

Flying high at Science & Engineering Open Days

A workshop covering how the physics principles of flight can help a paper plane to fly was just one of the activities on offer at the University of Waikato's Science & Engineering Open Days.

During each of the days, which were held as separate events, nearly 100 Year 11-13 students and many of their parents or caregivers, moved between sessions learning about the subjects offered by the Faculty of Science & Engineering. The selection of workshops gave potential tertiary students a taste of the fun and varied subjects available to study during a Bachelor of Science, Bachelor of Science(Technology) and a Bachelor of Engineering(Honours).

Engineering Open Day

Engineering Open Day on Thursday 18 July focused on the Bachelor of Engineering (Honours) and its five specified programmes. Workshops included creating and racing small electric cars in Mechanical Engineering, using chocolate to test how reinforcing makes materials stronger in Materials & Process Engineering; and creating a strategy to separate different sized lollies using methods such as gravity and air filtration in Chemical & Biological Engineering. Other interactive workshops included fixing computer program 'hotspots' in Software Engineering and using electronics to make wooden mouse traps more reliable in Electronic Engineering.

Science Open Day

Science Open Day on Friday 19 July covered the Faculty's science majors. Students learnt about human physiology, including why chillies make us sweat, in Biological Sciences; explored ocean currents and pyroclastic flows in Earth & Ocean Sciences; experimented with liquid nitrogen in Chemistry and learnt how to fold effective paper planes in Physics.

"Students attended the events from as far and wide as Kaitaia, Hawera and Napier. From the positive feedback we've received, it's clear that school students and their parents really value the opportunity to talk one-on-one



Secondary school students from throughout the North Island learnt how the physics principles of flight can help a paper plane fly at Science Open Day.

with our staff and current students, while getting hands-on experience in our science and engineering laboratories," says Faculty of Science & Engineering Dean Professor Bruce Clarkson.

This was the eighth annual Engineering Open Day, and the third annual Science Open Day. The events are held annually in July.

Registration packs are sent out to schools each May and registrations are completed online at www.sci.waikato.ac.nz

View more photos: www.facebook.com/WaikatoScienceEngineering

Xbox One unveil ends secrecy for Waikato grad



A Canadian student who completed his Masters degree at the University of Waikato was recently able to tell his friends and family what he's been doing for the last year and a half.

Since early 2012, all Mark Staveley's family have known is that the software development engineer has been working for Microsoft somewhere on the company's Seattle campus.

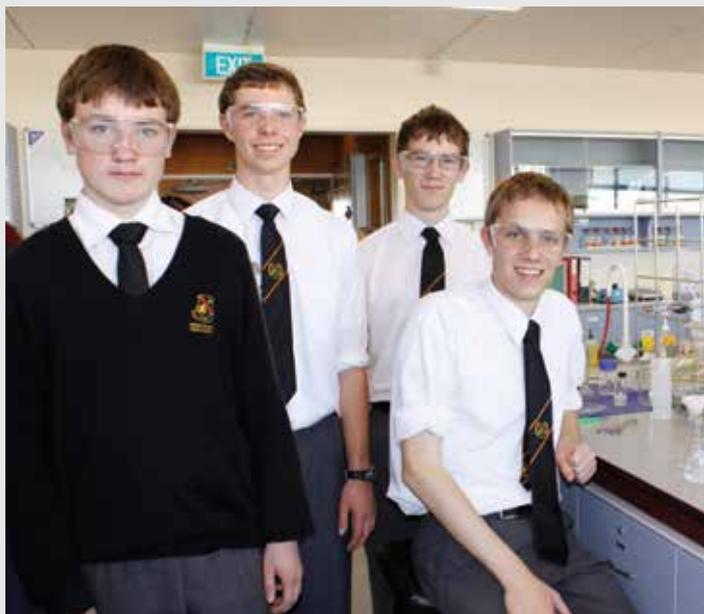
But on May 21, with the announcement of Microsoft's Xbox One, he finally got to reveal he has been working as a senior software development test engineer on the new console.

"It's been a really wild ride. I was proud to have the announcement go so well and to be able to share some of the excitement with my friends and family," he says.

Working on something such as Xbox One is a once in a lifetime opportunity – "these will be coming into your living room" – and it's an opportunity, he says, which likely would not have happened if he had never studied at Waikato University.

