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Associate Professorship (or Professorship) of Organic Chemistry

Department of Chemistry with a Tutorial
Fellowship at Worcester College

**Combined University and College salary from
£48,114 p.a. plus benefits**

Applications are invited for the above role, initially for 5 years at which point, upon completion of a successful review, the post-holder will be reappointed to retiring age.

We wish to appoint a candidate whose research interests involve work applying organic chemistry to advanced materials/polymer science, such as for organic semiconductor devices, microporous or bioinspired materials.

The successful candidate will hold a doctorate in a field relevant to research in organic chemistry and materials/polymer science, and have a proven track record of high-quality research and publication at an internationally excellent standard.

Only applications received before 12.00 midday on Monday 6 January 2020 can be considered.

Further details and application instructions are available from our website: www.ox.ac.uk/jobs

Please search for vacancy ID 142830.

As an Equal Opportunity employer, we positively encourage applications from people of all backgrounds.



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Featured product FroSyn fluid-free laboratory sample cooling plate

The FroSyn fluid-free cooling plate from Asynt enables fits on a conventional magnetic stirrer for rapid cooling of samples in vials or round bottom flasks (up to 500ml) to below -60°C . As a sustainable alternative to ice and dry ice cooling baths, the FroSyn maintains a defined plate temperature resulting in excellent reproducibility and reaction control. Unlike dry ice cooling baths that require constant attention, the stable and controlled performance of the FroSyn means that overnight reactions can be performed with



confidence. Specialist insulation around the cooling probe and plate keeps the apparatus ice-free and helps eliminate the possibility of operator cold burns.

www.asynt.com/product/frosyn-cooling-station

November 2019 solutions and winners

Cryptic (prize entry)

C	O	C	K	E	R	L	E	N	M	E	Y	E	R		
O	A	S	A	N	U	O	U								
V	E	R	D	I	G	R	I	S	L	E	H	A	R		
E	A	R	E	H	R	I	U								
R	U	T	H	E	R	F	O	R	D	I	U	M			
G			D	Y	O	P	B	P							
L	E	C	H	W	E	G	U	I	L	T	I	E	R		
A	O	A	A	D	I	N	I								
S	A	M	A	R	I	U	M	S	C	R	E	E	N		
S	M	D	T	B	A										
			I	N	E	X	H	A	U	S	T	I	B	L	E
H	N	L	O	N	I	O	S								
Y	O	U	N	G	R	E	S	P	O	N	S	E	S		
P	T	A	E	E	N	O	E								
O	V	E	R	R	I	D	I	N	G	A	N	T	S		

Quick (just for fun)

M	A	G	I	P	R	O	P	A	N	O	L	O	L		
O	L	C	A	L	O	I	O								
N	I	E	T	Z	S	C	H	E	N	I	M	B	I		
O	N	E	H	C	C	E	N								
C	O	N	S	C	I	E	N	T	I	O	U	S			
Y			H	L	R	I	T	I							
C	R	A	T	O	N	T	U	R	N	D	O	W	N		
L	N	S	C	M	C	N	S								
I	N	T	E	L	S	A	T	S	I	L	E	N	T		
C	I	O	L	S	D										
			D	E	V	E	L	O	P	M	E	N	T	A	L
R	O	A	I	R	N	I	M								
S	H	T	I	K	S	C	I	N	C	I	D	A	E		
P	A	I	T	N	E	A	N								
B	I	L	L	A	B	O	N	G	S	S	L	I	T		

