

Our Reputation

As a group we have:

- Work together with industry to solve problems and deliver advances in product development, through contract research and with the support of competitive research granting agencies.
- Work with industry and professional bodies for the advancement of knowledge for engineering professionals, scientists and technicians and those working in the profession from around the country.
- Provide strong evidence for adaptation and change in practice through high level research outputs, including reference text books, published papers in refereed journals and in conference proceedings.
- Contribute significantly to Australian and international standards committees for the development of national and international codes of practice.

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Centre for Infrastructure Engineering and Safety
School of Civil and Environmental Engineering
Cement and Concrete Research Capabilities

Never Stand Still

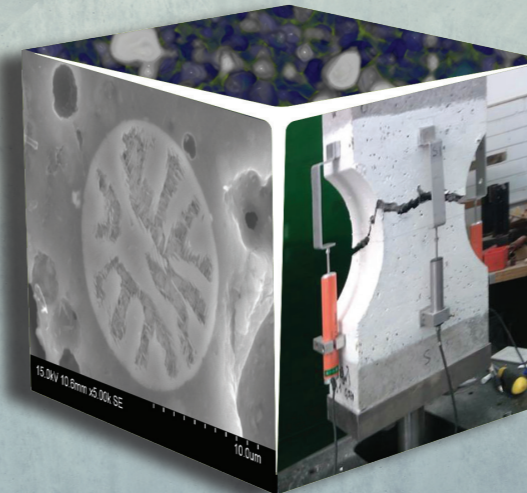
Engineering

School of Civil and Environmental Engineering



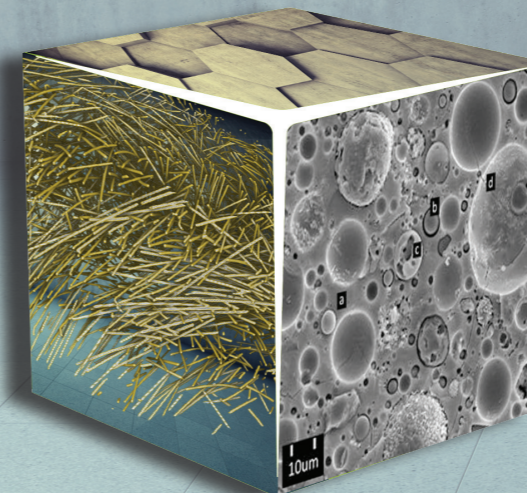
Our Origins

The Centre for Infrastructure Engineering & Safety (CIES) was established as a UNSW Research Centre in 2007 to facilitate advanced research in high-level applications in structural engineering, geotechnical engineering, engineering materials and computational mechanics.



Our Vision

As an internationally recognised research centre, our vision is to provide outcomes that improve the design, construction and maintenance of economic, effective and safe civil engineering infrastructure that enhances the quality of human life in a sustainable way.



What we offer

CIES is the leading infrastructure research centre in Australia and the "one stop" destination of expertise for Structures and Materials.



CIES – What we offer

Problem solving and product development

CIES – People

With one of the world's most distinguished and experienced group of structural and materials research engineers, CIES has the people and resources to service and solve our industry partners' problems and challenges. We also provide product development opportunities.

CIES – State of the art equipment and facilities

- **Heavy Structures Research Laboratory** – is equipped with state-of-the-art servo-controlled hydraulic actuators, universal testing machines and loading frames. Its 30 metre by 10 metre strong floor is one of the largest in the country. We are capable of applying loads ranging from just 10 kN up to 5000 kN. The laboratory also maintains state-of-the art displacement and strain measuring capabilities, with accuracy starting from 0.002 mm, as well as amplifiers and transducers for measuring displacements and strains at rates of up to 10 thousand per second.
- **Cementitious Materials Laboratory** – is equipped with state-of-the-art facilities for measuring cement and concrete materials characterisation and for durability testing. This includes: Thermogravimetric Analysis (TGA); isothermal calorimeter; laser Flash analyser; Plasma CVD equipment; eleven channels potentiostat for standard steel reinforcement corrosion testing; accelerated carbonation chamber; sorption-desorption testing apparatus.

