

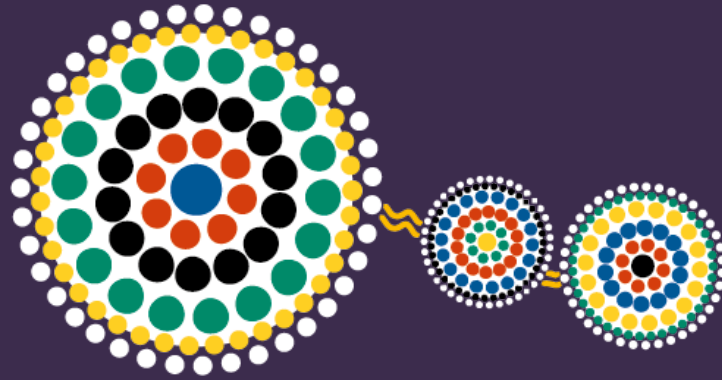


University of
**Southern
Queensland**
Australia

Clean Energy and Sustainability Symposium

March 2024

Prof. John Bell, DVC Research & Innovation
Guie Hartney Executive Director International



Acknowledgement of Country

The University of Southern Queensland acknowledges the traditional custodians of the lands and waterways where the University is located. Further, we acknowledge the cultural diversity of Aboriginal and Torres Strait Islander peoples and pay respect to Elders past, present and future.



Southeast Queensland, Australia

- ✓ *Advanced manufacturing*
- ✓ *Aerospace*
- ✓ *Biofutures*
- ✓ *Biomedical*
- ✓ *defence and mining technologies and services*



