

UC



SPCS Newsletter

School of Physical and Chemical Sciences/ Te Kura Matū

26th June 2020

Welcome to our SPCS newsletter for 2020.
Please send me your news articles, photos, travel diaries, conference reports or funnys by 9am each Friday.
Email sharlene.wilson@canterbury.ac.nz
You can find previous issues here <https://www.canterbury.ac.nz/science/>

 Facebook (@PhysandChematUC)
 Twitter (@UCNZ_PhysChem)
 WeChat (Physical&ChemicalSciences)

Rudi's Weekly Report.

Kia ora koutou



SPCS Volunteers to help with Kidsfest at Tūranga - Friday 10 July.

SPCS will be running on Friday 10 July at Tūranga (the brand new Christchurch central library) for KidsFest 2020 (<https://www.kidsfest.co.nz/>).

This is a programme the council organises every year for kids in the Canterbury area and the library is one of the most visited places.

Can you help that day?. There is a job for everyone and we want more people to assist so we can show off SPCS to its fullest!

Rodrigo and Graeme will run a couple of workshops next week to show you how it all works prior to the day. It is going to be a great event!

Proposed Activities:

- Chemistry demonstrations open to general public
- Elephant toothpaste
- Merlin's cave
- Liquid N2 and food
- Physics demonstration open to general public
- Electromagnetism
- Liquid N2 and gases
- Hovercraft
- Jumping rings
- Superconductivity
- Chemistry workshop: Metals in food
- Lasers & Playing with forces
- Standalone, guided & hands-on Physics demos (all day)
- VR environments

 **PHYSICAL AND CHEMICAL SCIENCES**
University of Canterbury Physics, Astronomy, Chemistry, Biochemistry, Medicinal Chemistry, Environmental Science.


Ngā Kete Wānanga-o-Otautahi
Christchurch City Council Libraries

Please contact Sharlene Wilson sharlene.wilson@canterbury.ac.nz ASAP if you would like to be involved.



Health, Safety and Wellbeing- Sharlene Wilson (H&S Administrator)

2020 Training Calendar

To enrol in training log in to [UC People](#) and navigate to the Professional Development tile.



Fire Extinguisher & Evacuation Training

Tuesday 25 February

Friday 17 July

Monday 14 September

Tuesday 13 October 9am - 12pm

First Aid Comprehensive

Thursday 23 and Friday 24 July

Thursday 24 and Friday 25 September

Monday 7 and Tuesday 8 December 2 days 9am - 4.30pm

First Aid Revalidation

Friday 10 July

Thursday 20 August

Friday 11 September

Wednesday 7 October

Friday 20 November

Friday 4 December

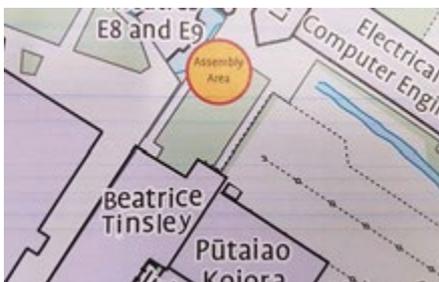
[The full list of 2020 H&S Training.](#)

Beatrice Tinsley Building Evacuation

Our recent trial evacuation revealed the confusion over the BT assembly area and the role of floor wardens.

BT Assembly Area

Our official assembly area is the area outside the E8 and E9 lecture theatres on the path beside the new bike stands



Floor Warden Roles

The floor warden bands are located beside the stairs on level 2 and 3, in the hall outside the admin offices on levels 2 and 4, and by the self-opening door on level 1. If you notice that a warden band has not been collected then please do take it upon yourself to take up the role of floor warden and clear the floor you are on and advise the building warden who will be waiting by the main door of the building.

On hearing the alarm sound or when notified of an emergency (in the event of an earthquake wait until the shaking has stopped first)

Uplift and put on your warden identification/safety equipment.

Ensure others start evacuating the floor/area. Evacuate the building using the stairs; do not use lifts. If there is a power outage the emergency lighting will activate and remain for up to two hours.

Check all areas of the floor to make sure the occupants have evacuated, if you can do so without placing yourself at risk:

- i. Carry out your check from the far point to the exit point.
- ii. Assume that locked rooms are clear; do not unlock to check.
- iii. Assign someone to stay with any persons who cannot evacuate.
- iv. If any able person refuses to evacuate, advise the Building Warden.
- v. Report the status of your floor/area to the Building Warden.
- vi. Take note of any deficiencies in the system, defective fire alarm sounders, egress obstructions, staff behaviour, or any other defect and report these to the Building Warden.

