






Department of Civil Engineering
The University of Hong Kong

Distinguished Public Lecture

Centrifuge modelling for Geotechnical problems: Slopes, Retaining walls & Offshore foundations

 Date: May 20, 2026 (Wednesday)

 Time: 10:30 a.m. – 11:30 a.m.

 Venue: Room 612B, 6/F Haking Wong Building,
The University of Hong Kong

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Abstract

Modern geotechnical engineers need to address a wide variety of challenges due to construction in urban spaces, hilly areas, unexpected flooding events due to climate change or natural hazards like earthquakes or Tsunamis. Centrifuge modelling offers a unique way to investigate boundary value problems that are subjected to events that are not anticipated and diagnose the possible failure modes. Deformations that occur in the soil models can be measured and hence soil strains can be inferred. As these investigations can be done to evaluate performance of different design options or to predict the performance of existing infrastructure to an unexpected event, geotechnical engineers can carry out better designs or come up with remediation schemes for existing infrastructure exposed to climate change effects.

In this lecture the soil-structure interaction effects are elucidated, and the role of centrifuge modelling is explained. To show the versatility of this modelling technique, centrifuge modelling of different problems such as slopes and buildings next to slopes under seismic loading, retaining walls and anchored sheet pile walls and more recent work on offshore monopile foundations that was carried out at Cambridge will be presented. In each of these cases, the new observations highlighted by the centrifuge data on the behaviour of the soil-structure system will be presented.

About the Speaker

Prof Gopal Madabhushi, FREng, FICE, is a Professor of Civil Engineering at the University of Cambridge, UK and the Director of the Schofield Centre. He is a Professorial Fellow of Girton College, Cambridge. He is the Head of Geotechnical and Geo-Environmental Group of the Department of Engineering at Cambridge. He has over 35 years of experience in the area of Soil Dynamics and Earthquake Engineering. His expertise extends from dynamic centrifuge modelling to the time domain finite element analyses of earthquake engineering problems. He has an active interest in the areas of soil liquefaction, soil-structure interaction and liquefaction resistant measures and their performances. He has an active interest in the biomechanics of hip replacement surgeries. He has acted as an expert consultant to the industry on many geotechnical and earthquake engineering problems e.g. Mott MacDonald, Royal Haskonig and Ramboll-Whitby, Offshore Wind Logistics Ltd (OWLC), UK, Adani Green Energy Limited, India etc. He has an active interest in post-earthquake reconnaissance work and has led engineering teams from UK to 921 Ji-Ji earthquake of 1999 in Taiwan, the Bhuj earthquake of 2001 in India and many other missions. He served as the Chairman of Earthquake Engineering Field Investigation Team (EEFIT) that runs under the auspicious of Institute of Structural Engineers, London. He was awarded the TK Hsieh award in 2005, 2010 and 2013 by the Institution of Civil Engineers, UK, the BGA medal in 2010 given by British Geotechnical Association, the Shamsher Prakash Research Award in 2006, Medical Innovations Award in 2007 the IGS-AIMIL Biennial award in 2008 and the Bill Curtin Medal in October 2009 by the Institution of Civil Engineers, UK, IGS-Dr Shamsher Prakash Award in 2017 for his contributions in the area of Soil Dynamics, Tsunami's and Earthquake Engineering, and the John Henry Garrood King Medal in 2026 by the Institution of Civil Engineers, UK for his research on integral bridge abutments. He has 215+ Journal Publications and 320+ papers in International conferences and workshops to date. He has authored a very successful book on the Design of Pile Foundations in Liquefiable Soils (Imperial College Press) and Geotechnical Chapters in the book on Designing to Eurocode 8 (Taylor & Francis). His new book on Centrifuge Modelling for Civil Engineers has been published by Spon Press/Taylor and Francis publishing group.

**An attendance of certificate will be issued
to participants after the public lecture**



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