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About

Professor Rogers graduated in Civil Engineering at Leeds University in 1979 prior to gaining industrial experience as a graduate engineer in a structural engineering consultancy, as a resident engineer monitoring ground works on four sites, and as a site engineer with Mowlem Tunnelling working on the Carsington Dam Aqueduct Tunnel.

He joined Nottingham University as a Research Assistant in 1982, where he read for his doctorate in the field of buried flexible pipes and subsequently taught for a short period.

He joined Loughborough University as a Lecturer in 1986, becoming a Senior Lecturer in 1994 and a Reader in 1997.

He was appointed to a Chair in Geotechnical Engineering at the University of Birmingham in September 1998.

Teaching

Professor Rogers' primary teaching interests are in seepage and compaction (MSc), consolidation, shear strength and critical state soil mechanics (MSc and MEng), and research developments in civil engineering (MSc and MEng).

Research

RESEARCH INTERESTS

The structural performance of flexible pipes when buried in trenches, under embankments and, more latterly, in landfills. The influence of trenching on the surrounding environment forms a parallel area of interest.

Trenchless pipelaying, notably ground displacements and ground stability around both horizontal directional drilling (HDD) and microtunnelling for new pipeline construction and HV cable laying, and pipe bursting and pipe splitting for on-line replacement. He led an EPSRC Engineering Programme Network in Trenchless Technology (NETTWORK, 2000-2004), which spawned a number of initiatives including research into long-distance, shallow-buried HV cable installation and Mapping the Underworld (MTU). He leads the EPSRC-funded MTU programme, which initially (2004-2008) consisted of four inter-linked projects on buried utility location, mapping, data integration and asset tagging, and now extends to a £3.5 million EPSRC Responsive Mode Grant (2008-2012) to develop a multi-sensor geophysical device to detect all buried utility services (www.mappingtheunderworld.ac.uk). He also jointly leads an EPSRC Engineering Programme Network covering this topic. He has a parallel interest in soft ground tunnelling.

Chemical stabilisation of clay soils, encompassing lime modification and stabilisation of clays and contaminated clays, and the use of other additives such as cement, PFA and blast furnace slag. His research covers both surface and deep stabilisation techniques, the latter including lime piles and chemical piles, deep mix-in-place techniques and lime slurry pressure injection. More recent research has concentrated on the use of electro-kinetics for soil stabilisation and dewatering liquid wastes.

Road and railway foundations, notably the assessment in situ of stiffness and resistance to permanent deformation, and the chemical treatment of road subgrades and railway trackbeds. In particular he has studied lime- and lime-cement stabilized subgrade soils cured under realistic environmental conditions.

Collapsible soils, notably loess. Loess from different countries, including China, Libya and the UK (where it is more commonly known as brickearth), has been studied to determine both the degree of collapse and the mechanisms of collapse when it is loaded and wetted. The constituents of the loess and the bonding mechanisms form the primary focus of the research.

The move towards greater sustainability in utility service provision, underground space usage, geotechnical processes and urban regeneration. He led one of fifteen consortia funded under the first round of grants awarded under the EPSRC Sustainable Urban Environments (SUE) Programme to use the major Birmingham Eastside (www.esr.bham.ac.uk) redevelopment initiative as a series of case study sites to explore the challenges of introducing more sustainable solutions to the social, environmental and economic problems faced by such developments. He leads the Urban Futures (www.urban-futures.org) SUE 2 consortium, which is envisioning alternative future scenarios, analysing their characteristics and thereby testing the resilience of engineering solutions put in place today in the name of sustainability.

Professor Rogers leads the Birmingham Centre for Resilience Research and Education, a new research centre in the College of Engineering and Physical Sciences at Birmingham, and is Deputy Head of the School of Civil Engineering. He has been awarded grants worth more than £10 million. He has supervised more than 50 Research Students and Assistants and has published more 200 refereed journal and conference papers.

Current Research Projects

- Chemical Improvement of Clay Soils in situ Using Electrokinetic Processes
- Electro-Kinetic Treatment of Liquid Wastes
- Stiffness of Lime and Lime-Cement Stabilised Capping Layers

- Installation of High Voltage Cables Over Long Distances Using Trenchless Techniques
- Mapping the Underworld – Multi-Sensor Device for Buried Utility Services Location
- Mapping the Underworld Network
- A Geotechnical Model for the Prediction of Buried Cast Iron Pipe Performance and Failure
- Leakage Development Mechanisms in Clays
- Sustainable Urban Redevelopment – Birmingham Eastside
- Sustainable Urban Redevelopment – Urban Futures
- Research Dialogues – a forum for Academic Engagement on Sustainable Urban
- Mapping Artificial Lightscapes – Solutions to artificial light pollution in cities

Other activities

External Appointments

- Editor-in-Chief of Trenchless Technology Research, published by Elsevier (1996 – 2002)
- Editor of Tunnelling and Underground Space Technology, with responsibility for Trenchless Technology Research, published by Elsevier (since 2002)
- Honorary Editor of Engineering Sustainability (since 2007) and Member of Editorial Board of Engineering Sustainability (since 2005)
- Member of Geotechnique Advisory Panel (since 2006)
- Member of Committee on Cementitious Stabilisation of Soil (AFS80), US Transportation Research Board - (since 1987)
- Member of Committee on Sub-Surface Soil Structure Interaction (AFS40), US Transportation Research Board - (since 1997)
- Member of Committee on Culverts and Hydraulic Structures(AFF70), US Transportation Research Board - (since 1997)
- Member of Committee on Physicochemical Phenomena in Soils (AFP60), US Transportation Research Board - (since 2003)
- Member of EPSRC's Strategic Advisory Team for Engineering (2004-2008)
- Elected Member of Engineering College, Engineering and Physical Sciences Research Council (EPSRC); (continuous since 1994)
- Co-Chair of Fourth International Trenchless Technology Research Colloquium (19-23 May 2002)
- Co-Chair, International Conference on Industrial Symbiosis, organised jointly with Yale University (5-6 August 2006)
- Co-Chair, 12th International Conference on Ground Probing Radar - GPR2008 (15-19 June 2008) hosted at the University of Birmingham
- External examiner for PhD theses at Lund University, Sweden; Kingston University, Canada; and several UK universities

Publications

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