Wordoku

The name of the metabolite was SHIKIMATE

Word grid

The nine-symbol word was RECALIBRATION

Science scramble

1. Eat 2. East 3. Baste 4. Batiste
5. Batteries 6. Albert Einstein

November winners

Wordoku
Brian Stuart, Hampton, UK

Word grid
Leo Holroyd, Ilfracombe, UK

Crossword
M F Barrett, Richmond, UK

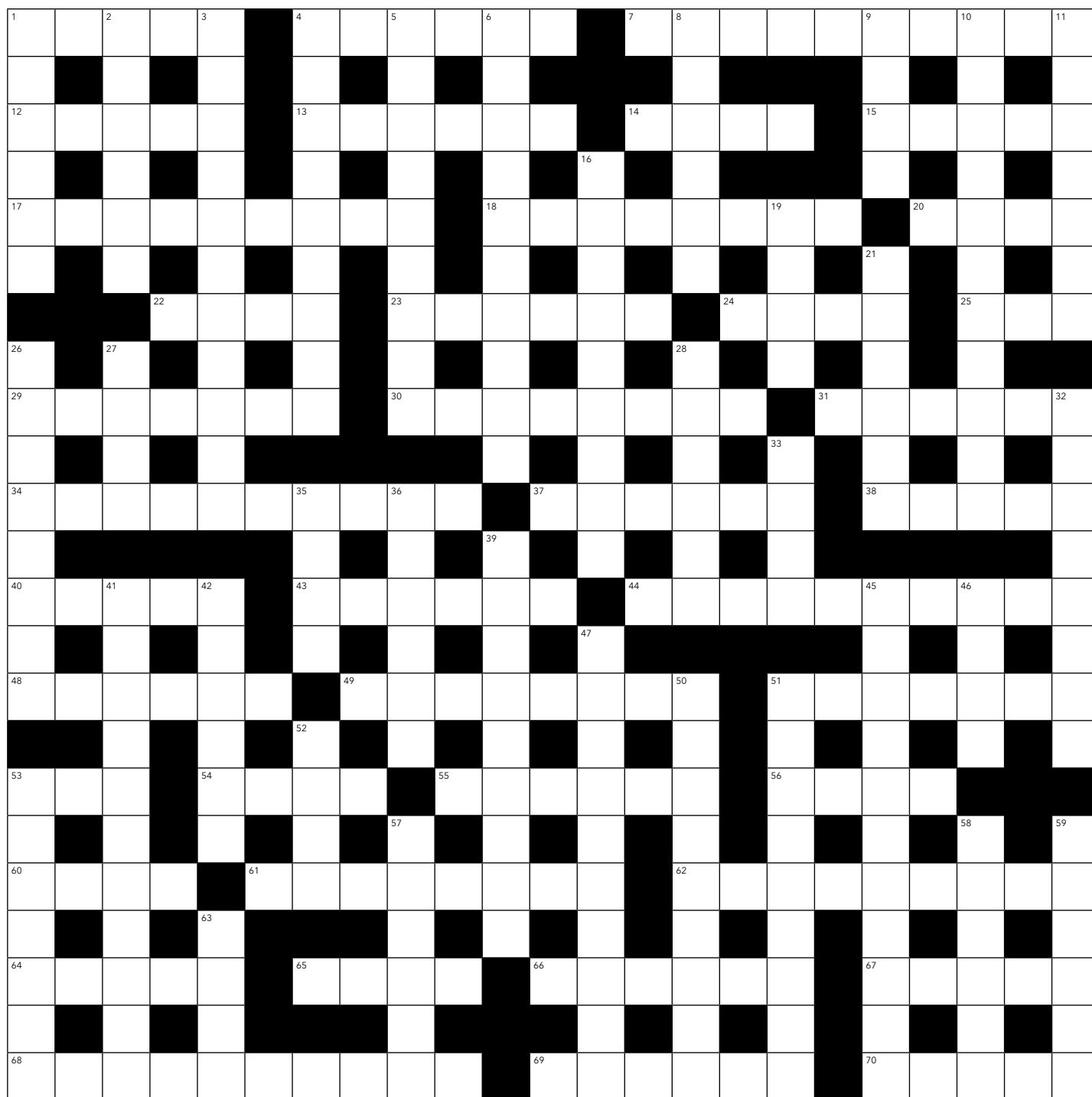
Science scramble
A Wilson, Broadstone, UK

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December 2019 Jumbo CrOsSWORD



Entry form

This month there are only two prize puzzles: the cryptic elements crossword and the quick regular crossword. For each crossword, a winner will be selected from all the correct entries received. Each winner will receive a hamper just in time for Christmas.

You can enter both of the prize draws, but each entrant is only eligible to win one puzzle prize.

Please enter your details and either post or email this page with your completed entries to us by **16 December 2019**. The winners of this month's crosswords will be published in the January 2020 issue, along with the solutions.

Chemistry World puzzles, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK
Email: chemistryworld@rsc.org

Name

Address

.....

Participants are advised that any personal information supplied will be processed in connection with this competition and only in accordance with our privacy statement (www.chemistryworld.com/privacy).

Prize entry 1: Cryptic elements crossword

Each crossword square can have one or two letters, which must be letters of an element symbol, or the letters D or T (for deuterium or tritium). For example, Dalton could be written D(A)TON.