"Waikato has a really neat way of capturing that real Kiwi innovation and creative spirit," he says. *Continued on page 3...*

Hamilton Boys' High win chemistry challenge



A group of Hamilton Boys' High School students came close to a perfect solution at the annual NZIC Analytical Chemistry Competition.

The University of Waikato event challenged 88 enthusiastic Year 13 students to spend a day in the University's laboratories.

"The task was to analyse the individual levels of barium and chloride in a sample of barium chloride. One pair from each group of four used a gravimetric procedure to find the barium content, while the other half of the team used a volumetric method to find the chloride level," says competition judge and key organiser, Dr Michele Prinsep.

The Year 13 team from Hamilton Boys' High School was (pictured left) Jack Treloar, Geoff Wilkin, David Lloyd and Samuel McCabe. This was the first ever win for the school since the event's inception in 1996.

"This proved to be a challenging analytical task, but those who did well, did very well, and the top place-getters were very close in the marks they received," says Dr Prinsep.

Last year's reigning champions, Pukekohe High School, were awarded second place, while Bay of Plenty schools cleaned up the remaining awards. Third place went to Mount Maunganui College, fourth place to Aquinas College and fifth place to Otumoetai College.

Twenty-two teams of four students from the Waikato/Bay of Plenty regions entered in this year's competition. All students were treated to lunch sponsored by The New Zealand Institute of Chemistry (NZIC), at the University's halls of residence. The winning team received \$200 from sponsor Hill Laboratories and a trophy, with prize money also awarded to all other place-getters.

View photos from the event: www.sci.waikato.ac.nz/chemcomp

Tractor-pull competition a crowd pleaser

Loud engines, fumes and mud are what would usually be expected from a tractor-pull competition. But not this time. In June the University of Waikato hosted a tractor-pull of the electric kind, featuring model-tractors which were designed and built by secondary school students.

The competition was held during the Osborne Physics and Engineering (OsPEn) Days and required secondary school physics students to create a small battery-powered model tractor that can tow a loaded model trailer a distance of five meters up a 4° inclined plane.

The winners of the day one competition were a team from Waiuku College. Their model-tractor sped up the ramp in the fastest overall time of 15 seconds while pulling a 500-gram trailer. The Waiuku team included Stuart Kautai, Evan Vonbatenburg, TK Yeh, Matthew Gerbich, Ruth van der Pleog, Josh Cox, Drew Marris, Moana Sterling, Sam Furniss and James Ditchburn.

"We were sent a 3-volt electric motor and a set of nylon gears by Waikato University. We only just finished our tractor yesterday – it was harder than we anticipated, so we just tried to



Waiuku College students (from front left) Stuart Kautai, Evan Vonbatenburg, TK Yeh, Matthew Gerbich (obscured), Ruth van der Pleog, (from back left) Josh Cox (obscured), Drew Marris, Moana Sterling, Sam Furniss and James Ditchburn.

keep the design simple," says Waiuku College team leader Drew Marris.

The winning team during the day two competition was Gabe Hawkins, James Flett and Myles Couldwell from St Peter's School, Cambridge. The team's tractor pulled the 500-

gram trailer up the ramp in just 10 seconds.

The competition was part of the University of Waikato's 27th annual OsPEn Days.

View photos from the event: www.sci.waikato.ac.nz/ospendays

Xbox unveil

Continued from page 1

That innovative and creative spirit has proved invaluable in his work at Microsoft and Staveley still recalls how that was encouraged at the University of Waikato.

"I remember one assignment had a grading breakdown where 75% of the grade was obtained by simply doing the work and completing the assignment. However, in order to get the remaining 25% you had to come up with your own ways to extend the assignment and then do that work. I had never encountered that before, and it was really valuable.

That 'show us what you've got' attitude is a great mindset. Now I'm at Microsoft we're encountering computer challenges every day which have never been done before, we're solving problems no one has ever solved before and that approach has been fantastic."

He says the collaborative approach to research he was part of at the University of Waikato is also encouraged at Microsoft.

"It's what I like about Microsoft, it's a very collaborative engineering space. We're told 'don't be afraid to work with your peers'. That kind of thinking is very contagious," he says.

Interested in studying Computer Science at the University of Waikato? For more information visit www.cms.waikato.ac.nz

Code Camp goes global



University of Waikato PhD student, Michael Walmsley, created the Code Avengers website to teach people basic coding skills.

