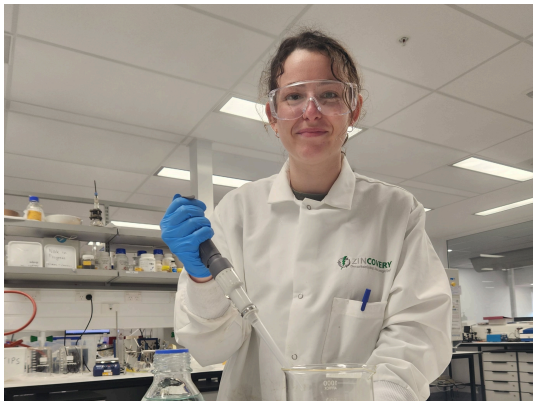
Te Mana Tangata Whakawhanake
MacDiarmid Institute
Advanced Materials & Nanotechnology

In 2011, our founder Sir Paul Callaghan said 'A hundred inspired New Zealand entrepreneurs could turn this country around.' With those words in mind, we have created a ‘list’ of over 100 of our science graduates who are making an impact in the deep tech sector, either by establishing their own deep tech start-up companies, by working within other deep tech start-ups, or by working in wider research-led industry here in Aotearoa New Zealand.

Here are two of them. You can read about the rest of ‘Our Inspired 100’ here.



Lily Clague did her Masters in chemistry at the University of Otago and is now employed at start-up Zincovery. Lily also featured in this Farmers Weekly article.

Dr Ratu Mataira did his PhD in physics at Victoria University of Wellington and is the founder of Openstar Technologies Ltd. Openstar is developing the Levitated Dipole Fusion reactor leveraging New Zealand's unique capability with HTS magnet technology.

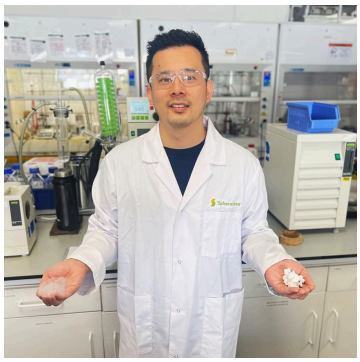
News and Updates

[A new method to pump carbon dioxide out of the air]

Associate Investigator Professor Tricia Hunt and her UK based collaborators have developed and tested a CO_2-permeable synthetic membrane.

Their paper was published in Nature Energy.

[On a mission to disrupt the US$45 billion global surfactant industry with greener alternatives]



Currently 90% of current surfactants used in cleaning products and other surfactants are derived from fossil fuels. Spherolose, a new start-up company founded by AUT-based Associate Investigator Dr Jack Chen (who was shortlisted for this month's KiwiNet Sprout Agritech Breakthrough Innovator Award), aims to offer bio-derived, biodegradable surfactants.

[MBIE Endeavour success]

From Scalable cryogenic memory technology for superconducting and quantum computing to A foundation for zero emissions: Low-energy, carbon-absorbing cement – read more here about our researchers successful in this year's MBIE Endeavour Fund round.

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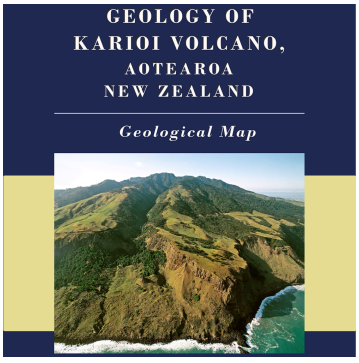
[AMN11 early bird registration closes next week!]

Join us in Christchurch NZ in February 2025 to hear Nobel Prize Laureate Moungi Bawendi from Massachusetts Institute of Technology, Roisin Owens from University of Cambridge and more!

AMN11

Our former Research Assistant Dr Oliver McLeod launched his Karioi monograph and map book. The mapping plays a crucial role in resource management and contributes to the study of new volcanic formations in the area, increasing collaboration between science and mana whenua.



Te Wiki o te Reo Māori 2024

For Te Wiki o Te Reo Māori, we shared some new words relating to our research:
Hangarau mōkitokito = Nanotechnology
Hangarau rawa ōkiko = Technology
Mātu = Materials/Matter/Substance
Rāpoi ngota = Molecule
Irahiko = Electron
Toitūtanga = Sustainability

Deepening Māori Space Connections with NASA

Our Deputy Director Māori Associate Professor Pauline Harris and Strategic Manager Māori Kirsty Doyle headed to NASA to collaborate on research and create connections with indigenous peoples and to talk about Māori aspirations in the Aerospace sector. (Left to right) Kirsty Doyle, Pauline Harris, Mana Vautier, Ockie Simmonds and Hemi Whaanga.

The MacDiarmid Institute is delighted to announce the continued funding of the Discovery Scholarship Programme, for Māori and Pacific Island students in tertiary science.
This programme is designed to support students studying in the physical sciences, chemical/materials engineering, Māori sciences or sciences related to sustainable innovation.

