

SOUTH AUSTRALIAN UNIVERSITIES - SHANDONG ACADEMY OF SCIENCES

JOINT LABORATORIES



South Australia has been actively pursuing opportunities to expand its international research networks. In August 2016 the South Australian Government signed the *Shandong-South Australia Science and Technology Commercialisation Cooperation Platform*, with the Shandong, Academy of Sciences in Jinan, China.

<http://english.sdas.org/>

The agreement facilitates the establishment of a series of international R&D cooperation platforms, known as joint laboratories, to promote long-term and sustainable partnerships between universities, research institutes, and enterprises in China and South Australia, to develop industrial innovations at an international level.

The Shandong and South Australian governments, the Shandong Academy of Sciences, and South Australian universities have contributed financially to the following joint laboratories:

- China-Australia Joint Laboratory for Native Bioresource Industry- Flinders University
- China-Australia Joint Laboratory for Medical Devices and Digital Health - Flinders University
- China-Australia Joint Laboratory for Soil Ecological Health and Remediation - Adelaide University
- China-Australia Joint Laboratory Advance Laser and Sensor - University of South Australia

CHINA-AUSTRALIA JOINT LABORATORY FOR NATIVE BIORESOURCE INDUSTRY, FLINDERS UNIVERSITY

This joint laboratory was established in 2017 between the Biology Institute, Shandong Academy of Sciences, Shandong Analysis and Test Center, and the Centre for Marine Bioproducts Development, Flinders University.

<https://news.flinders.edu.au/blog/2017/05/12/flinders-in-sa-china-joint-research-lab/>

<http://www.flinders.edu.au/medicine/sites/marine-bioproducts/>

Research focus

- The joint laboratory has a five-year strategic research plan that focuses on the research and development of native Australian biological resources into environmentally and ecologically friendly products and technologies.
- The joint laboratory includes a Doctoral Student Education program that supports SDAS PhD candidates to undertake research at Flinders University's ILHT laboratory. PhD candidates are jointly supervised by SDAS and Flinders University academics.

Key staff

Associate Professor Kirsten Heimann, Research Director, Flinders University

<http://www.flinders.edu.au/people/kirsten.heimann>

Professor Wei Zhang, Flinders University

<http://www.flinders.edu.au/people/wei.zhang>

CHINA-AUSTRALIA JOINT LABORATORY FOR SOIL ECOLOGICAL HEALTH AND REMEDIATION – ADELAIDE UNIVERSITY, SCHOOL OF AGRICULTURE, FOOD AND WINE

This joint laboratory aims to achieve high-level research outputs in agricultural microbiology to foster improved crop growth and to build the basis for continuing collaborative investment in scientific capability. Specifically, the laboratory will investigate the potential to use soil microbiological technologies to create new discoveries, leading to basic and applied solutions in the amelioration of soil-based constraints in broad acre and protected horticulture systems, and in natural environments in both Shandong Province and Australia.

Research focus

- Developing bioinformatic tools to analyse the structure and function of soil microbiomes, using the facilities of the National Supercomputing Centre in Shandong.
- Remediation of petroleum-polluted soils using beneficial microbes in saline soils of the Yellow River Delta.
- Evaluation of soil microbiomes, including beneficial microbes in broad acre and protected plant production systems, in Shandong and South Australia.
- Developing a new, rapid soil biological activity test, both as a research tool and to monitor and manage agricultural and polluted soils.

Key staff

Dr Matthew Denton, Joint Laboratory Leader, Senior Lecturer, School of Agriculture, Food and Wine

<https://www.adelaide.edu.au/directory/matthew.denton>

Dr Hetong Yang, Joint Laboratory Leader, Head of Foreign Affairs Office, SDAS

CHINA-AUSTRALIA JOINT LABORATORY FOR HEALTH TECHNOLOGIES, FLINDERS UNIVERSITY

This partnership combines the computer application expertise within the Shandong Academy of Sciences with the strong research capabilities in biomedical engineering, digital health and biosensors at Flinders University. The partnership aims to leverage the strengths of both institutions to create innovations to deliver benefit to the medical sector.

The joint laboratory includes a joint PhD program to support SDAS PhD candidates to undertake research at Flinders University's ILHT laboratory.

<https://news.flinders.edu.au/blog/2017/12/09/new-med-tech-research-lab-china/>

Research focus

- Development of flexible wearable electronic systems to monitor multiple physiological parameters including human respiration, pulse and electrocardiogram, and blood oxygen.
- R&D of key technologies of intelligent digital medical devices (integrating biological sensing, optical monitoring, cloud computing and wireless technologies).
- Development of health big data key technology research and platform.

Key staff

Australian Director: Professor Karen Reynolds, College of Science & Engineering, Flinders University <http://flinders.edu.au/people/Karen.Reynolds>

Australian Deputy Director: Associate Professor Youhong TANG, College of Science & Engineering, Flinders University <http://www.flinders.edu.au/people/youhong.tang>

Chinese Director: Professor Yinglong WANG, President - Shandong Academy of Sciences

Chinese Deputy Director: Professor Minglei SHU, Shandong Academy of Sciences

CHINA-AUSTRALIA JOINT LABORATORY IN ADVANCED LASERS AND SENSORS – UNIVERSITY OF SOUTH AUSTRALIA

The joint laboratory consists of two major facilities in China and Australia, one located in Jinan City, the other in Adelaide. The aims of the joint laboratory are:

- To lead industrial technology innovations based on advanced laser and sensing R&D capabilities in China and Australia.
- Promote the international development of the lasers and sensors industry in Shandong and South Australia.
- Integrate top-class Chinese and Australian scientific and technological resources and utilize advanced laser and sensing R&D resources to achieve technological breakthroughs.
- Provide core technical support for the transformation and upgrading of laser and sensor industries both in Shandong and South Australia.

The joint laboratory provides a SDAS-UniSA International Joint Graduate Program, which includes innovation in international education collaboration through the joint appointment of supervisors, parallel PhD education and collaboration projects, and targeted training of industry personnel of collaboration partners.

Research Focus

- R&D on advanced lasers and sensors for humidity sensing and trace detection of toxins in food products.
- R&D and commercialisation of planar waveguide-based IR lasers and advanced gas sensors.
- Assist Chinese and South Australian businesses seeking to invest or do business in South Australia and China, respectively.

Key staff

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