstown Room** |
| 2.45pm-3.00pm | **Sabarinath Prasad (M11)**  University of Otago  *Monitoring masticatory muscle activity by a smart-phone assisted wearable device* | **Queenstown Room** |
| 3.00pm-3.15pm | **Laura Pedofsky (M12)**  University of Auckland  *A novel biofeedback device to prevent and treat pelvic floor muscle disorders in women* | **Queenstown Room** |
| 3.15pm-3.30pm | **Gautam Anand (M13)**  Auckland University of Technology  *Eliminating effect of air-gap through multi-channel ECG acquisition* | **Queenstown Room** |
| 3.30pm-4.00pm | **Afternoon Tea** | **Trades Area** |
| **Quickfire Presentations**  **Chaired by Dr Anubha Kalra (AUT).** | | |
| 4.00pm-4.10pm | **Mostafa Nikpour (M14)**  Auckland University of Technology  *Enhancement of a two-wheeled robotic wheelchair’s battery life through a novel stability mechanism* | **Queenstown Room** |
| 4.10pm-4.20pm | **Fatemeh Asghariomababd (M15)**  University of Otago  *Reducing motion artefacts in in vivo MARS imaging* | **Queenstown Room** |
| 4.20pm-4.30pm | **Huiyang Zhang (M16)**  Auckland University of Technology  *Comparison of Antimicrobial Activity of Silver, Graphene and Copper Nanoparticles as Filler to PDMS Substrate* | **Queenstown Room** |
| 4.30pm-4.40pm | **Quinn Boesley (M17)**  University of Auckland  *Developing implantable light sources for optogenetics* | **Queenstown Room** |
| 4.40pm-4.50pm | **Solmaz Rastegar Moghaddam Mansouri (M18)**  Auckland University of Technology  *A novel method for continuous systolic blood pressure monitoring using convolutional neural network* | **Queenstown Room** |
| 4.50pm-5.00pm | **Ata Meshkinzar (M19)**  Auckland University of Technology  *Vibration Analysis of Piezoelectric Cylindrical Transducers with Circumferential Step-Thickness* | **Queenstown Room** |
| 5.00pm-6.30pm | **Poster Session** | **Marquee** |
| 7.00pm | **Social and Networking Function** | Smiths Craft Beer House  53 Shotover St, Queenstown |

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| **Friday 6 September** | | |
| **Time** | **Details** | **Location** |
| 8.30am-10.00am | **Workshop:**   * **Medical devices risk assessment** * **How to establish a medical device QMS from within an academic environment**   **Facilitated by Bryan Ruddy and Laith Hermez (Auckland)** | **Queenstown Room** |
| 10.00am-10.30am | **Morning Tea** | **Trades Area** |
| **Devices**  **Chaired by Dr Daniel McCormick (Auckland).** | | |
| 10.30am-11.00am | **Key Note**: **Greg O’Grady (M20)**  Auckland City Hospital & University of Auckland  ***Commercialising research: a clinical scientist’s experience*** | **Queenstown Room** |
| 11.00am-11.15am | **Chiara Lowe (M21)**  University of Otago  *MARS imaging of microfractures with targeted nanoparticles for early risk assessment of osteolysis* | **Queenstown Room** |
| 11.15am-11.30am | **Tommy Hayes (M22)**  University of Auckland  *Validation of high-resolution electrogastrography against gastric emptying scintigraphy as predictor of symptoms of functional gastrointestinal disorder* | **Queenstown Room** |
| 11.30am-11.45am | **Jardin Green (M23)**  Auckland University of Technology  *Development and Evaluation of Dry-Contact, Wearable, Biopotential Sensors* | **Queenstown Room** |
| 11.45am-12.00pm | **Xiyong Huang (M24)**  Auckland University of Technology  *Investigation into the Mechanisms of UV Transmission to Follicular Stem Cells and Implications for Melanoma Development* | **Queenstown Room** |
| 12.00pm-12.15pm | **Neelam Hari (M25)**  TOKU Eyes  *Designing a device to monitor for early myopia in children* | **Queenstown Room** |
| 12.15pm-12.30pm | **Ali Adil Ali (M26)**  Auckland University of Technology  *An investigation into improving the CPAP for the Obstructive Sleep Apnea treatment* | **Queenstown Room** |
| 12.30pm-1.30pm | **Lunch** | **Trades Area** |
| **Therapy and Physiology**  **Chaired by Dr Rob Gallichan (Auckland).** | | |
| 1.30pm-2.00pm | **Key Note**: **Sally McArthur (M27)**  Swinburne University of Technology & CSIRO, Australia  ***Creating the tool boxes for 4D cell culture systems*** | **Queenstown Room** |
| 2.00pm-2.15pm | **Denise Taylor (M28)**  Auckland University of Technology  *Enhancing brain plasticity: exciteBCI* | **Queenstown Room** |
| 2.15pm-2.30pm | **Jennifer Knopp (M29)**  University of Canterbury  *Quantifying Insulin Adsorption in Hospital Delivery Systems* | **Queenstown Room** |
| 2.30pm-2.45pm | **Sandra Grau-Bartual (M30)**  Auckland University of Technology  *Airflow Model to Investigate the Effect of Positive Airway Pressure on Human Epithelial Cells* | **Queenstown Room** |
| 2.45pm-3.00pm | **Bryan Ruddy (M31)**  University of Auckland  *Design and safety considerations for a portable jet injection controller* | **Queenstown Room** |
| 3.00pm-3.15pm | **James McKeage (M32)**  University of Auckland  *Jet Injection of Local Anaesthetic* | **Queenstown Room** |
| 3.15pm-3.30pm | **Prizegiving and Closing Remarks** | **Queenstown Room** |
| 3.30pm-4.00pm | **Afternoon Tea** | Level 5 |

