

# Research earns high praise

TWO University of Newcastle professors have received recognition for their industry-changing research.

The 2014 NSW Science and Engineering Awards are presented to researchers to recognise their achievements and

efforts to generate economic, health, environmental or technological benefits for the state.

Professor Nick Talley was awarded the Excellence in Biological Sciences award for his continued research into

gastroenterology issues. His latest work involved the link between the brain and the gut, which has the potential to change how gut problems are looked at.

Professor Behdad Moghtaderi received the Renewable Energy Innovation award for his

GRANEX heat engine invention. This invention turns low-grade heat sources into emission-free electricity.

Professor Moghtaderi said it was a great and unexpected honour as there were so many scientists doing amazing work.

## Grappling with the guts of the matter

By **CHRISTAL BRAND**

FOR the past 30 years Professor Nick Talley has been intrigued by unexplainable gut problems.

A major part of his study has been to sort out the causes and find treatments for disorders such as irritable bowel syndrome.

Professor Talley said research had shown such disorders ran in families so genetics needed to be considered.

That was "a big breakthrough," he said.

His team was able to understand that inflammation in the gut was connected to fatigue and anxiety.

So if fatigue and anxiety were to be fixed, gut problems should be addressed.

Professor Talley said the follow-up process was



**DEDICATED:** Professor Nick Talley.

also important, allowing researchers to see what environmental factors affected patients.

He encourages people to volunteer in these medical trials.

"Medical research can change lives, we need to support basic science and clinical research so the discoveries can continue," he said.

## Waste heat turned to practical energy

By **CHRISTAL BRAND**

UNIVERSITY of Newcastle Professor Behdad Moghtaderi is changing how energy is processed.

In late 2006 he invented a power unit that used the waste heat produced by units such as diesel generators.

The GRANEX power unit is a heat engine that produces mechanical power to produce electricity from low-grade heat sources.

At Wallsend, solar power is fed into the GRANEX unit to produce electricity, the waste heat (in the form of hot water)



**CLOSE LOOK:** University of Newcastle vice-chancellor Caroline McMillen, federal MP Bob Baldwin, Australian Renewable Energy Agency chief executive Ivor Frischknecht, and Professor Behdad Moghtaderi at the Wallsend dedication of the GRANEX heat engine.

is fed directly to a nearby pool. The process gives the community a heated pool year round, without the need for a roof.

Professor Moghtaderi said while a lot of pure research was done, it was important to go beyond that to develop the idea

into technology to be used by the public.

"It's not fair to stop there without continuing on to produce for the public, it is their money that is funding the research," he said.

GRANEX units have also been installed in the remote mining areas where power is hard to bring in.

Professor Moghtaderi said there they were hooked up to the big diesel engines that drive generators.

The 400 degrees Celsius exhaust from the engines was then put through GRANEX units to produce power.



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