



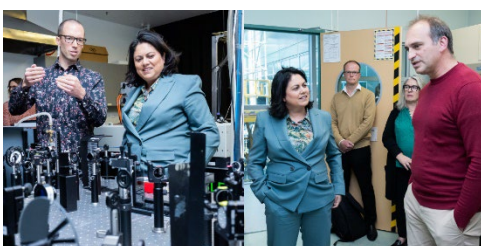
Te Mana Tangata Whakawhanake  
**MacDiarmid Institute**  
Advanced Materials & Nanotechnology

2022 saw our people out and about again. Our researchers joined an Iwi and Māori student haerenga to Oxford University, spoke with science groups and schools about how science makes its way into the marketplace, and we enjoyed our first proper get-together in almost two years. It's a fantastic time bringing the MacDiarmid Institute together for our annual symposium, we welcome alumni to please [contact us](#), if you would like to participate in future symposia.

We wish you and your whānau a restful and safe holiday season. Thank you for reading.



## News and Updates



[Hon. Ayesha Verrall, Minister for Research, Science, and Innovation](#) visits VUW labs  
As part of her visit to [Te Herenga Waka - Victoria University of Wellington](#), the Minister for Research, Science, and Innovation, [Hon. Ayesha Verrall](#) checked out the Institute's work in deep-tech and clean-tech, visiting the labs of Co-Director and Principal Investigator [Professor Justin Hodgkiss](#) and Associate Investigator, [Associate Professor Franck Natali](#).



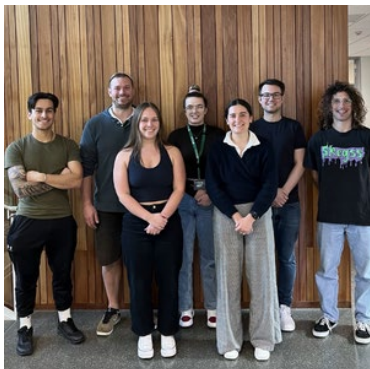
Our Deputy Director Māori, [Associate Professor Pauline Harris](#), [Board Chair Hēmi Rolleston](#), [Professor Duncan McGillivray](#), and [Discovery Scholarship alumna Juliet Nelson](#) went to Oxford in October on a haerenga hosted by the [Rhodes Trust](#), to encourage more Māori to apply for the [Rhodes scholarship](#).



[2022 MacDiarmid Institute Marsden grant successes](#)  
Our researchers received \$7.84 million funding across nine projects through the [2022 Te Pūtea Rangahau a Marsden, the Marsden Fund](#). The projects include spectroscopy, superconductors, hydrogen, viruses, solar power as well as energy conversion and storage. [Read about the winners here.](#)



[Principal Investigator Dr Laura Domigan](#) and [Dr Olivia Ogilvie](#) have recently launched their new startup company [Opo Bio](#) to develop and market cell lines to the cultivated meat industry. They have been working on NZ beef and pork, and have a product ready for initial sales to research customers. The recent investment round into *Opo Bio* was led by [Matū](#) and syndicated with [University of Auckland Inventors' Fund](#), [Booster Innovation Fund](#), and angel investors. [You can read more about it here.](#)



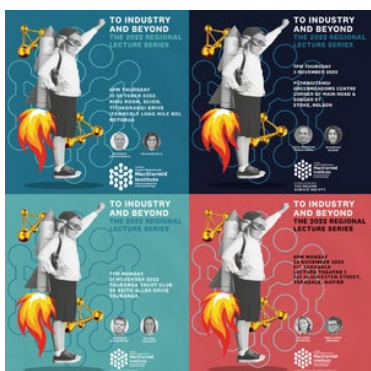
Associate Investigator [Dr Mat Anker](#) from [Te Herenga Waka - Victoria University of Wellington](#) has been [awarded a 2022 Rutherford Discovery Scholarship](#) for a research programme titled 'Lanthanide(II) Hydrides for Nitrogen Fixation and Ammonia Production', that aims to transform the worldwide economy of fertilisers, placing Aotearoa at the centre of this new renewable, carbon-neutral fertilizer world, with environmentally friendly kai on our tables. Congratulations Mat!



#### [MacDiarmid Business Scholarships for Alumni](#)

Our 2023 Alumni Business Scholarships for postgraduate study in business-related areas have been awarded to [Dr Vipin Kumar](#) and [Dr Farzana Fadakar](#). You can read about our scholarship recipients and their intended study [here](#).