Brisbane 2032

Olympic and Paralympic
Games Host

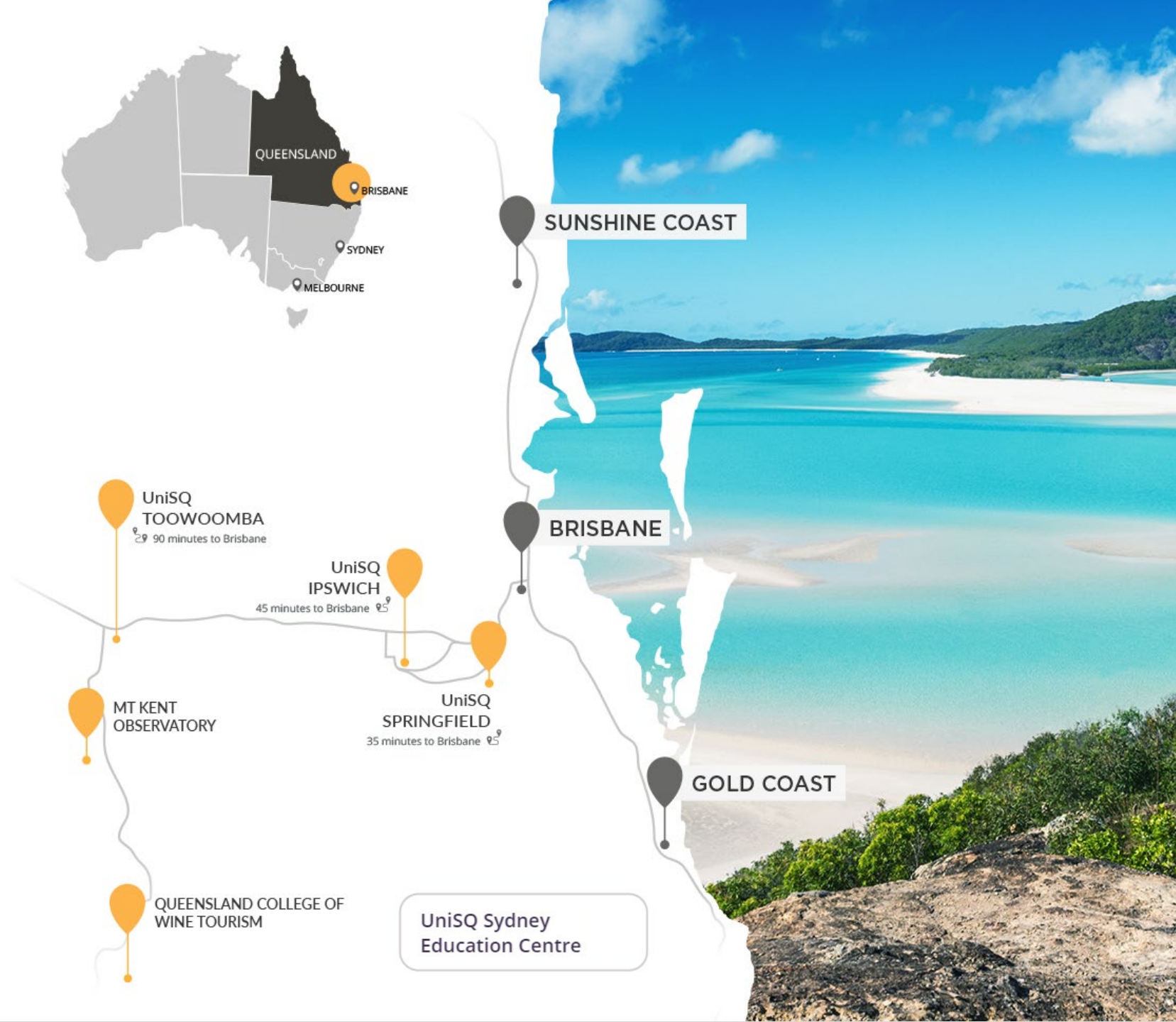
Queensland



UniSQ

Locations

- UniSQ Toowoomba
- UniSQ Springfield
- UniSQ Ipswich
- Mt Kent Observatory
- Queensland College of Wine Tourism
- UniSQ Sydney – Study Hub



A man with long hair and a beard, wearing a white lab coat, is holding a small potted plant. He is standing next to a white ABB industrial robot arm. The robot arm is positioned over a tray of various small plants. The background is dark, and the lighting is focused on the man and the robot. The text "Placed in the top 2% of all universities worldwide" is overlaid on the image in white.

Placed in the top 2% of all
universities worldwide

40+

40+ years delivering flexible study options via online learning



Our rankings

5/5



5 out of 5 stars in global ratings for teaching, research, internationalisation, online learning and employability

5/5



Rated 5 out of 5 in Australia for graduate starting salary



TOP 400
Ranked as a World Top 400 University



TOP 55
Ranked top 55 young universities worldwide

QS Stars World University Rankings, 2024
Time Higher Education Rankings, 2024

UniSQ

In numbers

22,400+
domestic
students

2470+
international
students

30
Areas of research
World Standard or
Better

800+
Higher Degree
Research
Students

100+
degree
programs

\$38 Million
research income
(2023)

