大连理工大学 DALIAN UNIVERSITY OF TECHNOLOGY

GLOBAL RESEARCH PROGRAM

SPRING SEMESTER · DALIAN, CHINA

DALIAN UNIVERSITY OF TECHNOLOGY

GLOBAL RESEARCH PROGRAM

2027

Work alongside leading professors in science and engineering on core research programs.

22 FEBRUARY – 22 JUNE 2027 · 4 MONTHS · 5 SCHOOLS · 22 PROGRAMS







DUT-GRP 2027 · SPRING SEMESTER 2027

Global Research Program

Work alongside leading professors in science and engineering on core research programs.

PROGRAM DATES · STANDARD PERIOD
22 February 2027 – 22 June 2027, 4 months
(Participants are expected to follow this full schedule.)

FLEXIBLE ARRANGEMENT
For students from designated partner universities, the specific research duration may be arranged flexibly within this period, subject to agreement with the supervisor.

About DUT

THE UNIVERSITY

211 · 985	#254	4	450+
National key university Double First-Class	U.S. News Best Global Universities 2026–2027	Subjects in the ESI world top 1‰	Partner universities in 43 countries

Dalian — a coastal city at the southern tip of the Liaodong Peninsula with a mild maritime climate.

Research Fields

5 SCHOOLS · 22 PROGRAMS



Energy and Power
7 PROGRAMS



Mechanics and Aerospace Engineering
3 PROGRAMS



Chemical Engineering
3 PROGRAMS



Bioengineering
3 PROGRAMS



Infrastructure Engineering
6 PROGRAMS

22
research programs, listed in detail overleaf

What Participants Receive

OUTPUT & CERTIFICATE

Certificate of Completion

Issued with a credit statement once the agreed tasks are completed.

Scholarship Opportunity

CSC · TYPE B

CSC (Type B) Scholarship. Participants in the Global Research Program may apply concurrently for the Chinese Government Scholarship (CSC) — Type B, for Master's or Doctoral studies. After completing the Global Research Program, participants can proceed directly to the next stage of their research without interruption.

Application deadline: 15 February 2027
Contact: dutsice@dlut.edu.cn

Application Process

FOUR STEPS

STEP 01 **Choose a topic & contact the supervisor**
After selecting a program, email the relevant supervisor with your CV and supporting materials.
Deadline: 20 December 2026

STEP 02 **Complete the questionnaire**
Fill in and submit the questionnaire before 20 December 2026.
https://v.wjx.cn/vm/ws1MkfB.aspx#
Deadline: 20 December 2026

STEP 03 **Supervisor review & online registration**
After we receive your questionnaire, we will contact the supervisor to confirm whether they agree to accept you. Once approved, we will notify you by email and guide you through the online registration at DUT.
Deadline: 30 December 2026

STEP 04 **Receive your Admission Letter**
After successful registration, you will receive your Admission Letter and the DQ Form required for your visa application.
Timeline: Within 2 weeks after DUT online registration

Fees & Accommodation

AT A GLANCE

Application / Registration Fee	**CNY 500** Non-refundable
Tuition	**Waived**
Accommodation	**Partner-school students:** Waived **Other students:** CNY 1,800/month (a partial month will be charged as a full month)

Note: Accommodation — on-campus international student dormitory rooms require advance booking.

