



Te Mana Tangata Whakawhanake
MacDiarmid Institute
Advanced Materials & Nanotechnology

Mānawatia a Matariki.

We hope you found time to connect with family and friends over this time. As winter sets in here in Aotearoa New Zealand, and much of the world opens up for travel after two years, many of our researchers are looking forward to going abroad to reconnect in person with research collaborators.

We would like to take a moment to share with you our recent research and other news and our recently published [2021 Annual Report](#).

News and Updates



[Deputy Director Māori Associate Professor Pauline Harris is part of the expert group advising the government on the principles, values and dates of the Matariki holiday.](#)

In the lead up to Matariki, [we gathered stories of the work of the Institute relating to mana taiao](#) – stories which relate to the mana of the natural world.

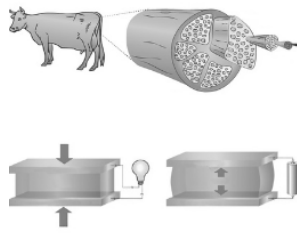


We held successful Techweek events in May in Auckland and Christchurch ‘*Building Kaitiaki for Intergenerational DeepTech Impact*’. These were valuable networking opportunities for our scientist entrepreneurs, industry partners, investors, and others in our network. Speakers included Investigators, [Associate Professor Franck Natali](#) and [Dr Matthew Cowan](#), alumni Dr Humphrey Feltham and Dr Maryam Shojaei, and others from the deeptech ecosystem.



[Summer of Lab](#)

Discovery Scholarship recipient [Shannon Macdonald](#) spent the summer making gold nanoparticles and hydrogels (respectively) in the labs of Principal Investigators [Professor Duncan McGillivray](#) and [Associate Professor Jenny Malmström](#). Eady Manawaiti interned with our Stakeholder Partner Iwi [Diane Bradshaw](#) had a two-fold project on the maunga Karioi. [Read about their internships here.](#)



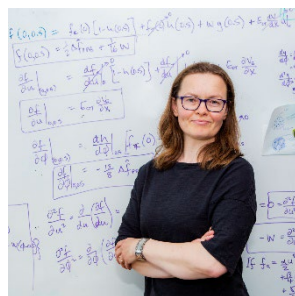
[Biodegradable electronic devices for wildlife conservation and livestock management thanks to clever proteins](#)

Across the globe, researchers are developing more sustainable alternatives – materials that biodegrade, and devices that can be made, disassembled and remade, leaving behind a much smaller environmental footprint. Principal Investigator [Associate Professor Jenny Malmström](#) talks about leading this research as part of our [Towards Zero Waste - Reconfigurable Systems programme](#).



[Reconnecting hapū and whānau with their whenua](#)

MacDiarmid Institute Stakeholder Relations Partner Iwi [Diane Bradshaw](#), from Ngāti Te Wehi, Ngāti Mahuta hapū of Waikato Tainui, and Te Uri o Hau ki Te Rarawa Iwi, is working with geologists and hapū to look at developing composite materials for building eco-papakāinga (development of housing on Māori land). [Ms Bradshaw](#) says her work in leadership and empowerment is based on traditional values and a Te Ao Māori worldview.



[Producing technology-critical materials for a low-emission future](#)

Associate Investigator [Professor Catherine Bishop](#) has been exploring the use of a process called molten oxide electrolysis (MOE), which may be able to reduce the carbon footprint of the metallurgical sector. Her MBIE Smart ideas funding, allows this research to go further as part of our Towards Zero Carbon - Catalytic Architectures research programme. [Professor Bishop](#) talks about the possibilities in our [Annual Report](#).



[Discovery Scholarships for Māori and Pacific Island students](#)

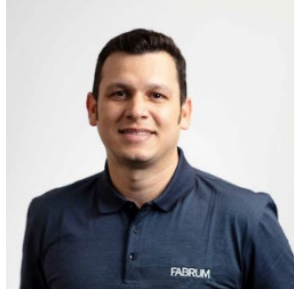
We awarded 23 new Discovery Scholarships for 2022, in the categories Te Mātauranga Pūtaiao (Māori Science), Te Taumata (High Achiever), Piki Ake (Step It Up), Te Kainga Rua (Second Chance Learner) and Te Huarahi Ki Mua. We are grateful for the co-sponsorship of these scholarships from [GNS Science and the Aotearoa: Green Hydrogen Technology Platform](#), and [Bioprotection Aotearoa](#).



[Travelling Science Showcase](#)

The ['Mighty Small, Mighty Bright'](#) travelling showcase is an interactive exhibition around materials science, nanotechnology and photonics that illustrates the journey of science from the lab to New Zealand homes and businesses. The exhibition has been at [Papakura Museum](#) in South Auckland and is now making its way south and will open at [Otago Museum](#) on 2 July.

Recent media



[Fabrum Welcomes Dr Ojas Mahapatra As CEO](#)

Christchurch-headquartered Fabrum, a world-leading engineering innovator, is proud to welcome MacDiarmid Institute alumnus Dr Ojas Mahapatra as CEO. Dr Ojas Mahapatra came to New Zealand from India on a fully funded MacDiarmid Institute doctoral scholarship and studied under [Principal Investigator Professor Simon Brown](#). He [was previously CEO of Photonic Innovations](#).



Budget 2022: Financial support for research eroding. Co-Director Professor Nicola Gaston's commentary about the 2022 budget appeared in [The Spinoff](#) and the [Science Media Centre](#), and was also picked up in the [NZ Herald](#). Professor Gaston made the point that without substantial new money, the financial support for research is eroding, more so in the current environment of high inflation.



[Carbon-capture technology not impossible, but just one of many pillars](#)

Principal Investigator Professor Shane Telfer from Massey University was interviewed on Lloyd Burr Live about technology being developed for carbon-capture to suck the CO₂ out of the atmosphere. Carbon capture is one part of our [Towards Zero Carbon - Catalytic Architectures](#) research programme. [Listen to the full interview here](#).



[RNZ's Sci Fi/Sci Fact - Supernovae](#)

A supernova is a powerful and luminous stellar explosion that occurs during the last evolutionary stages of a massive star, or when a white dwarf is triggered into runaway nuclear fusion. [Associate Professor Jan Eldridge from the University of Auckland explores the use of supernovae \(or exploding/dying stars\) in fiction](#).



[Battery research breakthrough powers success for international student](#)

Alumna Dr Shalini Divya with her MacDiarmid Institute affiliated spinout [Tasmanlon](#) is leading the drive to produce a long-lasting and sustainable battery which could transform renewable energy options. [The story of her journey and work was featured in Think New by New Zealand Education](#).



[Dr Ankita Gangotra pours over innovative technologies and policy initiatives to reduce CO₂ emissions.](#)

Alumna Dr Ankita Gangotra is a postdoc at Georgetown University, USA undertaking interdisciplinary work across academia and policy to decarbonize the cement industry, particularly in the USA. [Dr Gangotra was interviewed by the online magazine 'Physics' by the American Physical Society \(APS\).](#)



[The government has released its first plan on how to get to zero carbon emissions by 2050.](#)

The Science Media Centre (SMC) asked experts to comment on the Emissions Reduction Plan released by the New Zealand government on 16 May. Our Deputy Director Commercialisation and Industry Engagement, [Associate Professor Geoff Willmott commented on the Research and Development \(R&D\) aspect of the plan.](#)

Read these stories and more in our [2021 Annual Report](#).

Thank you for your continued interest and support in the MacDiarmid Institute and if you know anyone who is also interested in receiving our General Newsletter [please let us know](#).