From the lab bench to the marketplace  
Our researchers took our annual [Regional Lecture Series](#) to [Hawkes Bay](#), [Nelson](#), [Tauranga](#) and [Rotorua](#), speaking with science groups and schools about how materials science spins into startups in the hi-tech sector. It was great to see so many alumna present at this year's events - special thanks to [Dr Shalini Divya](#), [Dr Anna Farquhar](#) and [Dr Maryam Shojaei](#).



[Principal Investigator Associate Professor Geoff Waterhouse](#) was awarded the [Shorland Medal from the New Zealand Association of Scientists](#). The Shorland Medal is awarded in recognition of major and continued contribution to basic or applied research that has added significantly to scientific understanding or resulted in significant benefits to society. Further congratulations are also due to Geoff Waterhouse for again being named on [Clarivate's annual Highly Cited Researcher List](#).



[Ben Roberts](#) has been awarded a [Cambridge-Rutherford Memorial PhD Scholarship](#) for research titled: 'Leveraging Epigenetics for Healthy Ageing' to undertake at [Te Herenga Waka Victoria University of Wellington](#). Ben received a Te Taumata Award - High Achiever Award in 2022 as part of our [Discovery Scholarships programme](#) while a conjoint student majoring in medicinal chemistry, molecular pharmacology, physics and mathematics. Congratulations Ben!



Emeritus Professors (and founding MacDiarmid Principal Investigators) [Maan Alkaisi](#) and [Alison Downard](#) were [recently recognised](#) at a [University of Canterbury](#) event celebrating the careers and contributions of long-standing professors.

We congratulate the following MacDiarmid Investigators who has been successful in recent promotion rounds at our various partner organisations.

- Professor: [Chris Bumby](#) and [Geoff Waterhouse](#)
- Associate Professor: [Natalie Plank](#) and [Anna Garden](#)
- Senior Lecturer above the bar: [Laura Domigan](#), [Cameron Weber](#), [Nate Davis](#)
- Senior Lecturer: [Krista Steenbergen](#), [Mat Anker](#) [AMN10: The 10th International Conference on Advanced Materials and Nanotechnology 7-10 February 2023](#).

AMN10 Early Bird Registrations close on Friday 21 October. We have already received hundreds of abstracts for our biennial AMN conference. We are looking forward to hosting our first international conference since 2019! [Check out our awesome speaker line-up](#). We look forward to reconnecting with international visitors and current and past MacDiarmid whānau again! [Be sure to register before the deadline](#).



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[The inaugural New Zealand Hydrogen Symposium \(NZHS-1\) will be held in Dunedin, Aotearoa New Zealand, 1-3 February 2023.](#)

This new research focussed symposium series is being hosted by the University of Otago and supported by the New Zealand Hydrogen Council and will complement the industry focussed [H2 2 ZERO Summit](#) first held by the Hydrogen Council in 2022 and confirmed for September 2023 in Wellington. Both the Summits and the Symposiums will be held on a recurring basis.



[Science Advisory Panels](#)

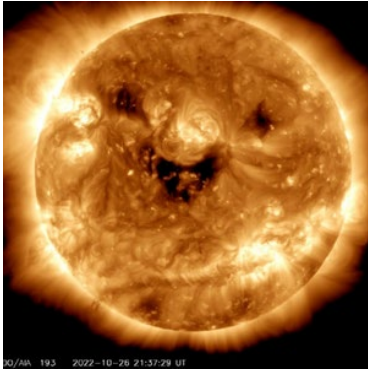
We commenced an online platform for regular engagement between technology companies and our scientists in the form of Science Advisory Panels. Each panel session hosts a company that is interested in pursuing research to overcome a technical challenge with commercial relevance. If you or your company is interested in being part of our Science Advisory Panel, please contact [Kevin Sheehy.](#)



[Internships](#)

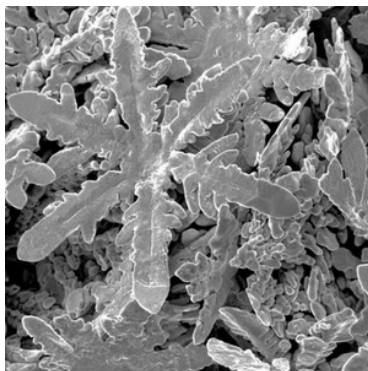
As you probably know, we offer internships to our affiliated graduates so they can experience working on real industry problems. We have a comprehensive network of companies, start-ups, NGOs, and government agencies. If your company or workplace wishes to host an internship, please [contact us.](#)

