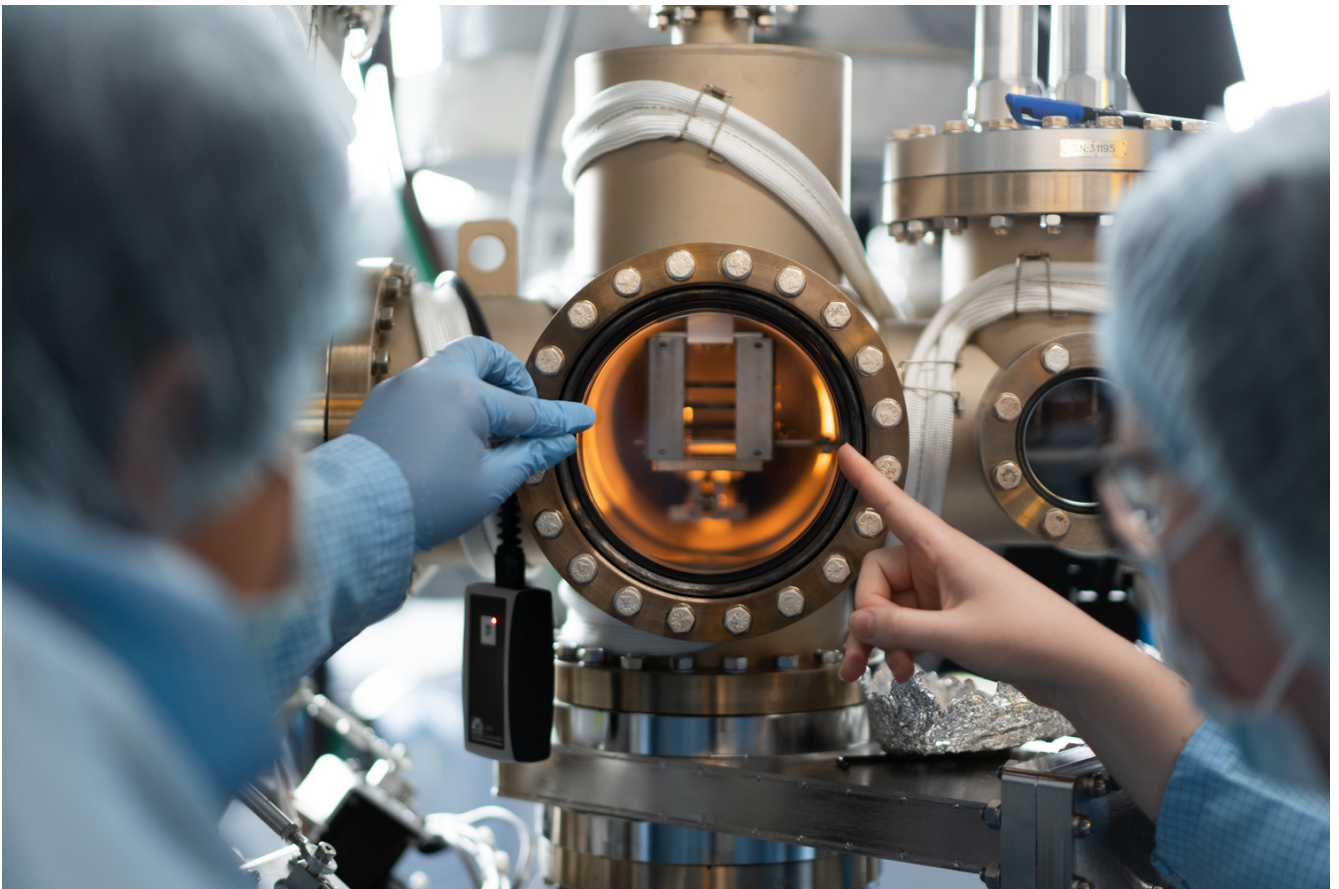


School of Chemical and Physical Sciences

POSTGRADUATE PHYSICS

>> 2026



Contact

School of Chemical and Physical Sciences — *Te Wānanga Matū*

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www.wgtn.ac.nz/physics

POSTGRADUATE STUDIES

UNDERGRADUATE		POSTGRADUATE	
100–300 LEVEL	400 LEVEL	500 LEVEL	600 LEVEL
BSc (3 years) BBmedSc (3 years) GDipSc (1–2 years)	PGCertSc (1 trimester) BSc (Hons) (1 year) PGDip (1 year) MSc Part I (1 year)	MSc Part II (1 year)	PhD (3 years)

Honours (Hons)

- A one-year programme
- Has a research project
- Requires a B+ grade average in related 300-level subjects for admission. An exemption may be granted with approval of the Head of School
- May allow direct admission to a PhD degree in New Zealand, or to MSc part II

Postgraduate Certificate in Science (PGCertSc)