Contact

SHORT-TERM PROGRAMS OFFICE

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APPLY WEBSITE

Global Research Program 2027 — The List

THE LIST

No.	Research Direction · Host School	Supervisor Name · Email · Homepage Link	Places available	Program Description and Objectives	Prerequisite Skills & Requirements for Students (Optional)	Main Tasks
01	**Single-bubble dynamics in nucleate boiling using visualization experiment and Rayleigh-Plesset equation** School of Energy and Power	SUPERVISOR **Prof. He Ying** EMAIL heying@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/2013011187/en/index.htm	1	Boiling heat transfer has been widely used in industrial processing. However, the fundamental phenomena of nucleation, microlayer evaporation, surface wettability, and liquid condensation haven't been fully understood. This work is one part of our research program, which mainly focuses on bubble dynamics observation via single-bubble generation chamber and visualization system. Furthermore, the student will combine Rayleigh-Plesset equation and image data to do some analysis about the bubble evolution characteristics.	> Have basic knowledge about heat transfer > Matlab or Python programming	> A program report > A presentation
02	**Synthesis and Interfacial Study of In-Situ Polymerized Composite Solid Electrolytes for Lithium Batteries** School of Energy and Power	SUPERVISOR **Prof. Pan Wending** EMAIL wdpan@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/panwending/zh_CN/index.htm	1	Composite solid electrolytes (CSEs) are a key enabler for safe, high-energy-density lithium batteries, yet poor electrode/electrolyte contact and unstable interfaces still limit their practical use. This work adopts in-situ polymerization, in which the polymer network is cured directly inside the assembled cell, to construct intimate and stable electrode/electrolyte interfaces. The student will join electrolyte formulation, cell assembly and electrochemical testing (EIS, CV, cycling), and combine the results with SEM/XPS characterization to analyse how monomer and filler chemistry as well as polymerization conditions govern ionic transport and interfacial stability.	> Basic knowledge of electrochemistry, materials or transport phenomena > Hands-on experience with electrochemical testing or materials characterization is a plus > Data processing with Origin, Matlab or Python	> A program report > A presentation (literature review + technical results).
03	**Research on the Model Construction of Underwater Near-Isobaric Compressed Air Energy Storage System** School of Energy and Power	SUPERVISOR **Prof. Jiang Dongyue** EMAIL jiangdy@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/jiangdongyue/zh_CN/index.htm	1	This work aims for large-scale energy storage at offshore regions. Students will learn how to use simulation software to establish the theoretical and numerical model of the underwater energy storage system.	Simulink	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation).
04	**Performance of Adiabatic Tower under Different Dry-Wet Switching Point for Wet Pads** School of Energy and Power	SUPERVISOR **Associate Prof. Gong Luyuan** EMAIL lygong@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/gongluyuan/zh_CN/index.htm	1	This work aims to investigate the performance of an adiabatic tower in order to comprehensively quantify the energy-saving benefits of wet pad activation from multiple dimensions. This study can provide a valuable engineering reference for selecting the critical dry-wet switching points of wet pads in regions with varying humidity levels.	> Basic knowledge of heat and mass transfer > Basic knowledge of Matlab	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation).
05	**LES Comparative Study on Ignition and Combustion of Single-hole Ammonia-Diesel Spray under Different Mixing Modes** School of Energy and Power	SUPERVISOR **Associate Prof. Dong Pengbo** EMAIL pengbo.dong@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/dongpengbo/en/index.htm	1	—	—	—
06	**Construction and Evaluation of a Reduced Mechanism for Dimethyl Ether** School of Energy and Power	SUPERVISOR **Associate Prof. Chang Yachao** EMAIL changyc@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/changyachao/en/index.htm	1	This study aims to develop a compact skeletal reaction mechanism for dimethyl ether (DME) that can simultaneously predict the combustion and emission characteristics of DME in fundamental reactors and engines, and enable direct coupling with multi-dimensional CFD models for simulations. The mechanism is constructed using the decoupling method, reaction-class-based global sensitivity analysis, and genetic algorithm. The developed skeletal model requires joint validation under fundamental reactor and engine conditions.	> Basic knowledge of combustion science	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation).
07	**Thermophysical Properties of High-Entropy LLZO via Ultrafast Synthesis** School of Energy and Power	SUPERVISOR **Prof. Li Mu** EMAIL limu@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/limu/en/index.htm	1	This program aims to investigate the thermophysical properties of high-entropy LLZO prepared using ultrafast high-temperature synthesis. The student will participate in sample preparation, basic material characterization, and thermal property measurements, including thermal diffusivity and thermal conductivity. The effects of synthesis conditions and material composition on thermal transport behavior will be explored.	> Basic knowledge of heat transfer and thermophysical properties. > Basic laboratory skills and some experience with experimental work. > Interest in materials science, thermal engineering, or energy storage technologies.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal as a co-author.
08	**Hydrogels for Diagnosis and Treatment of Diseases** School of Mechanics & Aerospace Engineering	SUPERVISOR **Prof. Zhang Wei** EMAIL wei.zhang@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/weizhang/en/index.htm	2	Hydrogel technology is developing very rapidly and has been widely used in many aspects of biomedical research and healthcare, including disease diagnosis, drug delivery, and therapy. This program will make full use of materials design, biological principles, medical knowledge, and engineering methods to develop functional hydrogel systems for the diagnosis, drug delivery, and treatment of diseases. It aims to build versatile platforms that connect material properties with disease detection, therapeutic delivery, and integrated theranostics.	The program is highly interdisciplinary and suitable for students interested in biomaterials, biomedical engineering, medicine, drug delivery, and translational research.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal as a co-author.
09	**Magnetic Nanomaterials for Hyperthermia of Cancer** School of Mechanics & Aerospace Engineering	SUPERVISOR **Prof. Zhang Wei** EMAIL wei.zhang@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/weizhang/en/index.htm	2	Magnetic nanomaterial technology is developing very rapidly and has been widely used in many aspects of biomedical research and healthcare. This program will make full use of nanomaterials design, magnetic field control, biological principles, medical knowledge, and engineering methods to develop functional magnetic nanomaterial systems for cancer hyperthermia. It aims to build versatile platforms that connect magnetic properties with heat generation, tumor targeting, imaging, drug delivery, and combined therapy.	The program is highly interdisciplinary and suitable for students interested in nanomaterials, biomedical engineering, cancer therapy, drug delivery, and translational medicine.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal as a co-author.