120+
partner
institutions

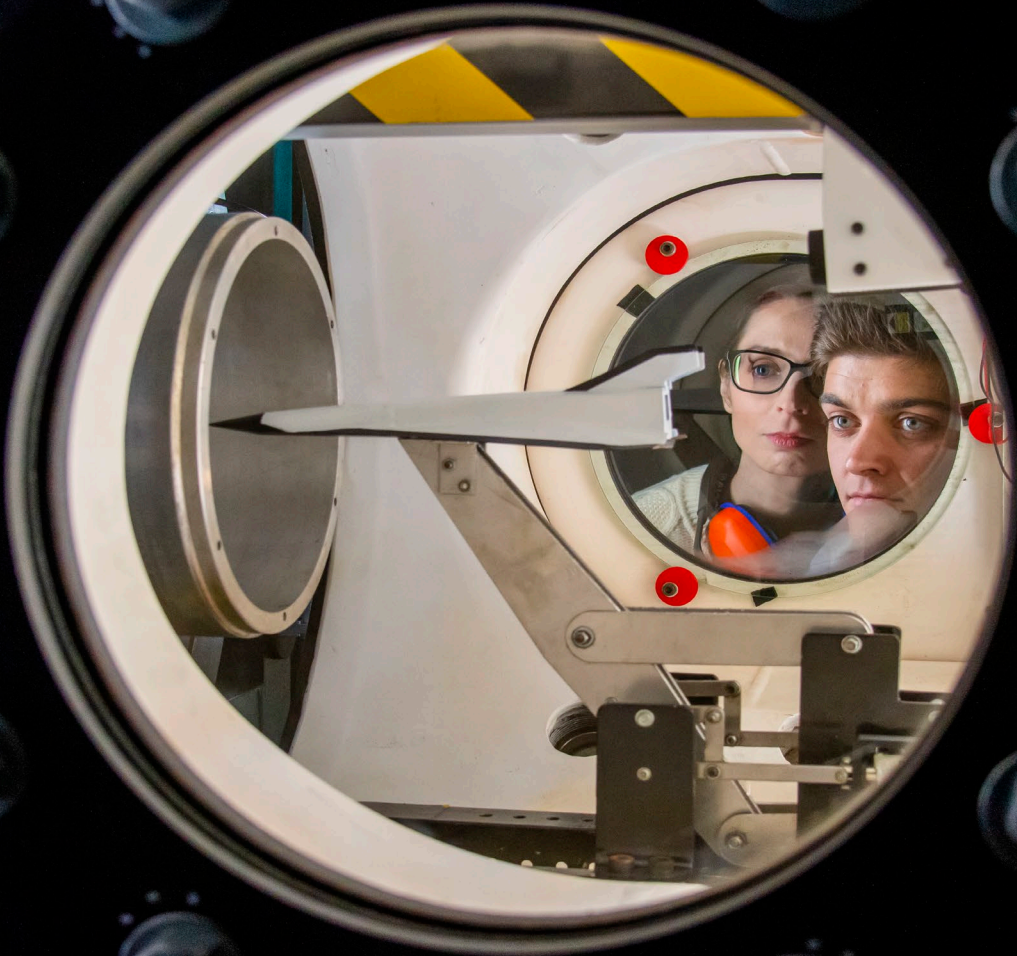


Study at UniSQ

Bachelor degrees
Master Degrees
Doctorates

Semester Programs
Exchange
English language pathways

-  Agriculture & Environment
-  Arts & Humanities
-  Aviation
-  Business & Management
-  Education & Teaching
-  Engineering
-  Information & Communications Technology
-  Law & Criminology
-  Media & Communication
-  Nursing & Allied Health
-  Psychology & Wellbeing
-  Sciences
-  Surveying & Built Environment
-  Visual & Performing Arts
-  English Language Programs
-  Double Degrees
-  Research



