Te Mana Tangata Whakawhanake
MacDiarmid Institute
Advanced Materials & Nanotechnology

A highlight for the end of 2025 was our stream of new PhD students who joined the institute as part of our new research programme 2025-2028. Starting a PhD is always a big step, and even more so when it involves moving to another country. We feel very fortunate to have attracted such outstanding PhD students from Aotearoa New Zealand and around the world.

News and Updates

[Hon Shane Reti describes the Institute as 'Innovation in Action']

It was wonderful to welcome the Minister of Science, Innovation and Technology, Hon Shane Reti, to some of our materials science deeptech labs, to showcase the fundamental science underpinning the emerging technologies being developed by our researchers. Minister Reti described the Institute as 'Innovation in action'. 'From Nobel-linked chemistry and ultrafast spectroscopy to start-ups and cleanroom labs, it was great to see how (the MacDiarmid Institute's) research is being commercialised in this spirit', he said. (The Minister is shown here speaking with Principal Investigator, Associate Professor Franck Natali, in the lab of start-up company Liquium).

Marsden success

19 of our Investigators have been successful across 12 projects in the recent round of Marsden Funding, with many of the projects closely aligned with our research programmes. Many of these projects correspond closely to the work of our Zero Carbon and Future Computing research programmes, in particular drawing on new physics and chemistry approaches to develop the materials and devices for tomorrow's advanced conventional and quantum computers.

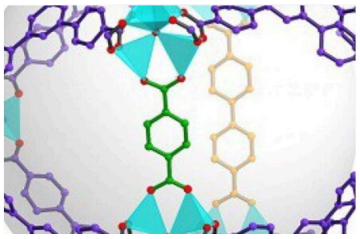
Success at the 2025 KiwiNet Awards

Two of our researchers took home 2025 KiwiNet Research Commercialisation awards. Paihau—Robinson Research Institute Scientist and Associate Investigator, Dr Ben Mallett, won the Ara Ake Breakthrough Innovator Award and was described by the judges as 'a catalyst for driving space innovation in New Zealand'. The KiwiNet judges described Principal Investigator, Professor Aaron Marshall, who is based at Te Whare Wānanga o Waitaha University of Canterbury (UC) and who won the BNZ Researcher Entrepreneur Award, as a 'true star performer… not only advancing research, but also reshaping how it creates value beyond the lab'. Waipapa Taumata Rau University of Auckland (UoA) - based Asscociate Investigator, Dr Michel Nieuwoudt, was also shortlisted for the KiwiNet Awards, along with UC start-up company Zincovery (for which Aaron and alumnus Jono Ring, are co-founders).

Joint Research on Memristive Molecules
Principal Investigators, UC Professor Simon Brown and Te Herenga Waka Victoria University of Wellington (VUW) Associate Professor Natalie Plank, have built a collaboration with scientists at the Laboratory of Physics and Chemistry of Nano-Objects at the University of Toulouse (UT), the National Institute of Applied Sciences (INSA) and the National Centre for Scientific Research in France (CNRS). (photo of Jérémie Grisolia with Simon Brown and Natalie Plank).

Thanks to a 2023 Te Apārangi Royal Society Dumont d'Urville Catalyst Grant, Simon, Natalie and their PhD students, Sofie Studholme and Marissa Dierkes, have been working both here and in France with Jérémie Grisolia, Simon Tricard and other French colleagues to experiment with adding memristive (memory resistor) molecules to nano-networks. (Simon and Natalie shown here with Institute Director Professor Nicola Gaston and Institute alumna Dr Lucy Gloag).

A Conversation on Methane Capture with the Prime Minister's Chief Science Advisor
Another visitor to our VUW based labs last quarter was the Prime Minister's Chief Science Advisor Dr John Roche. Dr Roche (shown here with our Catalytic Architectures Research Programme leader, Principal Investigator, Dr Luke Liu) was particularly interested in our MOF (Metal Organic Framework) research looking to capture methane (from cow sheds) and turning this into green fuels such as methanol. Dr Roche, who serves as Deputy Chair of the Prime Minister's Science and Technology Advisory Council, also visited the Cleanroom labs to discuss quantum computing and devices and the connections between long-running fundamental research and start-ups.



[And MOFs took out the Chemistry Nobel Prize in 2025]

'What a moment for those of us who love MOFs!' [Te Kunenga ki Pūrehuroa Massey University] Principal Investigator, [Professor Shane Telfer] on the announcement. 'MOFs are a true platform technology. They're phenomenal. We're only limited by our imagination.' Principal Investigator and [UC] [Professor Paul Kruger], commenting on the win.

[Royal Society Te Apārangi Hamilton Award Recognises Pioneering Data-Storage Chemistry]

[VUW] based Associate Investigator, [Dr Mat Anker], received the [Hamiton Award] (awarded for an early-career researcher for excellence in scientific research) for discovering the four-electron reduction of benzene, providing access to new classes of data-storage materials. His paper, with student Georgia Richardson, was published as the cover article in the prestigious Nature Chemistry in January 2025, and the story behind the work was profiled [here.]

And [UC] [Professor Aaron Marshall] won the [Royal Society Te Apārangi Pickering Medal] for [pioneering research in electrochemistry, and for successfully commercialising sustainable technologies].

['It still hasn't fully sunk in!']

Our alumna and affiliated start-up [TasmanIon] co-founder and CEO, [Dr Shalini Divya], on winning FIRST PRIZE in the idea stage category at the [Entrepreneurship World Cup (EWC)] in Riyadh.

Joint outreach trip to Rēkohu/Chatham Islands – 6-14 October

We joined a small team of scientists and science communicators on an outreach trip to the Chatham Islands (Rēkohu/Wharekauri) for school visits including whakawhanaungatanga at the two schools on the main island, pub talks, talks at the council chambers, a pub quiz, a short-film screening, science showcase and two community pop-up science days. We'd visited before (in 2022) and were eager to go back, recognising the value of repeat outreach visits, especially in more remote communities.

MBIE Endeavour success

Successful MBIE Endeavour funding of Principal Investigator, UC Professor Volker Nock's "Microfluidic devices driven by capillary action as a new diagnostic platform" includes fellow Associate Investigator, UC Professor Renwick Dobson, and Principal Investigator, UoA Professor Jadranka Travas-Sejdic, and will enable the team to expand their capillaric microfluidics work.

Recent Media

Associate Investigator, Dr Ben Mallett features with others in this article and video profile in BusinessDesk. Congrats to the whole Paihau-Robinson and Hēki mission team for the success of this — and in a story that leads with what we all understand is crucial understanding about the importance of fundamental science: 'It's based on superconductor technology that was patented in New Zealand in the late 1980s.'

Congratulations to Associate Investigator, Dr Nate Davis, on the Easterfield medal

Awarded by the NZ Institute of Chemistry! Check out this recent article in BusinessDesk regarding his work on singlet fission for solar cells at VUW.