



Canterbury Branch Royal Society of New Zealand Te Apārangi July 2024 Newsletter

Dear Member

We hope that winter is going well for you.

In this month's newsletter, more about the PM Science Winners talk in Christchurch and Timaru, and outline of the project we are supporting via the Children's University, travel grant reports, a new book from the Cotter Medical History Trust and a few other bits and pieces.

The Prime Minister Science winners talk.

The branch is co-host with the RSNZ, two PM Science winners that were announced by the PM on 1st May.

They are for Christchurch Wednesday 14th August.

TE PUIAKI KAIPŪTAIAO MAEA MACDIARMID EMERGING SCIENTIST PRIZE 2023

Dr Samuel Mehr has won the 2023 Te Puiaki Kaipūtaiao Maea, Prime Minister's MacDiarmid Emerging Scientist Prize, for his work on the cognitive science of how humans perceive and produce music, using cutting-edge tools and theories from disciplines as diverse as data science, evolutionary anthropology, psychology, linguistics, and music studies.

Samuel is a Rutherford Discovery Fellow based in the School of Psychology at Waipapa Taumata Rau | University of Auckland and is also a faculty member at the Child Study Centre at Yale University in the United States of America.

"In my research, we study the psychology of music: why it is that humans make music and listen to music and are so motivated to participate in music globally across the lifespan," Samuel explains.

But the puzzle for a developmental psychologist is why?

Here is a link to a YouTube clip about the research: <https://youtu.be/-vJ7Jygr1eg>.

Registration is now open via the link [Christchurch](#)

Please tell or share the details of this talk to anyone, group or organisation that you think would be interested.

Royal Society Te Apārangi will, with the branch also holding Prime Minister's Te Puiaki Pūtaiao Matua a Te Pirimia Science Prize 2023 talk by Professor Parry Guilford FRSNZ, from Ōtākou Whakaihu Waka | University of Otago, in Christchurch, Thursday September 19th at the University of Otago School of Medicine Christchurch Campus.

The Timaru Prime Minister's Te Puiaki Pūtaiao Matua a Te Pirimia Science Prize 2023 talk by Professor Parry Guilford FRSNZ, from Ōtākou Whakaihu Waka | University of Otago is now scheduled for Wednesday September 18th at the Ara Timaru Campus.

Registrations for both of these talks will be out soon.

Canterbury Westcoast School Science Fair

The Canterbury Westcoast School Science Fair will be held on

When: 21st- 22nd September 2024 (Sat 21st Judging (am) and Public viewing (pm), Sunday 22nd Prize giving (11am) and Public Viewing (am)).

Where: University of Canterbury, fair held in the Ernest Rutherford Building, prize giving in Central Lecture Block.

We support this by providing prizes for this and many thanks to the members who volunteered as judges. If you still want to help judging in the morning of 21st, please email me rwfagg@gmail.com

Cafe Scientifique

As you will know, the branch supported this event by providing funds to pay for the speaker's meals. It was held at the Foundation Café, Tūranga, that attracted 60 people.

Here are some photos from the event.



Students travel grants.

Awarded.

Abigail Schwartfeger \$1250

Ph.D, School of Biological Sciences, University of Canterbury

Presentation: Poster. Title: A deadly choice: Oxidation controlled amyloid assembly of the cell death regulator caspase-8 drives necroptosis.

Conference: The Gordan Research Centre Cell death conference Maine USA.

Reports from grant recipients.

From Emma Steel PhD Candidate

Tēnā koutou,

My name is Emma Steel, and I am a PhD candidate in Psychology at the University of Canterbury. From June 5th to 7th, 2024, I had the privilege of attending the 16th European Academy of Occupational Health Psychology Conference in Granada, Spain.

Attending the conference was certainly a highlight of my PhD journey. I had the opportunity to learn about current research in my field and practice my presentation skills by sharing the first two studies of my PhD research as part of a symposium. I would like to extend my sincere thanks to the Canterbury Branch of the Royal Society for supporting my attendance at this conference with a Travel Award.