1st

Globally in
Nature and Physical
Sciences in 3
categories

30

Areas of research
at World Standard or
Better*

59.4%

International
collaboration
scholarly output

Real Research Strength

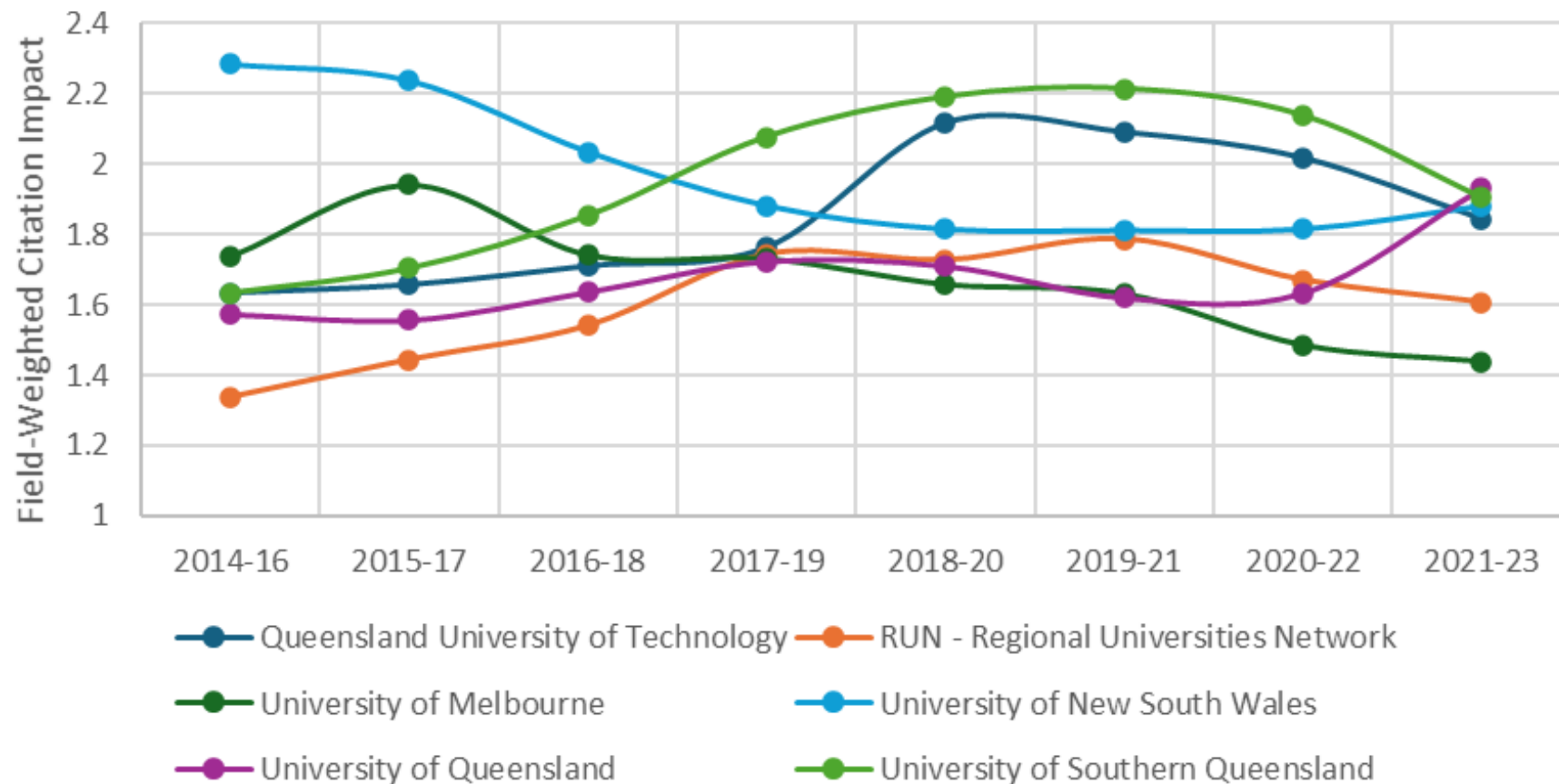
184 papers/yr

UNSW: 331

UQ: 235

Sydney: 162

RUN Universities and some other Australian Universities - Energy



4 FLAGSHIP AREAS



**AGRICULTURE
AND
ENVIRONMENT**



**SPACE AND
DEFENCE**




**REGIONAL
DEVELOPMENT**



HEALTH



3 dedicated institutes,
10 research centres,
multiple medical
simulators,
2 flight simulators, and
1 observatory



Agriculture and Environmental Sciences

[Institute for Life Sciences and the Environment >](#)

[Centre for Sustainable Agricultural Systems >](#)

[Broadacre Cropping Initiative >](#)

[Centre for Crop Health >](#)

[Centre for Agricultural Engineering >](#)

[Molecular Laboratory >](#)

[Centre for Applied Climate Sciences >](#)

[School of Agriculture and Environmental Science >](#)

[Agricultural Science and Engineering Precinct >](#)



Precision agriculture

- Sensors and robotics
- Precision control of irrigation
- Soil analysis and improvement
- Broadacre crops (cotton, grains, sugar)
- International partners include John Deere



Sustainable agriculture environments

- Small-scale forestry production and conservation
- Greenhouse gas emissions management
- Vegetation management in grazing and cropping systems
- International projects in Southeast Asia
- Wildlife management





Systems modelling

- Novel apps and decision support tools
- Enhance productivity, profitability and sustainability for farmers
- Tropical rice agronomy, weed management, pasture growth forecasting and climate change adaptation.

Wildlife

- Ecology and management of wildlife on agricultural production lands
- Management of invasive species
- Conservation of threatened native species
- International collaborations in Singapore, Sri Lanka and South Africa.



Plant pathology

- Disease resistance and pre-breeding
- Gene sequencing capacity
- New crop pathology facility completed in October 2018
 - Four temperature-controlled glasshouses, total 800m²
 - PC2 labs
 - Protected netted cropping site, about 10000m².



Space and Defence

A photograph of a white, dome-shaped observatory or telescope structure on a hill at night. The structure is illuminated from within, casting a warm glow. The sky is dark and filled with stars, with a bright, hazy celestial object visible in the upper left. The foreground shows a grassy hillside with some low-lying vegetation. The overall scene is serene and evokes a sense of scientific exploration and defense.