University of Waikato PhD student Michael Walmsley's Code Avengers website has gone global, with its first international Code Camp held in California in July.

The website teaches school students the basic skills of web programming such as HTML, CSS, JavaScript coding and web design.

Walmsley met US fifth-grade teacher David Coopersmith through a mutual friend and asked if he wanted to host a Code Avengers Code Camp while Walmsley was in the US, attending a Computer Science teacher conference in Boston. Coopersmith says codeavengers.com proved an instant success.

Thirteen year old attendee Sidney Robinson told his local California newspaper that he wants to be an innovator and took his first steps towards this by attending the New Zealand-organised

camp. He was one of 33 students who attended, ranging from fourth (Year 9) to ninth (Year 13) graders.

"The coding skills help them get started to build their own websites, mobile apps, games and other web projects," says Walmsley.

"They're not going to become expert programmers in a two-day code camp, but we want them to experience IT things so they get enthused and say, 'Hey! I really love creating websites' or, 'Hey! Making games, that's really fun for me!'"

Currently only 1 in 10 American schools teach students how to code, meaning a million of the best jobs in America are not available to many of the 3.6 million high school students that graduate each year.

New chief executive of Code Avengers, Stephen Hopkins, says Code Camps are being rolled out internationally as part of the company's global marketing strategy.

"Our goal is to be the number one site for the total beginner. Code Avengers is now used by over 600 schools and growing, in more than 30 countries around the world. University business schools are also catching on, with the University of Auckland purchasing a site licence to teach the basics of web development and JavaScript programming to their 2500 first year business students."

Find out more about Code Avengers: www.codeavengers.com

Discovering DNA at Waikato Biology Days

Over 650 kiwi kids examined the contents of around 100 kiwifruit, during the University of Waikato's annual Waikato Experience Biology (WEB) Days.

The Year 12 and 13 secondary school students from around the central North Island spent time in the University's biological sciences laboratories from 5-6 June, learning the skill of extracting DNA from kiwifruit.

Extracting the DNA involved peeling, chopping, mashing, incubating and sieving kiwifruit, before pouring ice cold alcohol over the sample and hooking out the DNA.

The students also attended lectures given by Waikato University academics, on topics such

as DNA technologies, plant responses to the environment and animal behaviour, human evolution, and the process of evolution.

Trident High School biology teacher Phil Andrew said this was the fourth time he had brought a class to the event. Mr Andrew's group of Year 13 students travelled from Whakatane for the day to extend their knowledge in areas of biology relevant to the school curriculum.

Pictured left: Trident High School students Matarena Waiari (back) and Emma Bennett (front) collect DNA that they have extracted from kiwifruit during a laboratory session at WEB Days.

View photos from the event: www.sci.waikato.ac.nz/webdays



Earth Sciences

Surrounded by diverse landscapes, Waikato University is uniquely placed to provide the ultimate learning environment for Earth Sciences study.

Which degrees include Earth Sciences as a major?

You can study Earth Sciences as a major in the Bachelor of Science or Bachelor of Science(Technology). Earth Sciences can also be taken as a second major or supporting subject within most degrees at Waikato University.

What subjects do I need to study at school?

While there are no specific subjects you need to study at secondary school to study Earth Sciences at Waikato, NCEA biology, chemistry and mathematics will be very useful.

What papers can I expect to take in my first year?

During your first year of full-time study you will take a selection of eight papers. To major in Earth Sciences this must include the two 100 level Earth Sciences papers. These papers cover topics such as rocks, minerals, fossils, soils, coastal hazards, oceanography, and climate change.

What about papers in my second year and beyond?

From year two you have the opportunity to branch off into your area of interest. Papers cover a range of topics such as coastal marine science, engineering geology, hydrology and freshwater resources, sedimentary geology, soil science, and volcanology.

Grab a copy of the Earth Sciences brochure

Check out the Earth Sciences brochure, which outlines in more detail the study options available. Download the brochure from www.sci.waikato.ac.nz/about-us/earth-and-ocean-sciences or request a hard copy via science@waikato.ac.nz

Career Opportunities

COASTAL ENGINEER

ENVIRONMENTAL CONSULTANT

SOIL SCIENTIST

ENGINEERING, PETROLEUM OR EXPLORATION GEOLOGIST

ENVIRONMENTAL SCIENTIST

GROUNDWATER SCIENTIST

HAZARD MANAGER

HYDROLOGIST

OCEANOGRAPHER

TEACHER

TECHNICIAN

VOLCANOLOGIST

WATER LABORATORY TECHNICIAN

WATER RESOURCE MANAGER

Student ambassador: Shaun Funnell



Earth Sciences student ambassador Shaun Funnell has clear direction for his future, which is fuelling his motivation to study hard and achieve excellent results.