## Recent media



### [Sunshine science](#)

Two MacDiarmid researchers spoke with [RNZ](#) about the power and peril of the sun's rays, with [Dr Mike Price](#) talking about his recent Nature Comms paper on organic PVs, and [Professor Martin Allen](#) talking about UV dosimetry and its use in sun-smart schools.



### [How to make tiny metal snowflakes](#)

In a paper that came out in Science, [Co-Director Professor Nicola Gaston](#), Associate Investigator [Dr Krista Steenberg](#), and postdoc [Dr Steph Lambie](#), and collaborators from [UNSW](#) showed that liquid gallium could be used as a solvent to grow intricate morphologies of metal nanostructures (including snowflake-like structures!). It is wonderful to see new breakthroughs springing from the deep body of fundamental knowledge that the team has built up.



### [Tomorrow's World: On Eumelanin w/ Justin Hodgkiss on 95bFM](#)

Tomorrow's World spoke with Co-Director [Professor Justin Hodgkiss](#), about his research group's new findings on how eumelanin works.



### [NZ deep-tech startup raises \\$3m for zinc recycling](#)

MacDiarmid Institute affiliated spinout, [Zincovery](#) by alumnus [Jono Ring](#) and [Principal Investigator Professor Aaron Marshall](#) from [University of Canterbury](#) are featured in the [Air New Zealand Kia ora](#) magazine as part of an article on [upcycling tech companies](#). They also recently were featured in a [Newsroom article](#) on their success in raising \$3m for zinc recycling.





[Co-Director Professor Nicola Gaston](#) said she supported the Government's [white paper on Te Ara Paerangi – Future Pathways](#)' proposed direction of change, but the challenge would be in implementation, commenting in this [RNZ article](#), and in the [SMC expert reaction](#). She said the white paper correctly raised the need for more funding, particularly the need for higher investment in Māori research (done by and for Māori), but that the key uncertainty was what the national research priorities would be and how they would be chosen. The white paper discusses proposed reforms of research and science funding in New Zealand, starting from next year. The [full paper is available](#) as is and as a briefer [summary document](#).



Our [Deputy Director Māori and Principal Investigator Associate Professor Pauline Harris](#) contributed to this [article on Stuff talking about concerns that Māori voices are being left behind as the nation's space sector grows](#). She also spoke with Te Ao Māori News host Neil Waaka about why Māori [need to have a seat at the table to help grow the Aerospace sector](#). A further interview by Pauline on this topic is also available on [95FM](#).



[Reflections on Deep Tech in Aotearoa New Zealand](#)  
Dr Andrew Chen from Matū wrote another [great blog post](#) on deep tech trends in New Zealand. Not surprisingly, several MacDiarmid Institute-linked companies (affiliated spinouts or with alumni employees) are featured among New Zealand's emerging sectors of strength, as seen by the investors. [Magritek](#), [Liquium](#), [Advemto](#), [Marama Labs](#), [Inhibit Coatings](#), [Humble Bee](#), [Tasmanlon](#), [Nanolayr](#), [Mint Innovation](#), [Ligar](#), [Zincovery](#), and [Opo Bio](#) to name some.

If you have something newsworthy coming up (a paper about to be published, job-related announcement, or anything cool your company is working on) and you'd like some help obtaining media around it, please email [Vanessa Young](#) (ideally before the publication or announcement – we're used working with embargoed content).