Institute for Advanced Engineering and Space Sciences >

Centre for Future Materials >

Hypersonic Wind Tunnel >

Hypersonics and Rocketry Group >

Mount Kent Observatory >

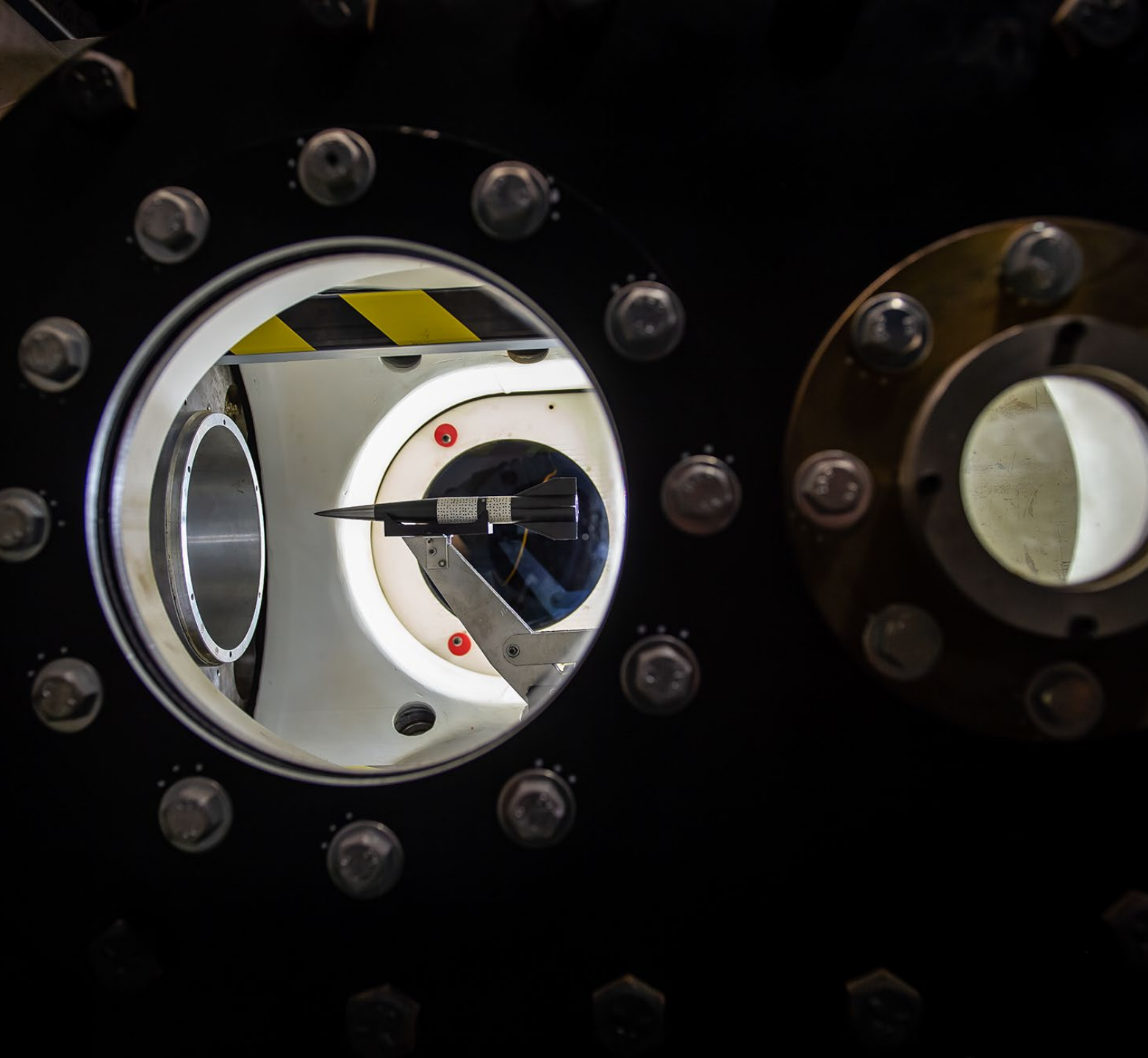
School of Mathematics, Physics and Computing >