After a few years in the workforce, Shaun decided it was time to begin study towards a tertiary qualification. He chose Waikato University because it was close to home; he chose Earth Sciences as a strategic decision to help ensure job security in the future.

"After graduating I'll seek employment in the energy resources sector, and in a few years I will consider studying extramurally for an MBA."

Shaun is currently working towards a Bachelor of Science majoring in Earth Sciences. He recently won the H. S. Gibbs prize in Earth Sciences for an Earth Sciences field trip report.

There are many things he enjoys about the study and lifestyle at Waikato, and recommends it as an excellent choice of university.

"I've loved making new friends, the interesting field trips and learning from some great, passionate people."

Earth Sciences field trips



As a student studying Earth Sciences, you'll discover that learning about the environment often involves getting outside and experiencing it first-hand.

In first-year you will enjoy a field trip to explore the geology of the Waikato and Rotorua regions, and an expedition to Raglan to learn about waves, rips and estuaries, as well as other landscape processes. Year two includes the highly anticipated Tongariro Crossing trip, which involves a weekend spent learning about this stunning volcanic area and includes the Tongariro Crossing walk. Also in second year is the week-long field trip to Port Waikato, where students learn the art of mapping rocks. While in third year you can look forward to a wide range of field trips including trips to Pokeno to map a landslide, to Awakino to study sedimentary rocks and to Rotorua to see volcanic ash derived soils.

Rona Scholars awarded \$10,000

University of Waikato students Mahuru Robb and Ray Tana have each received \$10,000 Rona Scholarships. Up to 10 of these scholarships are awarded each year.

The Rona Scholarship is offered by Te Pūtea Whakatupu Trust to Māori completing a degree in fisheries, aquaculture or marine sciences.

Launched in 2012, the Rona Scholarship is designed to lift the level of Māori participation in middle and senior science and management roles in the fisheries and aquaculture industries.

Mahuru Robb's research

Mahuru (Ngāti Awa and Ngāti Ranginui) is studying towards her Master of Science in Freshwater Ecology. She is looking at how mātauranga Māori and science work together to assess wetland health.

"I'm working at the Toreparu wetland, just south of Raglan and am fortunate to have the support of people from Mōtakotako marae. I will work closely with them to develop a set of unique cultural indicators for their wetland," she says.



One of the main focuses is the health of the fishery, which forms a key aspect to this project. The project seeks to understand how tools such as the wetland cultural health index (WCHI) are applied and how well Māori values are communicated within mainstream society and to environmental decision-makers.

Ray Tana's research

Ray Tana's PhD research is based on expanding the current understanding of Antarctic toothfish life-history and population structuring throughout Antarctica. Specifically, he has been extracting chemical markers from Antarctic toothfish otoliths (ear bones), collected by long-line vessels from areas around Antarctica.

"Because otoliths have growth rings like a tree, we can extract chemical markers from a particular stage of the fish's life,

which can tell us a lot about the environments or habitats it previously used, and population structure."

This information will not only enable Ray to determine whether a single stock of Antarctic toothfish exists around Antarctica, but it will also provide insight into what habitats Antarctic toothfish may have used throughout their lives, the results of which will have important implications towards future management of this fishery.

Ray (Ngati Whatua and Nga Puhī) has always been a keen fisherman. Studying fish from a scientific perspective offers the enjoyment of catching fish and the prospect of discovering something new through research.



Scholarship win for science student

A love of biology has led Kiriana Isgrove to a Bachelor of Science majoring in biological and environmental sciences at the University of Waikato. Now in her second year, Kiriana has just been awarded a \$10,000 Whānui Scholarship.

Te Pūtea Whakatupu Trust administers the Whānui Scholarship for Agriculture. This scholarship is aimed to encourage and support Māori to become leaders in the agribusiness sector.

Of Ngāti Tamaterā descent, Kiriana is a former Hauraki Plains College student from Turua near Thames. Kiriana says she isn't sure where her love of biology comes from, just that she enjoyed studying it all the way through school.