- One semester full-time or up to two years part-time
- Usually consists of all course work (60 points) at postgraduate level
- Usually requires a B grade average in related 300-level subjects for admission
- Endorsed in a subject offered for the MSc degree.
- May be converted to a PGDipSc programme with the addition of 60 further approved points

Postgraduate Diploma in Science (PGDipSc)

- One year full-time or up to four years part-time
- Usually consists of course work and a research project (120 points total) at postgraduate (400) level
- Usually requires a B grade average in related 300-level subjects for admission
- Endorsed in a subject offered for the MSc degree
- May permit admission to an MSc by Thesis if achieved at a high academic level

Master of Science (MSc)

- Two years full-time or up to four years part-time
- Consists of postgraduate course work in the first year and includes research preparation
- Admission to Part 2 based on academic performance in Part 1 or BSc(Hons)
- The second year involves research and submission of a thesis
- Requires a B+ grade average in related 300-level subjects for admission
- Awarded with Honours (two-year MSc) or distinction/merit (MSc by thesis only)

WHO TO CONTACT

TĪTOKO—STUDENT SUCCESS TEAM, TE WĀHANGA PŪTAIAO

Address: CO144, Ground floor, Cotton building,
Gate 7, Kelburn Parade
Kelburn campus

Phone: 0800 04 04 04

Email: info@vuw.ac.nz

Website: <https://www.wgtn.ac.nz/science/current-students>

Hours: 9 am–4 pm, Monday to Friday

Manager, Student Success	Greg Ambrose	0800 04 04 04
Associate Dean, Students	Dr Sarah-Jane O'Connor	0800 04 04 04

The Titoko—Centre for Student Success team offers a range of services that cover all student-related matters from applications and enrolment to graduation.

SCHOOL STAFF CONTACTS

Head of School	A/Prof Rob Keyzers	AM 208	04 463 5117
Deputy Head of School (Physics)	A/Prof Petrik Galvosas	LB 308	04 463 5911
Deputy Head of School (Chemistry)	A/Prof Joanne Harvey	AM 207	04 463 5956
School Manager	Kara Eaton	LB 406	04 463 5946
General Enquiries (Physics/Space)	Kate Davies	LB 103	04 463 5335
General Enquiries (Chemistry)	Shohana Swortzel	LB 103	04 886 5328

PHYSICS ENQUIRIES

Programme Director (PHYS)	Prof Franck Natali	LB 513	04 463 5804
Programme Director (SPCE)	Dr Tulasi Parashar	LB 516	04 463 5804
BSc(Hons) and MSc Part 1	Dr Yvette Perrott	LB 523	04 463 6543
MSc Part 2 and PhD	Prof Uli Zülicke	LB 413	04 463 6851

CHEMISTRY ENQUIRIES

Programme Director	A/Prof Mattie Timmer	LB 507	04 463 6529
BSc(Hons) and MSc Part 1	Dr Luke Liu	AM 202	04 463 5591
MSc Part 2 and PhD	Prof Martyn Coles	LB 506	04 463 6357

PHYSICS ACADEMICS

Dr Baptiste Augu��	Nano-optics and spectroscopy	LB 522	04 463 5547
Dr Morgan Cable	Astrobiology	LB 503	
A/Prof Petrik Galvosas	NMR methodologies for molecular dynamics in soft matter and porous material, NMR instrumentation	LB 308	04 463 5911
Prof Michele Governale	Theoretical condensed-matter physics, quantum transport in nanoscale systems	LB 402	04 463 5951
Prof Franck Natali	Novel materials for electronic and optoelectronic applications	LB 513	04 463 5804
Dr Tulasi Parashar	Plasma physics	LB 516	04 463 5804
Dr Yvette Perrott	Astrophysics	LB 523	04 463 6543
A/Prof Natalie Plank	Electronic device properties of nanomaterials	LB 510	04 463 5031
Prof Ben Ruck	Experimental condensed matter physics	LB 406	04 463 5089
Dr Kadin Thompson	Physics education and condensed matter theory	LB 521	
Prof Uli Z��licke	Theoretical condensed-matter physics, electronic transport and spin-electronic devices, cold atoms	LB 413	04 463 6851