Centre for Astrophysics >

iLAuNCH >

School of Engineering >



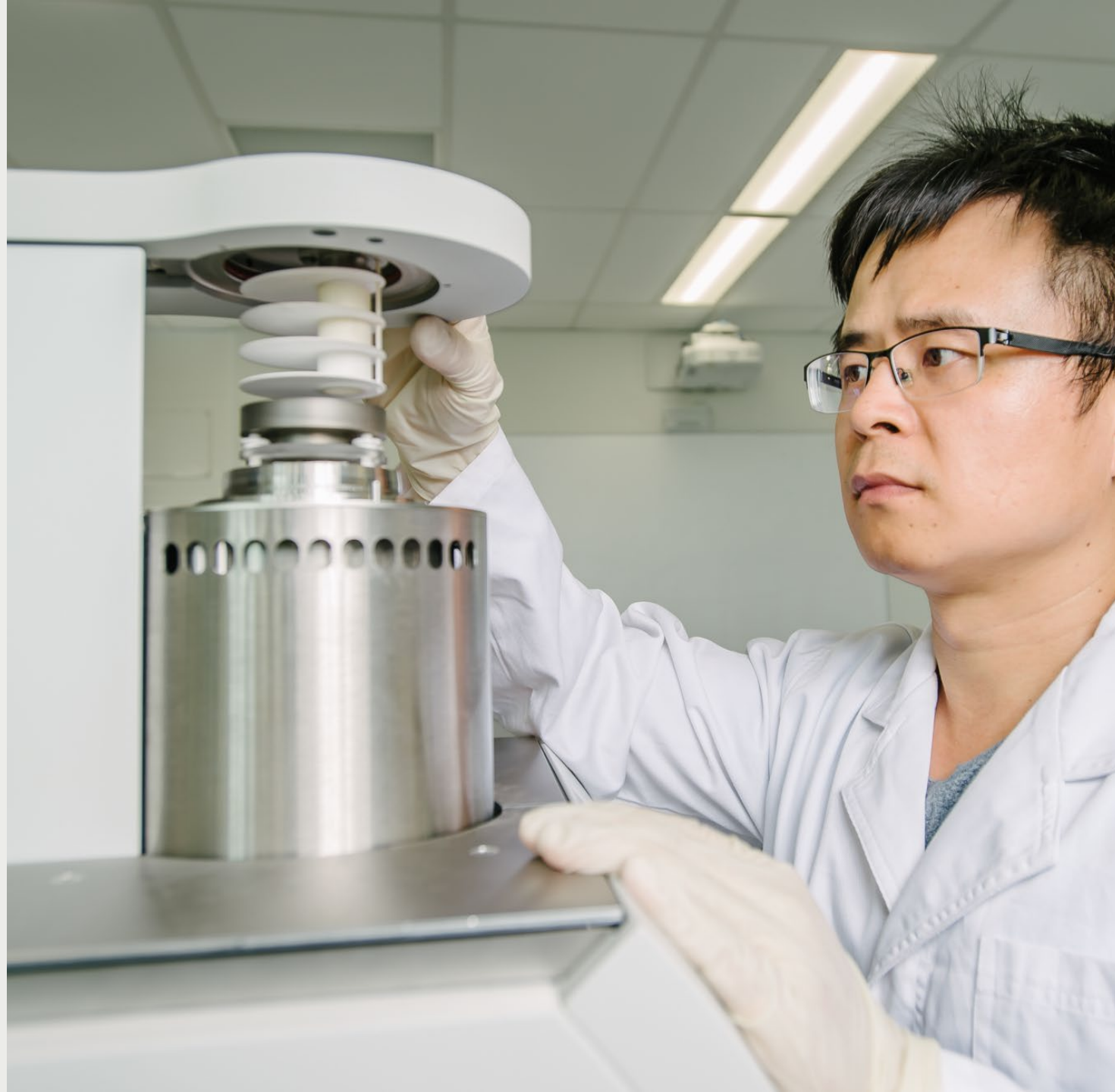


Space and Defence

- Aerospace composites reinforcement and repair
- Automated manufacturing, process development, advanced infusion processing and process modelling
- International collaborators include Boeing and Airbus.

Thermoelectric materials

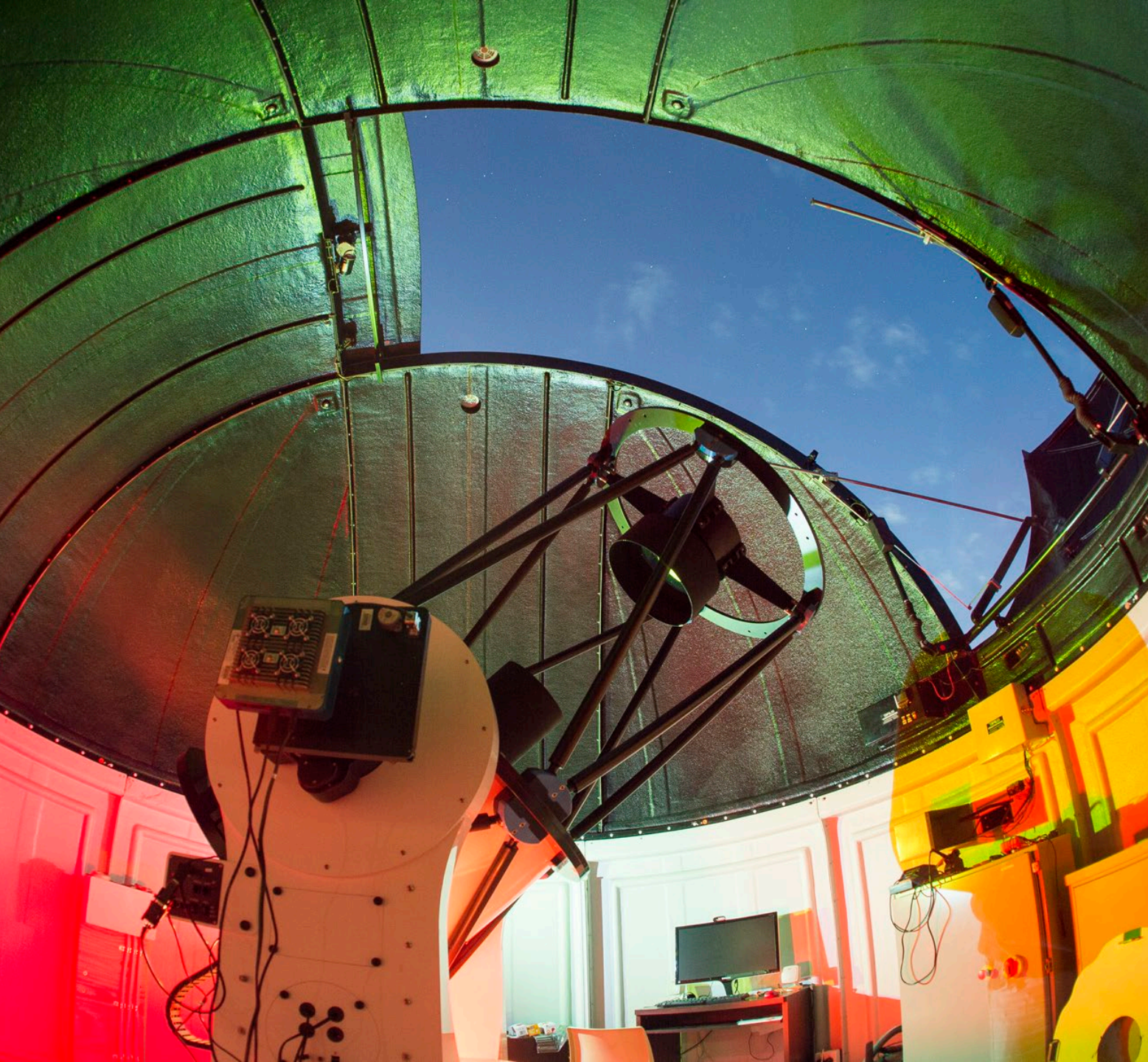
- High-performance, cost-effective and low-toxic thermoelectric materials
- Directly converting thermal energy into electrical energy = a green and sustainable energy solution.