"My interest in environmental science grew after friends here at university encouraged me to do it. Now I really love that as well."

Kiriana is the first in her family to study for a degree, which she admits was a little nerve-wracking to start with.

"It was a bit scary at first but now I love it. University is so different to secondary school, and that's what I tell my younger sister. I hope she will want to come to university too."

Whānui Scholarship recipients are required to attend the Ngā Whetū Hei Whai: Charting Pathways for Māori Industry Futures Conference in the Bay of Islands in September.

And with the scholarship money she plans to make a big dent in her student loan.

"I have just over \$10,000 on my loan and I want to pay that off. I've never had a loan before so to be able to get rid of it now is a huge relief."

Kiriana plans to do her masters at Waikato once she completes her BSc. In the future she is considering a career in environmental advising, "possibly for a mining company in Australia", but her long-term goal is to move into medical research.

As well as the Whānui Scholarship, Kiriana has received a \$2500 Clark Fletcher Memorial Citrus Bursary and a University of Waikato Māori Excellence Scholarship, which contributes to her course fees. She was also awarded a 10-week Māori summer internship with AgResearch.

For more information about scholarships visit:

www.waikato.ac.nz/research/scholarships/

Familiar faces from 2013 events

From University Open Day, to WEB Days, OsPEN Days, the NZIC Analytical Chemistry Competition and the Science and Engineering Open Days, May through to July is a busy time for the Faculty of Science & Engineering. View more photos from our events at www.facebook.com/WaikatoScienceEngineering



Dr Julia Mullarney demonstrates ocean currents in the Earth & Ocean Sciences workshop at Science Open Day.



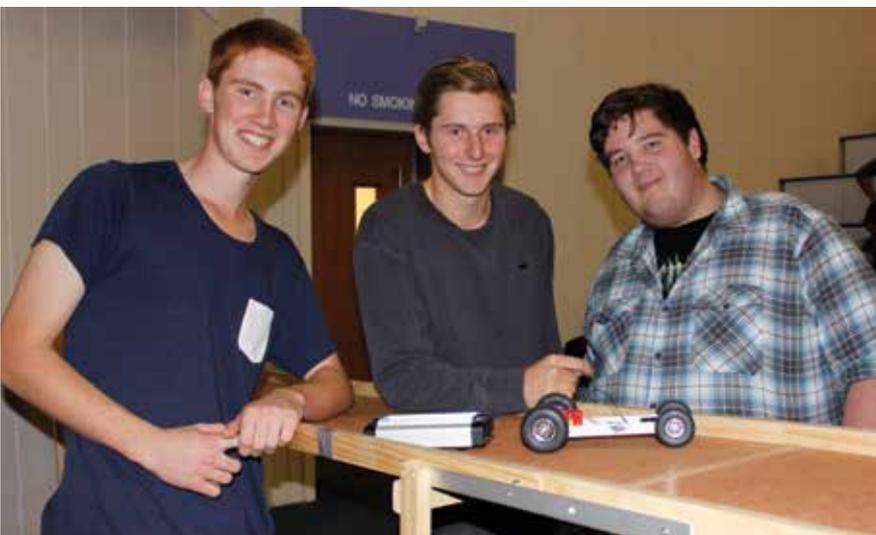
NZIC Analytical Chemistry Competition: St John's College students from left: Tyler Ngapo, Samuel Yu, Hamish Dick and Sean Roque.



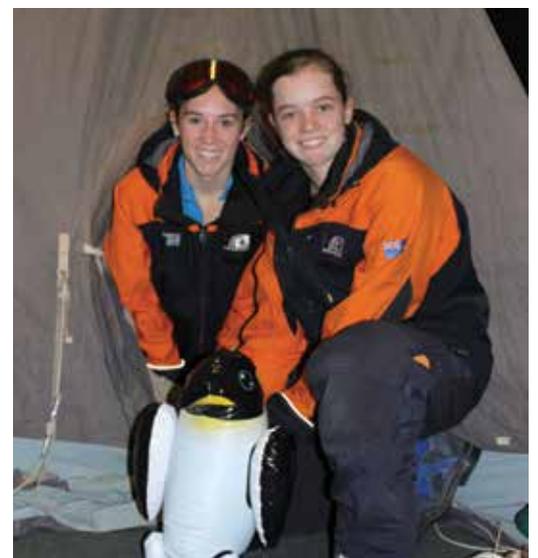
WEB Days: Sarah McAllister and Meighan Patterson from Te Kauwhata College.