During the conference, I presented the first two studies of my PhD in an oral presentation titled “Improving Work-Related Psychosocial Risk Management: A Mixed Methods Evaluation of the Factors Influencing Inspectors’ Practice”. These studies aim to enhance our understanding of ways to support health and safety inspectors to engage effectively with employers and employees about work-related psychosocial risks. Psychosocial risks are risks which can impact employees’ mental and physical health, with exposure linked to outcomes such as stress, fatigue, anxiety, and musculoskeletal disorders. There is increasing awareness and concern about the impact of psychosocial risks among the public and regulatory authorities. Further, past research has signalled a need to develop regulatory capability and capacity to address these risks.

The research I presented utilized a mixed methods design, incorporating interviews and an online survey of inspectors. The findings of this research provide a foundation for potential capability development strategies, by signalling the importance of specific job resources (e.g., role-clarity), training methods (e.g., scenario-based training) and training content (e.g., risk identification methods) that could be leveraged to support inspectors to engage effectively with stakeholders regarding psychosocial risks.

The theme of this year's conference was “Contributions of Occupational Health Psychology to Social Justice”, with one of the key topics being “Policy-Level Interventions Including Regulation”. This theme aligned perfectly with my research, which underscores the importance of considering the needs of health and safety inspectors—the frontline staff of health and safety regulators—who play a crucial role in translating regulatory policy into practice.

Thanks again to the RSNZ Canterbury Branch.

Ngā mihi nui,

Emma Steel

PhD Candidate

Te Kura Mahi ā-Hirikapo | School of Psychology, Speech and Hearing

Te Whare Wānanga o Waitaha | University of Canterbury

From Kate Truman

I would like to express my gratitude to the RSNZ Canterbury branch for your financial support to attend the Mathematical and Computational Evolutionary Biology (MCEB) conference in Montpellier, France. I am a second year PhD student in the School of Mathematics and Statistics at the University of Canterbury studying phylogenetics, with a research focus on time-dependent birth-death models. The four-day MCEB conference in June had approximately 40 attendees, including 6 plenary speakers, 19 oral presenters and 10

poster presenters. I was fortunate to give my 20-minute talk entitled “Identifiability of the Fossilised-Birth-Death model” on the first day, which provided plenty of subsequent opportunities to discuss my work with other attendees.

The Fossilised-Birth-Death model is a type of birth-death-sampling model commonly used to model evolutionary scenarios using rates of lineage speciation, extinction and sampling that can vary through time. A model is said to be theoretically identifiable if there are no two parameter sets (in this case, the set of birth, death and sampling rates) such that they have the same likelihood. As maximum likelihood approaches are used to infer the true evolutionary rates of birth-death models, we cannot be confident that evolutionary rates selected under an unidentifiable model represent the true scenario. Given that birth-death models without past sampling were shown to be unidentifiable, which caused some concern in the phylogenetic research community, it was pleasing to co-author work proving that the Fossilised-Birth-Death model is identifiable, and to present an overview of this positive result at MCEB.

There were several other talks at the conference which focused or touched on model identifiability, and it was interesting to consider different mathematical proof approaches for these cases. As one of my two current research topics involves using neural networks to classify phylogenetic tree models, it was particularly valuable to hear about the work of Spanish researchers who recently used neural networks to distinguish between different evolutionary scenarios, such as mass extinction and diversity dependent evolution.

During my three-week trip I was also able to visit the Computational Evolution group at ETH Zürich (Switzerland) and the Höhna Lab at Ludwig Maximilian University of Munich (Germany). I enjoyed seeing how a larger lab group of more than 20 people was structured, meeting collaborators in person for the first time, and learning how international researchers are supported to learn German by the Swiss government. My co-supervisor and I were able to discuss a range of topics with other researchers, including model identifiability, epidemiological waste water tracking, and skyline models, the latter of which is my second current research focus.

Thank you very much for your support.



Children’s University project

As you know, the Branch decided to support the Children's University in a project. Here is an outline of the project we will support and was run at the University of Canterbury last month.

On Monday 24 and Wednesday 26 June, Branch member Rob Cruickshank led an on-campus activity on soil biodiversity for the Childrens’ University at the University of Canterbury. Eight groups of students from local schools used the School of Biology’s microscopes to look closely at tiny soil animals such as earthworms,

springtails, and mites. They compared samples collected in Hagley Park with others from the West Coast, played soil animal bingo, and competed to see which group could discover the greatest diversity of species most quickly. At the end of two days, after repeating this eight times with different groups of students, they were still finding new things in the samples!

