ARC Linkage Projects 2015 – announced Tuesday, 7 July 2015

UOW funded projects

Project: Innovative Magnetorheological Suspension Systems for Forklift Trucks

Investigators: Li, Prof Weihua; Du, Haiping A/Prof; Yan, Tianhong Prof

Summary: This project aims to improve forklift design to reduce the vibration experienced by forklift drivers. Research consistently links forklift driving with a high incidence of back pain and musculoskeletal injuries through exposure to hand, arm and whole-body vibrations that are caused by the rigid passive suspension in traditional forklifts, which cannot properly absorb vibration stemming from deviations in driving surfaces, changes in mass, or common loading, lifting and unloading actions. The project aims to draw on the research team's expertise in magnetorheological technology to develop and evaluate a new tuneable integrated semi-active wheel and chassis and seat suspension system that can vary damping and stiffness to control mass uncertainty and vibration.

Funding: $270,000

Partner Organisations: EP Equipment Co Ltd, China; M&S Engineering Pty Ltd

---

Project: Analytics to predict anaerobic codigestion & downstream process performance

Investigators: Nghiem, Long Prof; Price, William Prof; Perez, Pascal Prof; Stuetz, Richard Prof; Bustamante, Heriberto Mr; Murthy, Sudhir Dr

Summary: This project aims to develop management approaches to enable the use of anaerobic co-digestion — the conversion of organic wastes and wastewater sludge to biogas for electricity production. Anaerobic co-digestion has the potential to bring significant economic savings to water stakeholders and environmental benefits to communities. However, full-scale deployment faces fundamental challenges in terms of managing impacts on downstream processes (e.g. odour, dewaterability, biogas quality, and nutrient build-up). The analytical framework and analytics tool to be developed in this project by an interdisciplinary team with expertise in process engineering, biochemistry, analytical chemistry and analytics, is expected to enable water stakeholders to cost-effectively manage these impacts and thus realise the benefits of co-digestion.

Funding: $470,000

Partner Organisations: Sydney Water Corporation; District of Columbia Water & Sewer Authority

---

Project: Consumer value and disability services: The impact of increased autonomy

Investigators: Randle, Melanie A/Prof; Miller, Leonie Dr; Dolnicar, Sara Prof; Connor-Brown, Glenn Mr; Maunsell, Deanna

Summary: This project seeks to explore a key question of the National Disability Insurance Scheme (NDIS): will service provision improve when service users have the ability to choose? In 2016, the NDIS will start rolling out and nearly half a million people with a disability will be able to choose disability services. The project aims to identify changes in objective and perceived consumer value pre-NDIS and post-NDIS, and differences in how market segments use their autonomy and whether this leads to differences in benefits gained from the NDIS. Findings are intended to contribute to a better understanding of when free market mechanisms serve the needs of their citizens better than traditional means of government support.

Funding: $326,506

Partner Organisations: CareSouth, CatholicCare