**Summary of Abstracts for the Poster Session**

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| **No.** | **Title** | **Presenter** | **Institution** |
| **Poster Session 1** | | | |
| M33 | Hermeticity testing of implantable devices via optical leak testing | Dixon Leung | University of Auckland |
| M34 | Development of a finite element model of the ovine stifle for biomechanical evaluation of TTA implants | Josephine Shum | University of Otago |
| M35 | A dynamical tuning circuit for wireless power to optogenetic stimulator | Rui Jin | University of Auckland |
| M36 | Application Specific Integrated Circuit Design for Implantable Device: Challenges and Opportunities for Academic Research | Robert Gallichan | University of Auckland |
| M37 | A Low Power Capacitance to Frequency Converter in 180nm CMOS for an Implantable Capacitive Pressure Sensor | Chaoping Zhang | University of Auckland |
| M38 | Optimizing analog front end for non-contact biopotential sensing | Anubha Kalra | Auckland University of Technology |
| M39 | General-Purpose Stimulator IC for Optical and Electrical Stimulation | Stepan Lapshev | University of Auckland |
| M40 | STAR-GRYPHON in the Neonatal ICU: Achieving Safe and Successful Glycaemic Control | Jennifer Knopp | University of Canterbury |
| M41 | Interpretable deep learning for mortality prediction inside the ICU | William Caicedo | Auckland University of Technology |
| **Poster Session 2** | | | |
| M42 | A Direct-drive Linear Actuated Assistive Device for the Shoulder | Soroosh Haji Hosseinnejad | University of Auckland |
| M43 | System Identification Techniques to Diagnose Rotator Cuff Injuries | Yahya Z Yahya | University of Auckland |
| M44 | A Hybrid Ankle Foot Orthosis to Augment Walking | Mahsa Momtahan | University of Auckland |
| M45 | An EMG-based torque estimation method for Robot-assisted rehabilitation with an assist-as-needed control approach | Homayoon Zarshenas | University of Auckland |
| M46 | Optimization of multi-channel body-surface mapping electrode array materials for electrogastrography (EGG) | Atchariya Sukasem | University of Auckland |
| M47 | Novel method of measuring pudendal nerve and external anal sphincter function | Chris Varghese | University of Auckland |
| M48 | High-resolution Slow Wave Mapping of the Lower Gut in Rabbits | Kiara Miller | University of Auckland |
| M49 | Novel microelectrode arrays for measuring bioelectrical activity in the gut | Nipuni Nagahawatte | University of Auckland |
| M50 | Organic electrochemical transistor for measuring blood glucose concentration in a jet injector | Bahareh Madadkhahsalmassi | University of Auckland |
| M51 | A needle-free jet injection device for blood release | Jiali Xu | University of Auckland |