- | Across | Down |
|--|---|
| 1 Prohibit Walt returning to university? (6) | 1 Employ coypu around local centre (6) |
| 4 Ends polishes? (8) | 2 Surprisingly staccato virtuosos (8) |
| 7 Harry chatted about tale of this caged compound (9, 7) | 3 Word weirdness upsetting shop worker (6, 7) |
| 12 Language found in louche Chennai? Probably not! (7) | 4 Made up if I scout around it (10) |
| 13 Maybe cope with oddly ignored ethnics' idea (7) | 5 I ordered horse poison for this type of analysis (12) |
| 14, 65 Across Twisted sitar fan endlessly narks Ol' Blue Eyes (5, 7) | 6 Postulated about healthy topic (12) |
| 15 Nobel laureate now redeveloping a short street (6) | 8 Pulls carts around uneven tract (8) |
| 17 Turn apricot tops into popular snack (6, 5) | 9 How heartless Daisy might greet you? (5) |
| 18 Confuse attrition for something analytical? (9) | 10 Acids crash ideas about enzymes (15) |
| 20 Travels slowly in Winchester (6) | 11 Seen tennis turn into something elemental? (10) |
| 22 Sound of duo mixing Altered Images primarily? (5) | 16 A creationist somehow reasons (12) |
| 23 No use translating auctioneer's response (8) | 19, 36 Down Polar explorer proved tutors in turmoil (4, 8) |
| 24 Perhaps Pa can't snooze (6) | 21 Drink dispensers that may be microscopic? (6) |
| 25 Some bars in empty toxic compound (6) | 26 Lass knew of letters about easily offended people (10) |
| 29 Repaired steamship aircon creating stupor? (8) | 27 Wise Cretans keeping hidden (6) |
| 30 Amber fashions nice cuts around fourth of April (9) | 28 Mercuric mineral can confuse brain (8) |
| 31 Primed initial first aiders about mine gas (8) | 32 Prejudices press poses around outer Seattle (12) |
| 34 German chemist threw lanterns around (7, 6) | 33 Some CEO's career award (5) |
| 37 Takes turns arranging a renal test (10) | 35 Dadaist surprisingly stern (5) |
| 38 Peddler relapses terribly (5, 3) | 36 See 19 Down |
| 40 Sounds like you miss some outer extremities, sugar! (7) | 39 Debussé finest disc differently (10) |
| 43 Anti-inflammatory medicine or diets on arrangement? (7) | 41 Hotshot spies stirred philosophers (12) |
| 44 Fowl rub around backyards (7, 5) | 42 Tiny lies turn into something which may come with old age (8) |
| 48 Some mate's son itemises mineral (8) | 45 Often higher end acidities developed plant loss (15) |
| 49 Rust indices sort of checks out (11) | 46 Riot control agent smashed endless saga about extreme cutbacks (1, 1, 3) |
| 51 Tsar seeing surprisingly noble things (5, 5) | 47 Tossing acid around medical procedures? (11) |
| 53 Hope someone has money (4) | 50 I arrange sticky end, exhibiting involuntary movements (10) |
| 54 Fly around set twice (6) | 51 Losing control in Africa (for example)? (11) |
| 55 Distributing free screen testimonials (10) | 52, 64 Across Nuclear physicist developed sort of itch (4, 6) |
| 56 Facts right about skills? (6) | 53 Fatten crop around northern town (10) |
| 60 Tex-Mex dish served in Armagnac hostel? (6) | 57 Popular analysis at highest temperature? (7) |
| 61 School trip about fossils (10) | 58 Surprising second time I found the escapologist? (7) |
| 62 Charged coupling right away with ironic 007? (5, 4) | 59 Strange property or just a case of 1, 3, 5, 7, 9...? (7) |
| 64 See 52 down | 63 State primarily of having insufficient oxygen (4) |
| 65 See 14 Across | |
| 66 Into nice altered alkaloid (9) | |
| 67 Element that is engulfing Norse god (6) | |
| 68 Utmost shock about this insect? (7, 4) | |
| 69 Barrow crash put differently (8) | |
| 70 Left out, son lies about rows (6) | |

Prize entry 2: Quick crossword

This one is your regular type of crossword, no element symbols are needed.