Civil Engineering

- Structural – bridges, roads, railways and marine structures
- Fire retardation and cladding
- Green concrete
- Commissioned to develop new railway sleepers for the Sydney Harbour Bridge.





Astrophysics

- Key role in NASA's Transiting Exoplanet Survey Satellite (TESS) mission
- UniSQ Observatory (Mount Kent) with 12-telescope array capability
- Collaborators include Harvard-Smithsonian Center for Astrophysics, European Southern Observatory and MIT, CalTech.

Hypersonics

- Hypersonic flight and re-entry modelling capability
- Collaborators include European Space Agency, Australian Space Agency and DST
- Facilities include hypersonic wind tunnel facility (Mach 7) and icing wind tunnel capability.



Regional Development



Institute for Resilient Regions >

Centre for Heritage and Culture >

School of Creative Arts >

Rural Economies Centre of Excellence >

School of Business >

School of Law and Justice >

Centre for Health Research >

School of Humanities and Communication >

Archaeology Laboratory >

The long-term viability of regional communities is dependent on diversified workforces, flexible economies and behavioural adaptations to sustain healthy populations, and strong cultural and social capital.

- Expand focus from economies to enterprise
- Major focus on Drought Resilience and Rural Leadership
- Decarbonisation – communities in transition

Future Drought Fund Innovation Hub

\$20 million collaboration building on UniSQ's Climate Science and Regional Economic Development Strengths.



A healthcare professional, likely a pharmacist or technician, is shown in profile, working in a pharmacy. She is wearing a teal polo shirt with a dark blue collar and a stethoscope around her neck. Her hair is pulled back in a ponytail. She is reaching into a yellow bin on a multi-tiered shelving unit filled with various colored bins (blue, green, yellow, red) containing medication. The background shows more shelves and bins, creating a sense of a well-stocked pharmacy. The word "Health" is overlaid in white text on the left side of the image.