CHEMISTRY ACADEMICS

Dr Mat Anker	Inorganic chemistry, catalysis, small molecule activation	AM201	04 463 9712
Prof Martyn Coles	main group chemistry, hydrogen-bonded materials	LB 506	04 463 6357
A/Prof Nate Davis	Photophysics and solar energy, nanocrystals, organic chromophores, up and down conversion	AM 206	04 463 7134
A/Prof Robin Fulton	Inorganic synthesis and mechanisms, environmental chemistry	LB 514	04 463 9799
Dr Alex Hamilton	Chemistry Education	AM 202	04 463 5962
A/Prof Joanne Harvey	Total synthesis, design and synthesis of natural product analogues, organic reaction methodology	AM 207	04 463 5956
Prof Patricia Hunt	Theoretical and Computational Chemistry	LB 405	04 463 5954
A/Prof Rob Keyzers	Natural products, food and wine chemistry, NMR spectroscopy and mass spectrometry	AM 208	04 463 5117
Dr Luke Liu	Synthesis of crystalline porous solids	AM 202	04 463 5591
Dr Kim McKelvey	Nanoscale electrochemistry for energy storage and conversion technologies	LB 504	04 463 5957
Prof Bridget Stocker	Immunoglycomics, bio-organic, green chemistry	LB 508	04 463 6481
A/Prof Mattie Timmer	Immunoglycomics, design and synthesis of glyconjugate probes	LB 507	04 463 6529

EMERITUS ACADEMICS

E/Prof John Lekner	Electrodynamics, quantum theory, fluid mechanics. Theory of reflection of waves	LB 519	04 463 5949
E/Prof John Spencer	Inorganic/organometallic chemistry; synthesis and properties of transition metal hydrides	LB 403	04 463 5119
E/Prof Joe Trodahl	Ferromagnetic semiconductors for spintronics, ferroelectric oxides, heat flow in sea ice	LB 516	04 463 5964

400-LEVEL COURSES

PHYS 411	CRN 9069	Quantum Mechanics	15 PTS	1
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Prerequisites: *none*

Restrictions: PHYS322

Advanced concepts and applications of nonrelativistic quantum mechanics, with special focus on quantum computing.

PHYS 412	CRN 9070	Theoretical Physics	15 PTS	2
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Prerequisites: *none*

Restrictions: *none*

The theory of many-body quantum physics.

PHYS 413	CRN 9071	Condensed Matter Physics A	15 PTS	1
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Prerequisites: *none*

Restrictions: *none*

Vibrational and electron states in crystalline insulators, metals and semiconductors. Heat and charge transport.

PHYS 414	CRN 9072	Condensed Matter Physics B	15 PTS	2
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Prerequisites: *none*

Restrictions: *none*

The emergent behaviours of condensed matter systems.

PHYS 415	CRN 9073	Electromagnetism	15 PTS	1
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Prerequisites: *none*

Restrictions: *none*

You will apply Maxwell's theory of classical electromagnetism to a selection of topics relevant to today's technologies. This course builds on mathematical frameworks from undergraduate physics including vector calculus in cartesian, cylindrical and spherical coordinates, as well as complex phasor notation. A mini-project will let you explore practical numerical tools used in current electromagnetic research.

PHYS 416	CRN 9074	Relativity and Electrodynamics	15 PTS	2
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Prerequisites: *none*

Restrictions: *none*

Einstein's theory of special relativity, the dynamics of relativistic particles and electromagnetic fields and radiation by moving charges.

PHYS 417	CRN 9075	Astrophysics	15 PTS	2
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Prerequisites: *none*

Restrictions: *none*

A selection of topics in modern astrophysics such as stellar structure and evolution, nuclear astrophysics, the physics of white dwarfs and observational general relativity.

PHYS 490	CRN 9085 CRN 32220	Research Project A	15 PTS	1 3
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Prerequisites: *none*

Restrictions: PHYS489

A research project on a topic approved by the Head of School.

PHYS 491	CRN 9086	Research Project B	15 PTS	2
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Prerequisites: *none*

Restrictions: PHYS489

A research project on a topic approved by the Head of School.

Also available: **PHYS440** and **PHYS460** (Directed individual study)

SPCE 401	CRN 38220	Challenges and Solutions for Space Systems	15 PTS	1
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Prerequisites: *none*

Restrictions: SPCE301

Through a mock mission design project, learn the challenges and solutions involved in space mission design. You will extend your previous knowledge in the physics and engineering of orbits, heat shielding, space-based communication and more as applied to a mock mission developed collaboratively with the class. Along the way, you will learn concepts from systems engineering, mission design and testing, project management, presentation skills for both technical and non-technical audiences, and develop your confidence with computational methodology. Socio-cultural aspects of mission design will be informed by cultural and ethical issues from international as well as domestic perspectives including tikanga Māori.

SPCE 402	CRN 38221	The Space Sector in NZ and Beyond	15 PTS	2
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Prerequisites: *none*

Restrictions: *none*

This course will provide the science perspective on the multi-faceted space sector in New Zealand and beyond: including launch facilities, payload designs, mission operations, ground communication systems, remote sensing observations, astronomy, astrophysics and more. Through research projects and in-class discussion you will extend your previous knowledge of the science in the space sector and discover its lesser-known aspects. Research topics will be selected to align with the interests of the students and can range from the physics of rocket launches and orbital insertions to the intersection of mātauranga Māori and space science.