See the [Instructions for Floor Wardens](#)

Replacing used first aid equipment

All SPCS first aid kits have now got seals on them that need to be cut to open.

When you open a first aid kit you must notify Lue-Ellen that you have done so then she can check and replace items.



An invisible gift. - Fred Rogers

Our world hangs like a magnificent jewel in the vastness of space. Every one of us is a part of that jewel. A facet of that jewel. And in the perspective of infinity, our differences are infinitesimal. We are intimately related. May we never even pretend that we are not...I'd like to give you all an invisible gift. A gift of a silent minute to think about those who have helped you become who you are today. Some of them may be here right now. Some may be far away. Some, like my astronomy professor, may even be in Heaven. But wherever they are,

if they've loved you, and encouraged you, and wanted what was best in life for you, they're right inside your self. And I feel that you deserve quiet time, on this special occasion, to devote some thought to them. So, let's just take a minute, in honor of those that have cared about us all along the way. One silent minute.

Watch the full [Commencement Address Fred Rogers gave at Dartmouth College in 2002](#)



Publications

Xuemin Li, Calvin Ku, Yanghwan Jeong, Owen J. Curnow, Patrick H. L. Sit, Zhijie Wu, Jungkyu Choi, Alex C. K. Yip, "Ionic liquid-templated synthesis of 10-MR zeolites and its origin disclosure", *Microporous and Mesoporous Materials* 2020, 305, 110346.

The Conversation - Laura Revell

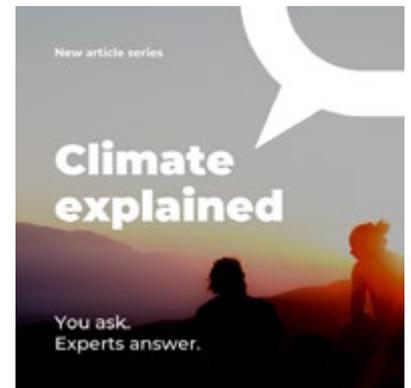
I answered some reader questions about climate change in *The Conversation* (also part of Stuff's 'Climate Explained') series.

This week, *Climate Explained* answers two similar questions.

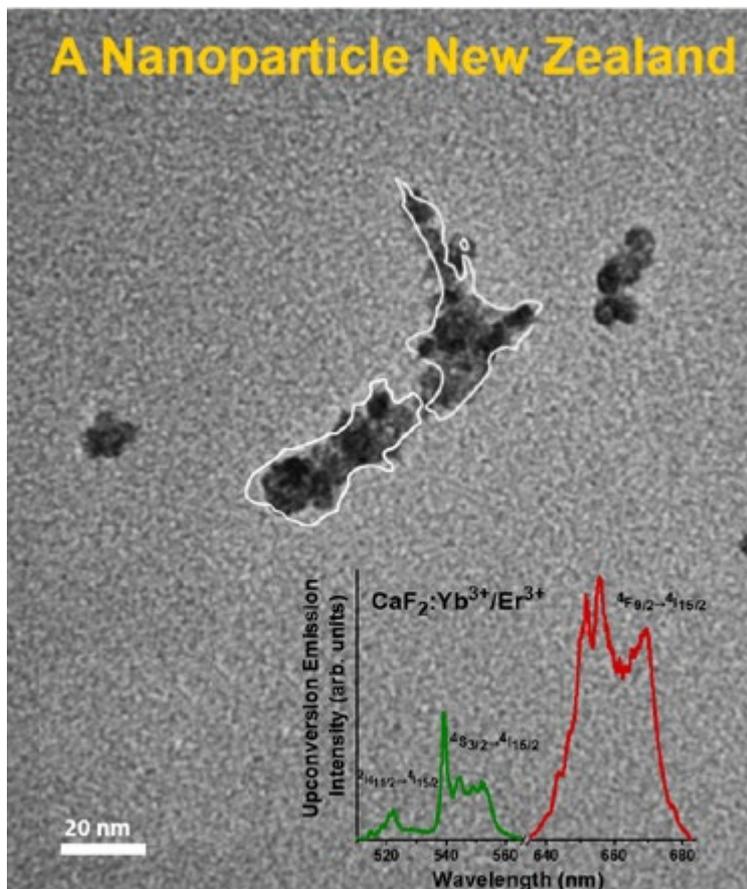
If humans had not contributed to greenhouse gases in any way at all, what would the global temperature be today, compared to the 1800s before industrialisation?
and

My question is what happens when all the greenhouse gases are eliminated? What keeps the planet from cooling past a point that is good?