- | Across | Down |
|---|---|
| 1, 11 Down Chemist and first UK astronaut (5, 7) | 1 Element named after the sun (6) |
| 4, 67 Across Dutch scientist after whom weak interatomic and intermolecular forces are named (3, 3, 5) | 2 Devices that emit amplified coherent light (acronym describing the amplification process) (6) |
| 7 Carcinogens formed by moulds such as <i>Aspergillus Flavus</i> (10) | 3 Compound with role in cardiovascular signalling; discovery won the 1998 medicine Nobel prize (6, 5) |
| 12 See 64 Across | 4 Green pigment of copper often seen as a result of weathering on copper structures (9) |
| 13, 8 Down, 40 Across Chemist known for collaboration with microbiologist Elizabeth Lee Hazen to develop the first useful antifungal antibiotic (6, 6, 5) | 5 Monikers (9) |
| 14 Salt, the most widely used being the potassium salt with the formula $KAl(SO_4)_2 \cdot 12H_2O$ (4) | 6 Observer (10) |
| 15 See 57 Down | 8 See 13 Across |
| 17 Nationality of politician Viktor Yushchenko (9) | 9, 24 Across German radiochemist who with Lise Meitner discovered nuclear fission (4, 4) |
| 18 Large pieces of frozen freshwater floating freely (8) | 10 Type of pesticide (11) |
| 20 Froth, eg that produced by algae in marine environments (4) | 11 See 1 Across |
| 22 See 38 Across | 16 Change the use (of a piece of land for example) (9) |
| 23 See 43 Across | 19, 70 Across Method of classifying bacteria into two large groups, named after a Danish bacteriologist (4, 5) |
| 24 See 9 Down | 21 Organochlorine example of 10 Down (6) |
| 25 Charged particle (3) | 26 Capable of mastication (8) |
| 29 Recluses (7) | 27, 67 Across Highly reactive atoms or molecules having at least one unpaired electron (4, 8) |
| 30 Describing a pesticide which is taken up by the plant and transported to all the tissues (8) | 28 Modern Japanese martial art (6) |
| 31 One of the four elements named after the town of Ytterby in Sweden, discovered by 54 Across (6) | 32 See 54 Across |
| 34 Mineral (hydrated calcium oxalate) named after an English polymath (10) | 33 Small amount of butter (4) |
| 37 See 49 Across | 35 Limbs (4) |
| 38, 22 Across Danish physicist eponymised in element 107 (5, 4) | 36 Postulation (6) |
| 40 See 13 Across | 39 Nationality of mineralogist and geochemist Victor Goldschmidt (9) |
| 43, 23 Across Augustinian friar and botanist known for work on genetics (7, 7) | 41 Arrange, particularly musically (11) |
| 44 Burning (10) | 42 Discern (6) |
| 48 Promote an atom or a molecule to a higher energy state (8) | 45 Settlements of improvised buildings (6, 5) |
| 49, 37 Across Random movement of particles suspended in a fluid named after a Scottish botanist (8, 6) | 46 Modern name of country of birth of alchemist Jabir ibn Hayyan (4) |
| 51 Oxide of element 92 (7) | 47 Large cephalopod (5, 5) |
| 53 Stick used in snooker (3) | 50 Break in a journey after hours (5, 4) |
| 54, 66 Across, 32 Down Swedish chemist and discoverer of three elements (4, 6, 8) | 51 Not having undergone taxidermy (9) |
| 55 Dairy-based beverage, often with added alcohol (6) | 52 Extent (in two dimensions) (4) |
| 56 Badger's den (4) | 53 Wine or water flasks (7) |
| 60 Reaction _____, speed at which reactants are converted into products (4) | 57, 15 Across Serbian-American inventor whose surname is now found on certain electric cars (6, 5) |
| 61 See 27 Down (8) | 58 Theoretical physicist and first Japanese Nobel laureate for prediction of subatomic particles called pions (6) |
| 62 Set of assets held by trustees for beneficiaries (5, 4) | 59 American inventor who amassed over one thousand patents in his lifetime (6) |
| 64, 12 Across Hungarian composer (5, 5) | 63 Book of the Old Testament (4) |
| 65 Smallest part of an element (4) | |
| 66 See 54 Across (6) | |
| 67 See 4 Across (5) | |
| 68 National park that includes some of Virginia's Blue Ridge Mountains (10) | |
| 69 Extinct small primate (6) | |
| 70 See 19 Down | |

November 2019 solutions and winners

Solutions to last month's puzzles and November's winners can be found on page 59.