Thanks to generous sponsorship from the Branch, this activity will be taken out to several local schools later this year, and its effectiveness will be evaluated by a University of Canterbury environmental science honours student as part of her final year research project.



More on this in the future.

University Library member access

Don't forget once you have paid your branch sub and received a receipt you can join the Library at Lincoln or Canterbury Universities. Lincoln library has fee for the membership card of \$30.00 but is waiving the first 10 members who join the membership card fee.

Each library provides similar access to their collection, borrowing time etc and restrictions to periodicals etc as set by the publisher's access rights. These can be explained to you on applying for a card.

Branch Constitution

The branch council meet last month with Steven Moe from Perry Field Lawyer regarding the re-registration of the branch as required under the new Incorporated Societies Act. Steven is an expert in this area and gave the council advice as to changes we should consider as we review our constitution.

The council will now review the constitution, adding section on digital storage of records, zoom meetings etc. If you have any thoughts regarding any changes you like to see, please let us know. We plan to have a revised Constitution ready for the Annual General Meeting next year.

Newsletter software

We like to improve this newsletter and it has been suggested that we find a software package to generate the newsletter. If you have any experience or know anyone who does in this can you tell us, what software you/they use etc.

Branch Podcast

The council is working on creating the branch own Podcasts, and at the last meeting, we decided to purchase a digital audio recorder, one that has been recommended by Plains FM. Having our own recorder means that we will be able to record any of the talks we have in the future, record interviews like the winners of the Science Fairs etc. Plains FM and Ara creative are working with us on this, to create this exciting project.

Subscriptions.

Many thanks to all that have paid their subscription, your support is vital to the branch

If you did not receive an account and still want to be a member, you can either email payments@canterbury.rsnzbranch.org.nz or pay using the details are below. The branch subscription fees are

Ordinary, \$45

Retired \$35

Student, \$10

Prompt payment discount of \$5 ends this month **31st July 2024**

Bank account 02 0820 0601223 00

Please add full names in sub transactions and sub-2024 so we can identify you.

Upcoming Branch talks, field trips and related activities

Christchurch talks

Registrations are now open for this talk at [View Christchurch details](#). and please share with anyone, group or organisation you think might be interested.



14 August, Christchurch

[Our Musical Minds](#)

Dr Samuel Mehr, winner of the [2023 Prime Minister's MacDiarmid Emerging Scientist Prize](#), will give a talk on the **psychology of music**.

Henry Wadsworth Longfellow famously described music as "the universal language of mankind." Recent insights from cognitive and developmental psychology, cross-cultural data science, and evolutionary anthropology show that he had the right idea.

Samuel will present findings from an array of studies that together demonstrate the striking universality of our musical minds. [View Christchurch details](#).

Prime Minister's Te Puiaki Pūtaiao Matua a Te Pirimia Science Prize 2023 talk by Professor Parry Guilford
FRSNZ F Thursday 19th September Venue: University of Otago School of Medicine Christchurch Campus.
Rolleston Lecture Theatre; Riccarton Ave 5.30pm-7.30pm. Registrations will soon be available for this event.

Timaru talks

Prime Minister's Te Puiaki Pūtaiao Matua a Te Pirimia Science Prize 2023 talk by Professor Parry Guilford
FRSNZ Wednesday 18th September Venue Ara Timaru Campus. Registrations will soon be available for this event.

Upcoming field trips

We been working on some field trips for the Spring. Dates for these will be in the next newsletter.

And don't forget our CO2 monitor you can borrow. It's been in use regularly and don't forget to contact us and we arrange for you to pick it up. A guide to recommended CO2 measurements can be found at <https://www.rnz.co.nz/news/in-depth/470690/whose-breath-are-you-breathing>.

All we ask in return is that you post your findings on either the branch Facebook page or twitter.

As you can read, the branch and council have a lot coming up in the next few months, as well as plans to launch a podcast, and work with other groups to bring exciting opportunities to Canterbury and of course our members. If you want to help us, please contact us, your input will be valued.