In addition the laboratory is equipped to perform the following standards testing: VPV/Absorption - ASTM C642; Sorptivity - ASTM C1585; Surface/ Bulk resistivity - AASHTO TP95; UPV (PUNDIT) - ASTM C597; Bulk Conductivity - ASTM 1760; RCPT - ASTM 1202; Migration test - NT BUILD 492; Ponding test - ASTM 1543.

- **Mark Wainwright Analytical Centre** – is equipped with state-of-the-art facilities for use by industry and researchers, including: X-ray diffraction (XRD) and X-ray fluorescence (XRF) spectroscopy; scanning electron microscopy (SEM/EDX); micro-Raman analysis; nuclear magnetic resonance spectroscopy (NMR); and X-ray computerised tomography for 3D imaging to a resolution to 1 micrometre.

CIES - Multi-Scale

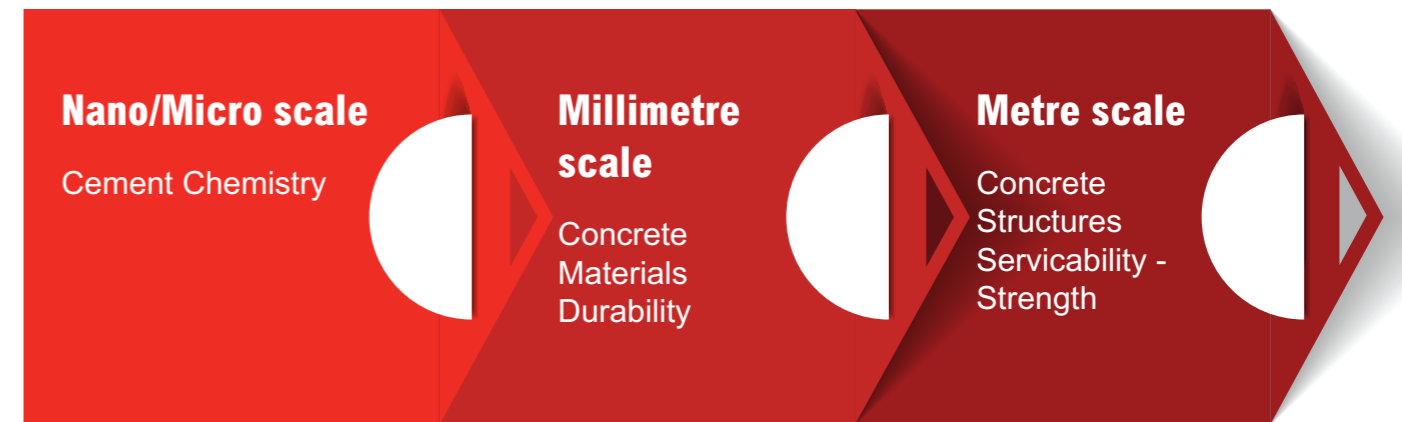
We have the depth of knowledge, expertise and resources to take on projects from the nanoscale to macro scales.

CIES – Easy Access IP

Easy Access IP is UNSW's approach to making its valuable research discoveries, inventions and intellectual property, available to individuals and organisations, under licence, for free.

Easy Access IP also helps us demonstrate that we are committed to sharing and disseminating university knowledge and making it easier for industry to work with us.

Our Scale of Expertise



Our Experts:

Cement chemistry and cementitious materials	Scientia Prof David Waite Dr Taehwan Kim
Durability & sustainability	Prof Ian Gilbert Prof Stephen Foster
Concrete structures, including concrete-steel and concrete-FRP composites	Prof Ian Gilbert Prof Stephen Foster Scientia Prof Mark Bradford A/Prof Hamid Valipour A/Prof Ehab Hamed
Geopolymer concrete	Prof Stephen Foster Scientia Prof Mark Bradford

The Group is also supported by over 25 Post Doc Research Fellows and PhD Students.