Health

Institute for Resilient Regions >

School of Nursing and Midwifery >

Biomedical Laboratory >

Centre for Health Research >

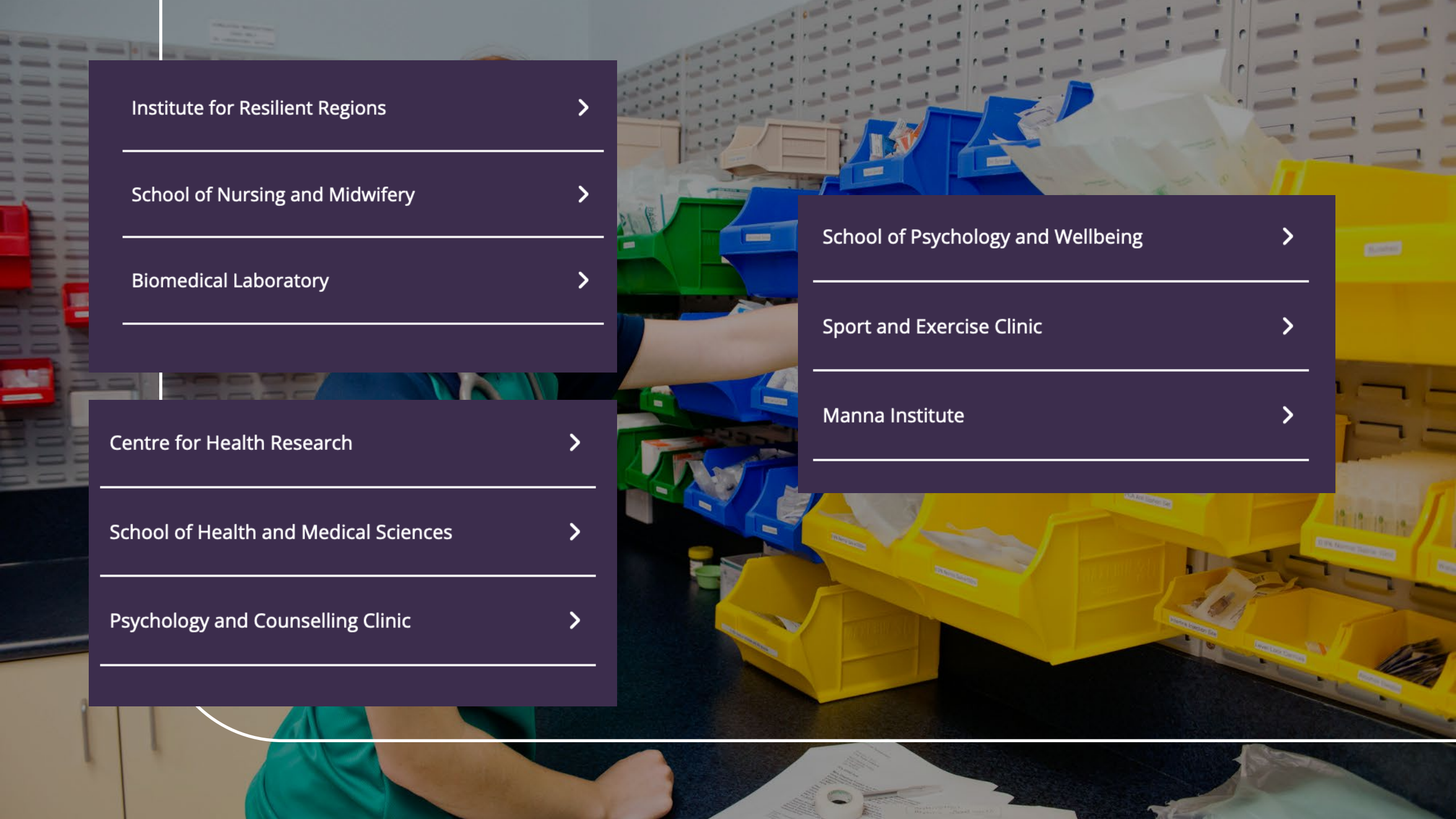
School of Health and Medical Sciences >

Psychology and Counselling Clinic >

School of Psychology and Wellbeing >

Sport and Exercise Clinic >

Manna Institute >





- Improving cancer outcomes in rural Australia
- Mental health and suicide prevention
- Decreasing heart disease
- HIV control in migrant populations
- Functional foods and nutrition
- Physically active lifestyles
- Elite sport science.

We are globally connected

- 
- Argentina
 - Austria
 - Australia
 - Bangladesh
 - Belgium
 - Brazil
 - Canada
 - Chile
 - Greater China (Mainland China, Hong Kong, Taiwan)
 - Colombia
 - Finland
 - France
 - Germany
 - India
 - Indonesia
 - Italy
 - Malaysia
 - Mauritius
 - Mexico
 - Morocco
 - New Zealand
 - Oman
 - Pakistan
 - Papua New Guinea
 - Peru
 - Russia
 - Scotland
 - Singapore
 - South Africa
 - Spain
 - Sri Lanka
 - Switzerland
 - Thailand
 - United Arab Emirates
 - United Kingdom
 - United States
 - Uruguay
 - Vietnam

Collaboration models

Articulation Partnerships

Dual Award Partnerships

Study Hub Partnerships

Third-Party Arrangement Partnerships

Student Mobility (Global Education Programs)

Research Partnerships & Cotutelle Program





University of
**Southern
Queensland**
Australia

JOIN OUR RESEARCH NETWORK!

unisq.edu.au/international





University of
**Southern
Queensland**
Australia