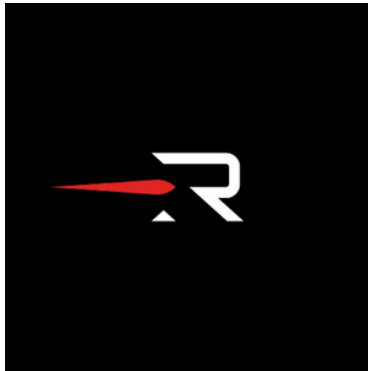


# Opportunities



## [Physics Research Fellow – University of Auckland](#)

Funded by Marsden for collaboration between New Zealand and Japan, the research fellow will work to create a new resource for quantum computing and quantum optics using existing experimental facilities in ultra cold atoms, coupled to an optical nano fibre. [Applications must be submitted online, by the closing date of 06 January 2023.](#)



## [Director of Guidance, Navigation and Control \(GNC\) at Rocket Lab New Zealand](#)

Rocket Lab are looking for an experienced technical leader to lead a growing Guidance, Navigation and Control (GNC) department in New Zealand. This department encompasses GNC, Flight Software, and Hardware-In-The-Loop testing teams, across our launch vehicles (Electron, Neutron) and space systems mission design (Photon). [For more information and how to apply, see here.](#)



## [Technical Learning and Development \(L&D\) Specialist – Dawn Aerospace, Canterbury](#)

Dawn Aerospace works in the area to provide dramatically more scalable and sustainable ways to access and move around in space. They are looking for someone with an ambition to design and build a world class L&D system for a high-performance team. [For more information and how to apply, see here.](#)



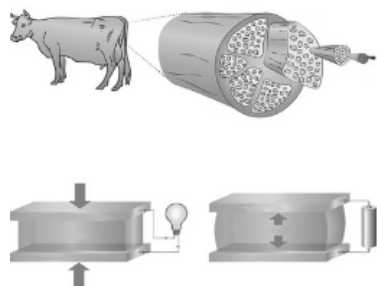
## [Investment Manager, Deep Tech – Martlet, Cambridge UK](#)

Work with the Martlet investment team, board, and shareholders, to help to build one of the UK's premier pre-seed and seed-stage investment companies. [For more information and to apply by the 3 February 2023 deadline, see their website.](#)



## [Product Scientist – AUT Ventures Ltd](#)

A research team from AUT has developed a novel bio-derived surfactant that can be made from wood pulp. They are searching for experienced Product Scientist. Seeking a Product Scientist to develop new formulations for soaps, shampoos, detergents, cremes and possibly cosmetics using their novel bio-derived surfactant. [For more information on the role and to apply by Monday 9 January 2023, see Seek.](#)



As you'll know from your time as a MacDiarmid student or early career researcher, we're always looking for volunteers to help with our educational outreach ([Regional Lecture Series](#), events organised through our [museum partnerships](#), and our [RNZ series](#) etc.) If outreach is your thing, and you'd like to stay involved with this, please [contact us](#).

[Ionic Pharmaceuticals \(Boston, MA, USA\)](#), whose staff have some connections with MacDiarmid, are recruiting for a scientist/engineer. This position will be central to the optimization of their leading sprayable wound dressing product. [Contact Geoff Willmott](#), Deputy Director Commercialisation & Industry Engagement, for a copy of the full job description.

Masters Project in Biopiezoelectricity ([University of Auckland](#)) We use an enormous number of electronic devices and sensors in society today, and these devices are a considerable waste and recycling burden. Imagine, if we could use biological materials to harvest energy from mechanical motion to power electronic devices? This project fits into a larger, MBIE funded project where we explore the piezoelectric properties of biological materials as a basis for electronic devices. The perfect student will enjoy problem solving and practical engineering solutions, as well as material science and measurements. Contact [Associate Professor Jenny Malmstrom](#) to find out more.

PhD Scholarship: Thinking outside the square! Exploring new nanomaterials with square geometries ([University of Canterbury](#) \$35k p.a). The aim is to develop a new class of highly-functional nanomaterials with unique square shaped geometries, determine their structure-property relationships, and explore their potential use as new high-efficiency electrocatalysts for CO<sub>2</sub> reduction and water denitrification. To apply, please send a CV, academic record, and the names and contact details of two referees to: [Professor Martin Allen](#). The ideal candidate will have (or soon have) a Masters or Honours degree in either Electrical Engineering, Physics, Chemistry, or a closely related science-based discipline.

[Breakthrough Energy Fellows Portfolio Job Board](#) [Breakthrough Energy Fellows Programme](#), the Bill Gates philanthropic fund for cleantech now has a jobs board for their start-ups with international opportunities. Noting also that [Associate Investigator, Associate Professor Franck Natali](#) is one of the [Breakthrough Energy Fellows](#).





### 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.

As always, 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-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 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 the Techweek events etc.), please [contact us](#) and we'll add you to our mailing list.

