

Replacing the Heart with a Mechanical Pump – Cardiovascular Engineering in the ICETLAB



Please join us for this fascinating talk which will be followed by light refreshments and conversation

Abstract Heart failure is an expanding global health issue while the gold-standard treatment, heart transplant, is limited by low organ donation numbers. Mechanical solutions to bridge patients to transplant or as a destination therapy come in the form of rotary blood pumps which use magnetically suspended and rotated impellers to take over the native heart's blood-pumping function. These devices are prone to complications such as bleeding, clotting, infection and an inability to change performance based on changes in patient activity. Research at the Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB) aims to solve these issues by forming a close collaboration between engineers, biological scientists, clinicians and patients. This presentation will summarise the key research projects underway at the ICETLAB including the development of suture-less implantation techniques, electrospun driveline (cable) coatings, physiological control systems, and more.

About Shaun Gregory Dr Gregory is a research fellow at Griffith University, technical director of the Innovative Cardiovascular Engineering and Technology Laboratory (ICETLAB), and a principal research fellow in the Critical Care Research Group (CCRG). His research interests centre on the development of devices to diagnose and treat cardiovascular disease, with a specific focus on rotary blood pumps for mechanical circulatory support. He has Bachelor, Masters and PhD degrees in medical engineering and has published over 40 journal articles, 4 textbook chapters, 1 textbook and 4 patents. Dr Gregory has been awarded 47 research grants worth over \$6.7 Million, presented at more than 25 conferences, and completed research at leading cardiovascular device centres in Australia, Germany and the United Kingdom.