



# Turning pollution into clean air

## On the surface it may sound like an impossible challenge—turning pollution into clean air.

Yet it's a challenge Victoria University PhD student John Watt has tackled with considerable success.

The 27-year-old's award-winning research involves using particles of palladium more than 100,000 times smaller than the width of a hair to remove toxic gases, such as carbon monoxide and nitrous oxide from dirty exhaust fumes, cheaply and more efficiently than existing methods.

"Palladium is currently used in car exhausts in this way, but the systems are horribly inefficient. This research increases their efficiency so that car companies get the same or better results by using smaller amounts," says John.

This could pave the way for a cheaper and more effective way of removing pollution from our streets, and create a double win for the environment by reducing the need for palladium mining.

"Mining this precious metal isn't very environmentally friendly, so our technology would mean using less of it and causing less harm to the environment."

With an estimated 600 million cars in the world, John thinks the ground-breaking technology could be a big money-spinner.

"The potential for commercialising this technology is huge. We've currently got a major British company, Johnson Matthey, a world leader in the supply of precious metals, studying our samples to determine their suitability for pollution control systems."

John's research, developed with the assistance of his supervisor Dr Richard Tilley, won him the 2009 MacDiarmid Young Scientist of the Year Award, which is presented annually to postgraduate science students by the Foundation for Research, Science and Technology. Awarded in honour of Victoria alumnus and Nobel Prize-winning chemist, the late Alan MacDiarmid, the award recognises young scientists who are making a valuable contribution to New Zealand's scientific efforts.

Napier-born John says winning the prestigious award came as a total surprise.

"I thought I did okay in the three selection rounds, including the last round which involved quite a gruelling interview session with a panel of top scientists. So when I found out I'd won the award, it was a really nice surprise."

As was the cash prize of \$10,000 and an additional \$5,000 for winning the Future Science and Technologies category. His prize package also includes the MacDiarmid medal and a trip to an international science event.

He also more recently won the inaugural Prime Minister's MacDiarmid Emerging Scientist Prize, worth \$150,000, which is presented to a scientist who is carrying out leading-edge science, and who is within five years of completing a PhD.

The chemistry student hopes to finish his PhD study at the end of this year and says he's keen to pursue this line of scientific research.

"I'm thinking about possibly doing a year of post-doctoral study in Japan, because they're doing some great research with nanoparticles over there. But my aim is to come back to New Zealand and work to commercialise the many applications that nanoparticles have, from environmental applications to medical imaging agents and even solar cells."



Photo: New Zealand Herald

john.watt@vuw.ac.nz  
+64-4-463 8047

*Victorious* is published by Victoria University of Wellington, Te Whare Wānanga o te Ūpoko o te Ika a Māui, PO Box 600, Wellington, New Zealand.  
www.victoria.ac.nz

To notify a change of address, or to sign up to the email newsletter *Life after Vic*, email [alumni@vuw.ac.nz](mailto:alumni@vuw.ac.nz) or call +64-4-463 6700.

Editor: Tania Guenter  
Editorial Team: Sharon Stephenson, Jeff Bell, Guy Randall and Sarah Barnett.

To contact *Victorious* or to submit a story idea, email [tania.guenter@vuw.ac.nz](mailto:tania.guenter@vuw.ac.nz)  
Photographs (unless otherwise credited): Image Services, Victoria University of Wellington. Cover image: Robert Cross, Image Services.

Cover image: Dave Heatley from the New Zealand Institute for the Study of Competition and Regulation

ISSN 1172-0387 © Victoria University 2009



## From the Vice-Chancellor

This year Victoria was reviewed in its fourth independent academic audit. The audit confirmed not only that we are heading in the right direction, but that our staff and students have tremendous confidence in their University.

Receiving a peer assessment from independent academic colleagues from both New Zealand and overseas is a useful way for us to get an outside view on what is working well and what we can do better—and it gives us an indication of how our staff and students feel about the University. The audit panel commented that there had been a significant growth in confidence since the last audit in 2005. A high proportion of our staff who were interviewed by the panel spoke positively about their work here and were supportive of our new strategic direction.

Learning and teaching are a key focus for all Universities, and the audit confirmed that there are many positive initiatives at Victoria. In particular, the Victoria Plus Award and our award-winning Victoria International Leadership Programme were seen as important developments in preparing graduates for leadership positions in society. The panel particularly noted the excellent quality of the student learning support offered by our Student Services Group.

We were commended for the improvements we have made to the facilities, resources and services in the Library since the last audit, and our progress and long-term planning in this area received great praise. An extension of this work is to continue for the next eight years, with a major transformation of the Kelburn Campus planned. This includes significant financial support from the Victoria University of Wellington Students' Association Trust. You can read more about these plans on page 12.

Of course, as is the case for all universities, there is always room for improvement. The report also made some suggestions about how we can further enhance our operations, often building on the ideas that we presented in our self-audit portfolio. The panel noted the significance of our new Learning and Teaching Strategy, which is explained in more detail by Deputy Vice-Chancellor (Academic) Penny Boumelha on page 10.

I am confident that, when it comes to the next audit in four years' time, the panel will again be impressed by our continued commitment to ensuring that Victoria remains an institution of excellence.

Professor Pat Walsh, Vice-Chancellor

## Contents

- 2 Research and Innovation**  
A look at the diverse range of remarkable research by staff and students
- 8 Learning @ Victoria**  
Stories that showcase the quality and variety of learning and teaching at Victoria
- 14 Alumni News**  
News from our graduates, and events of interest to alumni and members of the University community
- 18 Gifting**  
Stories about those who have donated funding, resources and time in their support of the University
- 19 Town and Gown**  
The best of both worlds—where Victoria meets the community for activities, performances and the sharing of expertise

