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2018 CGS-SOS Dinner Lecture

**Tunnels and Excavations – Contributions to Their Understanding from Geotechnical Centrifuge Modelling**

Thursday, September 6, 2018

St. Bernard Church, 1789 Lawrence Ave W, Toronto, ON, M6L 1E3 (<https://goo.gl/maps/66Eah9RwiFv>)

**Evening Program:**

**5:30 PM**  
**6:30 PM**  
**7:00 PM**

**Cocktails and Socializing**  
**Dinner**  
**Lecture**

**Abstract:** Infrastructure development invariably involves construction of excavations which may be retained or tunnelled. They need to be formed safely, so stability can be an issue, but also, and especially in recent times, there are major concerns about the assessment and control of deformations caused by their construction.

A key theme of research within the Research Centre for Multi-scale Geotechnical Engineering at City, University is the investigation of ground movements associated with tunnels and deep excavations during their construction. A major part of the work is the application of geotechnical centrifuge modelling to these challenges. The advances in digital image processing techniques have allowed overall patterns of ground movements to be determined, enabling centrifuge modelling to progress from a tool for investigating stability mechanisms to one that can give valuable and detailed insight into pre-failure deformations.

The lecture will present examples of research on tunnels and deep excavations focusing on the overall patterns of ground movements caused by these constructions, the interaction of ground movements with nearby structures and how various structural elements can effectively control the magnitude and distribution of ground movements.



**Speaker: Dr. Neil Taylor,** Neil Taylor graduated from Cambridge University in 1976 and later worked there as a researcher, earning his doctorate in 1984. He was appointed to a lectureship at City, University of London in 1984 where he promoted physical model testing research. He installed the Acutronic 661 geotechnical centrifuge in 1989 and is a specialist in applying centrifuge modelling to solving geotechnical problems. His main area of interest is in tunnelling and deep excavations. A key development at City has been the pioneering use of digital image analysis techniques to measure ground movements in centrifuge models, which has since become a standard technique used in many facilities around the world. He has published widely in international journals and conferences and has edited and contributed to a book on Geotechnical Centrifuge Technology. He was awarded a personal chair as Professor of Geotechnical Engineering in 1996. In 1999 he was appointed as Secretary General of the International Society for Soil Mechanics and Geotechnical Engineering.