

#CHEMMONTHLY MARCH 2018

CHEMISTS SET NEW RECORD FOR C-C BOND LENGTH



Chemists in Japan have made a molecule with the longest reported C-C bond, furthering understanding of the limits of bonding. The bond is 1.806 angstroms in length, longer than the theoretical limit of 1.803 angstroms at which the bond was assumed to dissociate.

GRAPHENE OXIDE USED IN SPRAY-ON, 10 MINUTE HAIR DYE



A hair dye that uses graphene oxide and chitosan can colour hair in shades of brown and black. The partial reduction of graphene oxide with vitamin C gives it a dark colour. The dye can be sprayed on and takes ten minutes to apply, lasting for more than 30 washes.

UNIQUE BIOLUMINESCENT MOLECULE MAKES GLOWWORMS GLOW



Glowworms' glow comes from luciferin, a bioluminescent molecule also found in fireflies. A new study has found that the luciferin New Zealand glowworms use differs from that in other glowing organisms and is formed from a unique combination of precursors.

NEW LITHIUM-AIR BATTERY LASTS FOR OVER 700 CYCLES



Lithium-air batteries hold more energy than lithium-ion batteries, but only last for a few recharge cycles. Using a lithium carbonate-coated anode and a molybdenum disulfide cathode, researchers made a lithium-air battery that lasted for over 700 cycles in simulated air.

EXPERIMENT BOOSTS THEORY THAT WATER HAS TWO LIQUID STATES



It was first suggested that water might have two liquid states in 1992. A new study provides evidence that this may be the case, observing a liquid-liquid transition in supercooled water at -80°C . The water was kept from freezing at this temperature by the addition of a salt.

FLUORESCENT SENSOR WARNS OF CATHETER BLOCKAGES



Some bacteria in urine break down urea into alkaline ammonia, leading to solid mineral particles forming and blocking catheters. A new early-warning system uses a polymer disc in the urine collection bag, which releases a fluorescent dye when the pH of urine increases.

LEGO PLANTS TO BE MADE FROM PLANT-DERIVED PLASTIC



From this year, the leaves, bushes and trees in Lego kits will be made from polyethylene plastic derived from sugar cane. These botanical elements make up 1-2% of Lego's plastic parts. Currently, Lego bricks are still made from the fossil fuel-derived plastic ABS.

CHEMISTS SYNTHESISE DEATH CAP MUSHROOM TOXIN



The toxin in death cap mushrooms, α -amanitin, is one of the deadliest known. Structurally similar compounds may be of medicinal interest, but generating these has been hampered by the lack of a synthetic route to the compound - a feat which has now been achieved.

For links to articles and studies, visit: bit.ly/chemmonthlymar18. Follow @Chemunicate or #ChemMonthly on Twitter to keep up with the latest chemistry news!



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