Students created devices to sort different sizes of lollies in the Chemical & Biological Engineering workshop at Engineering Open Day.



OsPEN Days: St Peter's College students Gabe Hawkins, James Flett and Myles Couldwell won the Tractor-pull Competition on day two of OsPEN Days.



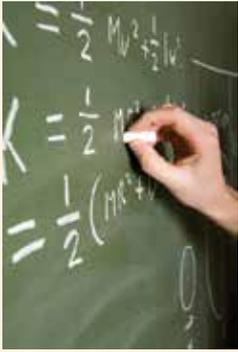
University Open Day: Katie O'Reilly (Otorohanga College) and Katherine Sarcich (Hamilton Girls' High School) pose in Antarctic gear at the Antarctica display.

Mathematics

A knowledge of mathematics is important in areas such as biology, chemistry, computer science, earth sciences, cryptography, economics, engineering, finance, modelling (including environmental modelling), operations research, physics, and statistics. There is also a well-known shortage of qualified mathematics teachers in New Zealand.

Which degrees include Mathematics as a major?

You can study Mathematics as a major within a Bachelor of Computing and Mathematical Sciences, Bachelor of Science or Bachelor of Arts. Mathematics can also be taken as a second major or supporting subject within most Waikato degrees. Students are encouraged to also consider the flexible double major options of Mathematics and Computer Science or Mathematics and Statistics.



What subjects do I need to study at school?

You are strongly advised to study Calculus in Year 13. NCEA Level 3 Calculus credits or a suitable equivalent such as the Cambridge examinations are required for enrolment in MATH101. If you don't have this background you will need to complete additional papers in mathematics before enrolling in MATH101.

What type of papers can I expect to take in my first year?

During your first year you should aim to complete MATH101 and MATH102 which cover the fundamental techniques of calculus and algebra used in all second year and higher mathematics papers. Those who did not study calculus in Year 13 should complete MATH165 first. MATH166 has examples related to management. MATH168 assists students who did not gain sufficient mathematics credits at school.

What about papers in my second year and beyond?

From year two you will move onto more advanced topics, theory, and applications of mathematics; such as multivariable calculus, linear algebra, abstract algebra, real and complex analysis, ordinary and partial differential equations, mathematical modelling, numerical methods, combinatorics, number theory, fluid mechanics, classical and quantum mechanics, and special and general relativity.

For more information visit www.cms.waikato.ac.nz



Ben O'Neil
Waikato Degree:
Bachelor of Science
School: St John's College

It was the bonus of being able to combine maths and physics and complete a double major in three years with minimal clashes in one degree that brought Ben to Waikato.

After obtaining his Bachelor of Science he completed honours in mathematics. His academic highlight was his honours research

topic on the solar wind – a stream of energised, charged particles, primarily electrons and protons, flowing outward from the sun through the solar system at speeds as high as 900 km/s and at a temperature of 1 million degrees Celsius.

Ben is now studying for his PhD in Applied Mathematics at the University of Colorado, Boulder, in the United States.

"One of the best things about the maths and physics departments at Waikato is the small class sizes which allow for better student-lecturer interaction," says Ben.

"I would definitely recommend Waikato for its friendly social atmosphere. If you are thinking of enrolling, talk to previous students and people in your intended department for advice on papers so you can maximise your capabilities."

Research case study: Unlocking the secrets of the sun's energy with mathematics

Solar flares are the biggest explosions in the solar system, unleashing the equivalent of a billion megatons of TNT in seconds and showering the earth with x-rays and gamma rays that disrupt satellite-based telecommunication systems and cause power surges in the world's electrical grids.

Understanding the causes of solar flares would not only give us greater warning of their occurrence, but could also provide the key to one of science's holy grails - fusion energy.

Mathematicians like Waikato University's Professor Ian Craig, Associate Professor Sean Oughton and Dr Yuri Litvinenko, along with Postdoctoral Fellow Dr Frederic Effenberger are working at the cutting edge of astrophysics. They're developing mathematical models to explain the dynamic nature of the magnetic fields that rise to the surface of the sun, causing sunspots that store and release energy - sometimes quietly, and sometimes explosively in a solar flare.

