

Invited Talk

6-Jun-2018, 10-11am

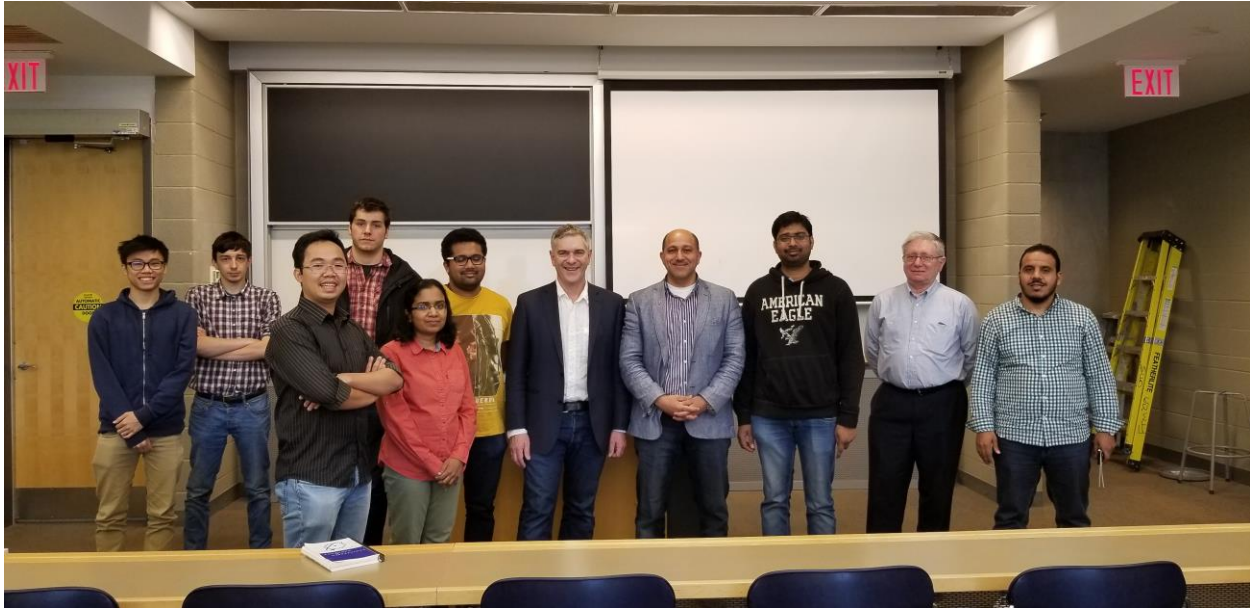
Location: UOIT, 2000 Simcoe Street North, Oshawa L1H7K4 ON

UA Building, Room UA2140

IEEE Transportation Electrification Talk

Non-contact charging for vehicle electrification





Abstract

The ability to provide power without wires was imagined over a century ago, but assumed commercially impractical and impossible to realise. However for more than two decades the University of Auckland has been at the forefront of developing and commercialising this technology alongside its industrial partners. This research has proven that significant wireless power can be transferred over relatively large air-gaps efficiently and robustly. Early solutions were applied in industrial applications to power moving vehicles in clean room systems, roadway lighting, industrial plants, and in theme parks, but more recently this research has helped develop technology that has the ability to impact us directly at home.

The seminar will describe some of the early motivations behind this research, and introduce some of the solutions which have been developed by the team of researchers at Auckland over two decades, many of which have found their way into the market.

It will also describe how the technology has recently been re-developed and is evolving to enable battery charging of electric vehicles without the need to plug in, and alongside this how it has the potential to change the way we drive in the future.

Bio

Grant Covic graduated with a BE (Hons) in Electrical and Electronic Engineering at the University of Auckland (UoA) in 1986. He then began his research career as a master's postgraduate which was later converted to a PhD in power electronics. At completion he took up a UoA full time lectureship. He was appointed a senior lecturer in 2000, an associate professor in 2007 and to full professor in 2013. In the mid 90's he began working with Prof. John Boys to develop the technology of highly resonant inductive (contact-less) power transfer (IPT) and in the early 2000's they began jointly leading a team focused on AGV applications for traditional markets, and redeveloping EV charging solutions.

Today Grant's research and consulting interests are focused on industrial solutions using IPT. Over the past 15 years he has published more than 100 international refereed papers in this field, worked with over 40 postgraduates and filed over 40 patents, all of which are licensed to various global companies in specialised application fields.

In 2010 he co-founded (with John) a new global start-up company “HaloIPT” focusing on electric vehicle (EV) wireless charging infrastructure and was joint head of research from formation until sale. During this time HaloIPT received the Clean Equity Monaco award for excellence in the field of environmental engineering and two NZ clean innovation awards in the emerging innovator and design and engineering categories. Grant and John have been awarded the New Zealand Prime Minister’s Science Prize, the Vice Chancellors commercialisation medal and the KiwiNet research commercialisation awards for scientific research which has seen outstanding commercial success.

Grant is a Senior Member of IEEE and a Fellow of both the Institution of Professional Engineers New Zealand, and the Royal Society of New Zealand. Presently he heads inductive power research at the UoA and co-leads the interoperability sub-team within the SAE J2954 wireless charging standard for EVs.