

#CHEMMONTHLY DECEMBER 2017



SELF-HEALING POLYMER GLASS REPAIRS AT ROOM TEMPERATURE

While developing glue materials, Japanese researchers accidentally discovered a polymer glass which self-heals. The material can repair itself when fractured surfaces are pressed together at room temperature, and may find future use in device screens.



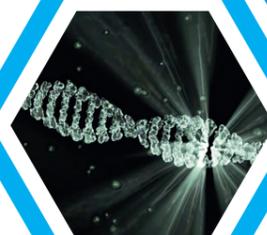
GUINNESS WORLD RECORD FOR TIGHTEST EVER KNOT

A molecular knot unveiled earlier this year by a research group at the University of Manchester has been officially recognised as the tightest ever tied. The molecular knot consists of three molecular strands plaited together, creating a loop with eight crossings.



HIGH PRESSURE MAKES DIAMOND FILMS FROM GRAPHENE LAYERS

Researchers made an ultrathin diamond film by crushing two layers of graphene under very high pressures. In the future this could be used to develop thin but strong protective coatings on surfaces. The effect was not seen with single or multilayer graphene.



BACTERIA USE UNNATURAL DNA TO MAKE UNNATURAL PROTEINS

Scientists inserted an unnatural genetic code into bacteria (with six bases instead of the usual four); the bacteria then used this DNA to synthesise a protein containing unnatural amino acids. The ultimate goal is to use these methods to make new classes of protein drugs.



EXPERIMENTAL DRUG SAFELY CORRECTS HUNTINGTON'S DISEASE

Huntington's is a neurodegenerative disease caused by a genetic error which causes a corrupt version of the huntingtin protein to be produced. Injecting a drug into the spinal fluid of patients lowered levels of the huntingtin protein in the brain by stopping its creation.



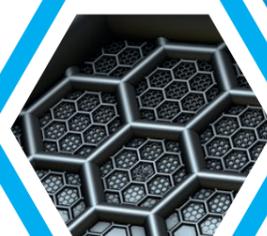
MORE FLEXIBLE CONCRETE INSPIRED BY SEA URCHIN SPINES

Concrete's strength comes from calcium silicate hydrate (CSH), which is brittle and fractures if bent. Inspired by the structures of sea urchin spines, researchers developed a method that causes it to form a regularly ordered structure, giving more flexible concrete.



TESTOSTERONE MAY HELP EXPLAIN LOWER MALE ASTHMA RATE

A study found that asthma sufferers have a greater number of a certain type of inflammation-inducing cell. Testosterone suppresses these cells' activity in mice; it's suggested that this may partly explain why women are twice as likely as men to suffer from asthma.



NEW MANUFACTURING METHOD MAKES WRINKLE-FREE GRAPHENE

Graphene has useful properties for electronic devices, but the current method of growing it on a copper surface leads to wrinkles which impact these properties. A new method produces perfectly smooth graphene by using a different crystalline form of copper.

For links to articles and studies, visit: bit.ly/ChemMonthlyDec17. Follow @Chemunicate or #ChemMonthly on Twitter to keep up with the latest chemistry news!



© Andy Brunning/Compound Interest 2017 - www.compoundchem.com | Twitter: @compoundchem | FB: www.facebook.com/compoundchem
This graphic is shared under a Creative Commons Attribution-NonCommercial-NoDerivatives licence.