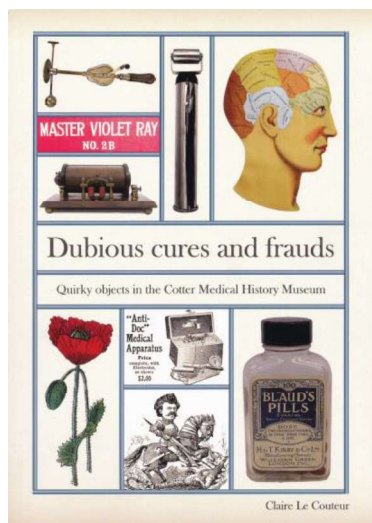
Cotter Medical History Trust

Just published from the Trust and authored by Claire Le Coureur is a new book titled Dubious cures and frauds.

New Zealand had a remarkable number of quacks and fraudsters active in the early 20th Century. They travelled the length and breadth of the country promoting their curative gadgets. The Cotter Collection includes many of these devices and even a completed phrenology chart. A medicine chest contains pills and potions thought to provide cures for many common complaints. The outright quacks, who invariably came via Australia, once exposed in New Zealand returned to cause further mayhem there.

RRP \$30 plus \$8 postage within New Zealand

Contact us at info@cottermuseum.co.nz



The Museum is still without a home and are packing up the museum for a move out of their current premise in in about six weeks, still with no definite premises to go to. Let's hope they can find a place as to lose this would be a lost to Canterbury and New Zealand.

Link newsletter

The Royal Society Te Apārangī has resurrected the Link members newsletter, and as you know, branch members are automatically become Friends of the Royal Society Te Apārangī. If you don't know what benefits this brings, click here to find out- <https://www.royalsociety.org.nz/join-us/friends/>

Back to the Link newsletter. We will place a link here for you to get the current newsletter- <https://www.royalsociety.org.nz/fellows-and-members/link-news/2024/june-3/>

From other branches and RSNZ Te Apārangī

From Royal Society Te Apārangī



Distinguished Professor Dame Jane Harding commences role as Royal Society Te Apārangī President. Read more
at <https://www.royalsociety.org.nz/news/distinguished-professor-dame-jane-harding-commences-role-as-royal-society-te-aparangi-president/>



New Zealand Engineering Science Competition

Can your students win \$1000 in the New Zealand Engineering Science Competition?

Hosted by the University of Auckland, this fun and challenging day-long competition is targeted at teams of three to four senior students, who have interests in mathematics and science.

The 2024 competition will run near the start of term 3, on Saturday the 10th of August. The problem is revealed at 10am in the morning and students work in their teams to provide a solution by 6pm of that day. First prize is \$1,000 per student and the two runner-up teams get \$500 per student. There is also a \$500 prize for the teacher in charge of each of the top three teams.

Registration is free and closes Friday 2nd of August.

For more information and to register your team(s) see the [Department of Engineering Science website](#) at the University of Auckland.

NZ science sector 'under threat like never before' over job and funding cuts

- 350+ science jobs have been cut, with losses likely to increase, impacting the sector deeply.
- Funding cuts include nearly \$500 million from planned science infrastructure and \$30 million from key research funds.
- The Government faces calls to halt further cuts and boost science funding to 2% of GDP.



Jamie Morton @NZ Herald

Click on title to read more

Hawke's Bay Branch of the Royal Society of New Zealand

["Hawke's Bay Scientists on Air" radio broadcasts](#), which we support, now go to air each second Monday after the 10:00 am news.

Links to articles of interest

From The Conversation

Maria Blake, Monash University; Jeffrey Stilwell, Monash University

Amber catches creatures in incredible detail. These fossil insects in amber are a link between ancient Gondwana and modern Australian forests.

Click here for more [Australian amber has revealed 'living fossils' traced back to Gondwana 42 million years ago](#)



From ScienceNordic.com

Unique find: The oldest fossil of its kind in the Southern Hemisphere

This vertebra was sent from New Zealand to Norway. It turned out to be quite special.

Click here to read [The nothosaurs spread astonishingly quickly around the globe. This is evidenced by the discovery of a bone in New Zealand, which has been examined in Norway. \(sciencenorway.no\)](#)



BBC Earth science

Gold rush

From its cosmic origins to the dusty trails of the Wild West, the story of gold is as alluring as the precious metal itself.

▶ [Mesmerising metal](#)



You can keep updated by on the branch's Facebook page Canterbury RSNZ Branch or twitter @CanterburyRSNZ.

If have any suggestions for speakers, field trips ideas, or even contribute something in the newsletter please contact us and I am always willing to discuss anything regarding the branch with you.

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