

Concrete which can heal its own cracks

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Cardiff University researcher Dr Diane Gardner has won the 'You Heard It Here First' event at the British Science Festival for her work on self-healing concrete. The award considers the UK's brightest early career researchers to find out the next big thing in science and technology.

Dr Gardner from the School of Engineering is part of a research group which has been working towards giving concrete the ability to sense and respond to damage within its own infrastructure. This discovery has the potential to make huge impacts on concrete installations in the UK and beyond, dramatically cutting repair costs and reducing their carbon

footprint.

The self-healing concrete works in three main ways:

- The opening of cracks is controlled using fibres which can potentially be made from recycled [plastic materials](#) like bottles.
- A bacteria is incorporated into the concrete which starts to rejuvenate when cracks occur. Once damage starts, the bacteria deposits a biological cement which fills in these areas.
- Nano and micro capsules containing a resin or glue healing agent which again is released when damage or cracks start to occur within the [concrete structure](#).

Dr Gardner hopes that self-healing concrete could start to be introduced into non-[critical structures](#) within 2-3 years. From then on, the aim will be to introduce this technology across the Civil Engineering industry and increase and widen its use.

To hear Dr Gardner talking about her work for The Naked Scientists podcast, click [here](#).

Provided by Cardiff University

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