The Institution of Engineers, Malaysia

WEBINAR TALK

Strengthening of deficient concrete structures: recent research developments

Organised :

Civil & Structural Technical Division, IEM

Speaker

Dr Reyes Garcia

WEBINAR DETAILS :

- **Date : 4th June 2026**
- **Time: 4pm - 6pm**
- **Venue: Virtual Platform Zoom**
- **BEM Approved CPD Hours : 2**
  Ref No : Applying
- **Registration Fees**
  IEM Students : Free
  IEM Members : RM15
  Non-IEM Members : RM70

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Synoposis

Many existing buildings in developing countries suffer from poor detailing and low strength concrete, which increase their seismic vulnerability. Whilst numerous strengthening techniques exist in the literature, many of such solutions are expensive and/or unfeasible considering the challenges in many developing countries. A potential alternative to increase the compressive strength of concrete elements is the use of external "active confinement". This webinar will introduce a novel technique that can apply active confinement to concrete elements. The technique applies Post-Tensioned Metal Straps (PTMS) using simple tools as those used in the packaging industry. Through different case studies and recent experimental results on normal and recycled aggregate concrete, the PTMS technique will show to be effective at increasing both the strength and ductility of concrete structures, thus reducing their seismic vulnerability and leading to safer and more sustainable construction.

Speakers Biodata

Reyes Garcia is Associate Professor in Structural Engineering and Convenor of the Built Environment & Sustainability Research Cluster at the University of Warwick (UK). He obtained his 5-year Degree in Civil Engineering (Graduated with Honours) from the University of Michoacan (Mexico), his joint MSc from the ROSE School (Italy) and Grenoble Alpes University (France), and his PhD from the University of Sheffield (UK). Reyes has 25+ years of research/consultancy experience in the fields of structural and sustainable concretes, FRP composites for construction, and earthquake engineering. He has been heavily involved in management and coordination of multi-partner EU and UKRI-funded projects in excess of £5M. He has designed/coordinated large-scale shake table tests in large scale facilities in Europe (CEA Saclay, France; Iasi, Romania). He has published over 140 articles, papers and book chapters. He has contributed actively to the UK TG tasks for Eurocode 8-3, and he is a member of the fib TG 5.1 "FRP Reinforcement for Concrete Structures". He regularly reviews research grant proposals and sits on panels for national/international research councils in the UK (e.g. EPSRC), Europe, Asia and Latin America, as well as manuscripts for more than 30 international journals. He is Associate Editor of the ICE's journal Structures and Buildings, and Editor Board Member of Springer's Discover Polymers and Discover Civil Engineering. He has been member of committees, keynote speaker and chair in various international conferences in Latin America and Asia. He is also Visiting Professor at Walailak University, Thailand.