

'Smart' infrastructure monitoring

Under the leadership of [Dr David Chapman \(/staff/profiles/civil/chapman-david.aspx\)](#), this research theme aims to research retrofitted or built-in chemical and/or physical sensors to facilitate intelligent structural maintenance. This is evidenced by a portfolio of awards:

- **EPSRC LINK project** (GR/R68573, £366k) on optical fibre sensors for 'smart monitoring' of tunnel linings awarded to Dr Chapman, Professor Rogers, Dr Metje and Dr Kukureka (Department of Metallurgy and Materials)
- **Grants from UK Water Industry Research** (UKWIR, representing all UK water companies) and AWWARF (the US equivalent) for fundamental research into 'smart pipes' with in-built nano-scale chemical and/or physical sensors awarded to Dr Chapman, Dr Metje and Dr Ward (of Birmingham's Micro- and Nano-Engineering Centre).
- **EPSRC-funded [Mapping the Underworld \(http://www.mappingtheunderworld.ac.uk/\)](http://www.mappingtheunderworld.ac.uk/) (MTU) project**, deriving originally from the EPSRC EPN in Trenchless Technology (GR/R14064, £64k, led by Professor Rogers and Dr Chapman) and the first EPSRC IDEAS Factory. The MTU project is worth £1.2million, involves 7 universities, is co-funded by UKWIR and is led by Professor Rogers. The largest of the four MTU research projects (EP/C547365, £500k) is for research into a multi-sensor device for locating buried pipes and cables and is led by Professor Rogers and Dr Chapman, with 6 Co-Investigators from the Universities of Birmingham, Bath, Southampton and Sheffield.
- **Mapping the Underworld – Multi-Sensor Device for Buried Utility Services Location (Phase II)**. This is the follow-on project to the original MTU project and is worth in total £3.5M, with £1.6M coming to Birmingham. There are three other Universities involved in the project, Bath, Southampton and Leeds.
- **The MTU Engineering Programme Network** (EP/C547330, £64k) is jointly led by Professor Rogers and Professor Saul (Sheffield University).