And just to finish, here are a couple more of our ‘inspired 100’ entrepreneurs – our alumni working in the deep tech sector in New Zealand.

Dr Olivia Ogilvie did her PhD in biochemistry at the University of Auckland and is now CEO at start-up company Opo Bio, New Zealand’s first company developing cell lines for biomanufacturing, including cultivated meat and collagen.

Dr Ojas Mahapatra did his PhD in physics at the University of Canterbury and is currently CEO of cryogenic technology company Fabrum.

You can read about the rest of 'Our Inspired 100' here.

Recent Media

Associate Investigator Dr Erin Leitao contributed to the Science Media Centre's expert reaction on microplastics.

Alumnus Dr Daniel Mak, Principal Investigator Professor Aaron Marshall and PhD student Sam Harris were excited to announce the public launch of their new podcast series 'In the Deep | Aotearoa'. They said that they are hoping to help everyone gain an understanding of the cool science, engineering and technology going on in Aotearoa New Zealand. The first two episodes are now live, including one with Co-Director Professor Justin Hodgkiss, so please give them a listen.

Associate Investigator Dr Jack Chen has been announced as a finalist for the 2024 KiwiNet Sprout Agritech Breakthrough Innovator Award, and he and his new start-up company, Spherelose, feature in this article on the MI website.

Take a look at the excellent article written by MacDiarmid Institute Co-Director Professor Nicola Gaston about New Zealand's 100 inspired entrepreneurs: https://businessdesk.co.nz/article/opinion/new-zealands-100-inspired-entrepreneurs (available via Library subscription). You can see the full list here on our website: https://www.macdiarmid.ac.nz/what-we-do/into-the-future/our-inspired-one-hundred/

Lily Clague (former MSc student from Anna Garden's group at Otago), who features in the above list and at the start of this newsletter), was good enough to agree to an interview on Nine to Noon last week about her journey from being a research student to working at Zincovery.

Business Desk featured a nice article about the work that Associate Investigator Dr Ben Mallett has been doing as part of the new spin-out company, JXB Space Systems (paywalled).

There is a new season of SFSF https://www.rnz.co.nz/podcast/sci-fi-sci-fact/season-6

Opportunities

Research Assistant (RA) position – Collaboration with Fisher and Paykel Appliances

Recruitment is underway for an excellent research assistant (RA) for a collaborative project between Fisher and Paykel Appliances, the University of Auckland, and the MacDiarmid Institute. The position is available starting in 2024 and extending for several months into 2025. This intended as a fixed-term full-time position, with some flexibility for the right candidate, and potential for the project to extend beyond the initial term.

The project supports Fisher & Paykel's R&D strategy, in particular their carbon goals: "In 2024 Fisher & Paykel proudly published our first Carbon Impact Statement setting out our public and transparent commitment to our people, our customers, and our partners outlining the changes we intend to drive right across Fisher & Paykel towards our ambition to mitigate the negative impact we have on the climate. As part of this commitment, Fisher & Paykel can see that disruptive innovation is required in our products and the ways they are used. This research will help explore future low energy cleaning technologies."

For full details, please see the post on the MacDiarmid Institute alumni LinkedIn page.

Two of our affiliated start-up companies also have opportunities coming up.

Summer Internship available at biotechnology start-up Opo Bio

Opo Bio is an agritech start-up company that supplies cells sourced from New Zealand livestock to global cellular agriculture companies. The intern will work with the team at Opo Bio HQ at the Newmarket Innovation Precinct to isolate and culture livestock cells, with the aim of producing high quality products for nutrition, medicine and cosmetics.

Supported by the MacDiarmid Institute, this internship will provide experience for an early career researcher working in a New Zealand start-up company.

This is a 4-month paid position between November 2024-March 2025, based in Auckland.

Please apply with a CV and cover letter to laura@opobio.com

And Advemto will be looking to recruit in 2025, and is keen to hear from potential candidates with a background in optical spectroscopy or cell biology. Recent graduates are especially encouraged to get in touch with Justin.Hodgkiss@advemto.com.

That's it from us for now. Thank you for your continued interest in and support for the MacDiarmid Institute and if you know anyone who is interested in signing up to our quarterly email newsletters, please let us know.

Anything to share?

We'd love to celebrate your journey post-graduation. It helps us tell stories and paint pathways for secondary school students and others who are keen to see where science can lead them. If you would like to share with us your story or a recent discovery, achievement, media appearance etc. Contact us! We'll take care to only share where and how you'd like us to.

There are plenty of opportunities to stay connected with the MacDiarmid Institute whānau, by joining our LinkedIn Alumni Group in particular. We'd love to continue receiving feedback on this newsletter, and to hear if there's anything else MacDiarmid Institute -related that you'd like to be kept up to date on. Please also forward this newsletter to other alumni you know.

If you are a MacDiarmid Institute alumni and have been forwarded this email by someone else and would like to join our quarterly alumni newsletter mailing list (and also hear of opportunities in between newsletters, e.g. jobs, scholarships and updates on Techweek events etc.), please contact us.