Read the article <https://theconversation.com/climate-explained-what-earth-would-be-like-if-we-hadnt-pumped-greenhouse-gases-into-the-atmosphere-141194>



Nanoparticle New Zealand - Sangeetha Balabhadra



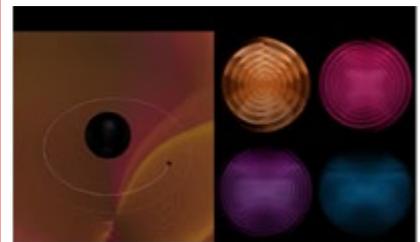
A Nanoparticle New Zealand: Transmission electron microscopy image of $\text{CaF}_2:\text{Yb}^{3+}/\text{Er}^{3+}$ upconverting nanoparticles formed in a shape of New Zealand. The corresponding Er^{3+} visible upconversion fluorescence spectrum is also shown in the picture.

Mystery object spotted

Is it the biggest neutron star, or the smallest black hole ever detected?

A distant object that could be smallest known black hole, or the largest known neutron star, has been spotted by the LIGO–Virgo gravitational-wave detectors. The 2.6 solar-mass object appears to have merged with a 23 solar-mass black hole, creating gravitational waves that were detected here on Earth in August 2019. Unlike a previously observed merger between two neutron stars, no electromagnetic signal was observed. At nearly 9:1, the ratio of masses of the two objects is the greatest ever detected by LIGO–Virgo.

Read more <http://comms.iop.org/c/1cwJn1ShBNhvxeCYLxB-cz68x>



The above video is a visualization of the period leading up to the GW190814 merger, showing the two objects and the gravitational waves they emitted.

Hubble Watches the “Flapping” of Cosmic Bat Shadow

The young star HBC 672 is known by its nickname of Bat Shadow because of its wing-like shadow feature. The NASA/ESA Hubble Space Telescope has now observed a curious “flapping” motion in the shadow of the star’s disc for the first time. The star resides in a stellar nursery called the Serpens Nebula, about 1300 light-years away.



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The Hubble Space Telescope captured a striking observation of the fledgling star’s unseen, planet-forming disc in 2018. This disc casts a huge shadow across a more distant cloud in a star-forming region — like a fly wandering into the beam of a flashlight shining on a wall.

Now, astronomers have serendipitously observed the Bat Shadow’s “flapping”. This may have been caused by a planet pulling on the disc and warping it. “You have a star that is surrounded by a disc, and the disc is not like Saturn’s rings — it’s not flat. It’s puffed up. And so that means that the light from the star, if it goes straight up, can continue straight up — it’s not blocked by anything. But if it tries to go along the plane of the disc, it doesn’t get out, and it casts a shadow,” explained lead author Klaus Pontoppidan, an astronomer at the Space Telescope Science Institute (STScI) in Baltimore, USA. Pontoppidan and his team observed the shadow in several

filters over a period of 13 months. When they combined the old and new images, the shadow appeared to have moved. The shadow is so large — about 200 times the diameter of our Solar System — that light doesn’t travel instantaneously across it. In fact, it takes about 45 days for the light to travel from the star out to the best defined edge of the shadow. See more <https://www.sciencedaily.com/releases/2020/06/200625140717.htm>

Library News-John Arnold

New books and ebooks:

- * Astronomy <http://bit.ly/xntPcH>
- * Chemistry <http://bit.ly/2GYps4U>
- * Physics <http://bit.ly/wafgiA>
- * Adaptable new-titles-list generator <http://bit.ly/1brTI3E>

CAS Makes Commitment to Enhance Laboratory Safety by Partnering with the Pistoia Alliance for Chemical Safety Library
[Press release]
<https://bit.ly/316BNPP>

Coronavirus Coverage and the Silencing of Female Expertise (Undark)
<https://bit.ly/3eq3RkR>

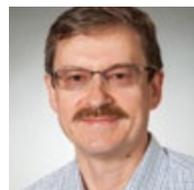
Just Use Your Thinking Pump!
[book review of The Scientific Method by Henry M. Cowles]
(New York Review of Books)
<https://bit.ly/2A5VPyU>

The World Doesn’t Need a New, Gigantic Particle Collider (Scientific American)
<https://bit.ly/3fMoPLc>

Library Liaison Officer for Chemistry
Assoc. Prof. Greg Russell
<http://bit.ly/2SvmiJd>



Library Liaison Officer for Physics and Astronomy
Dr Konstantin Pavlov
<http://bit.ly/31z5tCP>



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