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Announcement

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Award-winning paper in 2018

Papers published in *Construction Materials* are eligible for awards from the Institution of Civil Engineers. Papers from any of the ICE journals can be nominated for several awards. In addition, each journal has awards dedicated to their specific subject area.

On Friday 4 October 2019, ICE president Andrew Wyllie presented an award to the following paper published in *Construction Materials* in 2018. The editorial panel nominated their best papers and an awards committee chaired by Robert Armitage allocated the awards.

Thomas Howard Medal

The Thomas Howard Medal, presented for the best paper detailing the use of materials in construction, was awarded to Porter *et al.* (2018).

Abstract

The Australian road network is nearly a million kilometres long, of which 83% can be classified as rural roads. The size and remote nature of Australia's road network pose unique challenges in terms of asset monitoring and maintenance costs. Cement stabilisation is a practice commonly used to improve durability and reduce inspection and repair costs. However, due to the sheer length of the road network, a huge quantity of cement is consumed in stabilisation work, making this practice unsustainable. This paper explores a sustainable alternative through augmentation of the traditional cement-based stabilisation with microbial carbonate precipitation. The calcium carbonate crystals formed within the samples were investigated by scanning electron microscopy and X-ray diffraction. Bulk mechanical properties were characterised through unconfined compressive strength (UCS) testing and the digital image correlation technique was utilised during UCS testing to extract more refined information such as local deformation and strain build-up. The mechanical properties at the microscopic scale were characterised through nanoindentation testing. The results show that microbial precipitation is able to increase the strength of cement-stabilised and road base materials significantly and can considerably improve the technological, economic and social sustainability of Australian road bases.



Figure 1. ICE President Andrew Wyllie with Thomas Howard Medal winner Abhijit Mukherjee

REFERENCE

Porter H, Dhani NK and Mukherjee A (2018) Sustainable road bases with microbial precipitation. *Proceedings of the Institution of Civil Engineers – Construction Materials* **171(3)**: 95–108, <https://doi.org/10.1680/jcoma.16.00075>.