This research project is supported by the Royal Society of New Zealand and the Ministry of Science and Innovation.



Career Opportunities

CRYPTOGRAPHER

DATA ANALYST

FINANCIAL ANALYST

IT OR COMPUTING ANALYST

MATHEMATICAL MODELLER

METEOROLOGIST

RESEARCH SCIENTIST

SECONDARY SCHOOL TEACHER

New poster out now



A new poster promoting Chemical & Biological Engineering was recently delivered to your school.

The poster features Waikato Chemical & Biological Engineering student Lindi Engelbrecht (formally of Sacred Heart Girls' College Hamilton).

The images within the pipes also feature Waikato engineering students.

Science teachers and careers advisors can contact science@waikato.ac.nz to request further copies.

Still time to apply for Science Summer School

Apply now for the Hill Laboratories Waikato Science Summer School: www.sci.waikato.ac.nz/sciencesummerschool

WHERE: University of Waikato, Hamilton.

WHEN: 1-6 December, 2013.

PLACES AVAILABLE: 40 places available.

FEE: A \$450 fee is payable, which includes accommodation, meals and tuition, but does not cover travel to or from the Summer School. The sponsoring Rotary Club may subsidise this fee.

ELIGIBILITY: Only Year 12 students who will return to school in 2014 are eligible.

PROGRAMME: The Summer School aims to provide outstanding Year 12 science students with the opportunity to experience the wide range of science and engineering subjects offered at the University of Waikato, and to demonstrate how these various areas are closely integrated when studying the environment.

ACCOMMODATION: The Summer School is a residential course and all students (including those who live in Hamilton) must stay in supervised accommodation at one of the University's Halls of Residence.

APPLICATIONS: The official Application Form must be completed online, printed out and lodged with supporting documents through the student's local Rotary Club. *Complete applications must reach the local Rotary Club by 23 August 2013.* Candidates will be interviewed by Rotarians from their local Rotary Club before a final selection is made by the Rotary Club's Science Summer School Committee.

SELECTION CRITERIA: Rotary Clubs and the District Committee members will choose students based on high academic achievement (particularly in science and mathematics), intention to pursue science as a career, a well-rounded personality, a good attitude and work habits, and wide community interests.

Complete applications must reach the local Rotary Club by 23 August 2013.

For further details and to apply, visit:

www.sci.waikato.ac.nz/sciencesummerschool



What's on

12 SEPTEMBER 2013

Kīngitanga Day

Kīngitanga Day is an opportunity for students, staff and the wider community to celebrate the University's distinctive identity, heritage and relationships, through activities focusing on the relationships with the Kīngitanga and Māori communities. A fun and vibrant day is anticipated. Visit www.waikato.ac.nz/events/kingitanga/

2 OCTOBER 2013

University of Waikato Information Evening

Drop in to the Waikato University Student Centre between 4-7pm. You'll have the chance to meet individually with Waikato University staff, learn more about your study options and what Waikato University offers. Visit www.waikato.ac.nz/study/enrol/info-evening

15-16 OCTOBER 2013

Carter Holt Harvey Pulp & Paper Engineering Design Show

Join the School of Engineering's second, third and fourth-year students as they showcase their research and design projects in the form of posters, displays and seminars. The Design Show is open to the public and is the perfect opportunity for secondary school students to meet talented engineering students. Visit www.sci.waikato.ac.nz/engineeringdesignshow

16 OCTOBER 2013

ChemQuest

Year 12 students from local secondary schools visit our Waikato campus for the opportunity to compete in the ChemQuest chemistry quiz. Register with your school science teacher. Visit www.sci.waikato.ac.nz/chemquest

1-6 DECEMBER 2013

Hill Laboratories Waikato Science Summer School

Applications for this week-long event close 23 August 2013. See the article opposite for more information. Visit www.sci.waikato.ac.nz/sciencesummerschool

Contact us

Science & Engineering

Phone +64 7 838 4625

Fax +64 7 838 4218

Email science@waikato.ac.nz

Toll free 0800 438 254

www.sci.waikato.ac.nz

Computing & Mathematical Sciences

Phone +64 7 838 4322

Fax +64 7 838 4155

Email cms@waikato.ac.nz

www.cms.waikato.ac.nz



www.facebook.com/WaikatoScienceEngineering



<http://bit.ly/14qRoUk>