Global Research Program 2027 — The List

THE LIST

No.	Research Direction · Host School	Supervisor Name · Email · Homepage Link	Places available	Program Description and Objectives	Prerequisite Skills & Requirements for Students (Optional)	Main Tasks
10	**Cell Mechanics and Its Applications** School of Mechanics & Aerospace Engineering	SUPERVISOR **Prof. Zhang Wei** EMAIL wei.zhang@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/weizhang/en/index.htm	2	This program will make full use of physical models, biological principles, medical knowledge, and engineering methods to study the mechanical properties and behaviors of cells and their applications. It aims to build versatile platforms that connect cell mechanics with cell function, disease progression, drug response, and cell manipulation. Research may involve the mechanical regulation of cells, the influence of cell mechanics on drug resistance and endocytosis, the measurement of cell migration forces, and cell sorting based on mechanical properties.	The program is highly interdisciplinary and suitable for students interested in mechanobiology, biomedical engineering, biophysics, medicine, drug delivery, and translational research.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal as a co-author.
11	**Tropical Botanical Extracts and Their Applications** School of Chemical Engineering	SUPERVISOR **Prof. Cheng Fang** EMAIL ffcheng@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/Cheng_Fang/zh_CN/index.htm	1	This program centers on the applications of tropical plant extracts.	We recommend prospective applicants to have basic training in chemistry, biology, medicine or agronomy before enrollment.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal or a patent as a co-worker in 12 months
12	**Ophthalmic Formulations and Ophthalmic Biomaterials** School of Chemical Engineering	SUPERVISOR **Prof. Cheng Fang** EMAIL ffcheng@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/Cheng_Fang/zh_CN/index.htm	1	This program focuses on the applications of various nanomaterials in ophthalmic therapy.	Applicants with foundational knowledge in chemistry, biology, medicine or materials science are encouraged to apply.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal or a patent as a co-worker in 12 months
13	**High-efficiency microbial production driven by electricity** School of Bioengineering	SUPERVISOR **Prof. Chen-Guang Liu** EMAIL cg_liu@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/liuchenguang/zh_CN/index.htm	1	External electricity supply modulates microbial metabolism to enable efficient biosynthesis of target products. This work investigates the underlying electron transfer mechanisms and metabolic response mechanisms.	Basic requirements: Solid foundational knowledge in fermentation and biochemistry, and strong hands-on capabilities.	> Finish a research report. > Give one research presentations (a. references review; b. technical presentation). > Submit one paper to a journal or a patent as a co-worker in 12 months
14	**Nucleic Acid Biomarker Discovery & Detection** School of Bioengineering	SUPERVISOR **Prof. Jun Yang** EMAIL junyang@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/junyang/zh_CN/index.htm	1	This program centers on mining RNA/DNA biomarkers from clinical and environmental samples and turning them into fast, low-cost detection tools. Alternative tracks are also available: bioinspired nanovesicles for nucleic acid delivery, and AI-assisted RNA target discovery.	We recommend prospective applicants to have basic training in chemistry, biology, medicine, agronomy or computer science before enrollment.	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 12 months.
15	**AI-driven Nanobody de novo Design** School of Bioengineering	SUPERVISOR **Associate Prof. Fangling Ji** EMAIL fanglingji@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/fanglingji/zh_CN/index.htm	1	AI-driven nanobody de novo design leverages deep learning and generative models to create single-domain antibodies with tailored binding, stability, and developability. By bypassing immunization and exhaustive screening, it accelerates discovery of novel nanobodies for therapeutics, diagnostics, and research, while expanding accessible target space.	—	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 12 months.
16	**Vaccine Formulation and Drug Delivery** School of Chemical Engineering	SUPERVISOR **Prof. Bingbing Sun** EMAIL bingbingsun@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/sunbingbing/en/index.htm	2	This program, conducted within the framework of the Vaccine Formulation and Drug Delivery course, focuses on the rational design and evaluation of a novel vaccine delivery platform. The work integrates principles of chemical engineering, immunology, pharmaceutics, and materials science to address critical challenges in vaccine development. The program will explore lipid nanoparticle (LNP) and polymeric microneedle systems as carriers for model antigens, evaluating how formulation parameters influence antigen presentation and immune response. Additionally, AI-driven methods will be introduced to optimize formulation design, predict stability profiles, and accelerate the screening of delivery system candidates, thereby enhancing the efficiency and precision of the development process.	Applicants with a background in chemical engineering, materials science, immunology, or biology are all welcome.	> A program report > A presentation > A manuscript
17	**Seismic Resilience of Offshore Artificial Island Structures** School of Infrastructure Engineering	SUPERVISOR **Prof. Gang Li** EMAIL gli@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/gli/zh_CN/index.htm	2	As core hubs for deep-sea energy development, strategic maritime fulcrums, and critical infrastructure, artificial islands are vital to the integrity of major national engineering programs; thus, their seismic safety is of paramount importance. The marine environment is exceptionally complex—artificial islands exist within a multi-media system comprising seawater, saturated soil layers, and bedrock—where seismic activity triggers significant material non-linearity, fluid-structure interaction, and site amplification effects. Compared to conventional onshore structures, artificial islands exhibit more complex seismic response mechanisms and potentially more severe failure consequences, making their seismic design and resilience-based defense a critical, cutting-edge research frontier in marine civil engineering. Centered on the theme of "seismic resilience for artificial island engineering," this program offers high-level specialized instruction and academic seminars tailored for outstanding students in civil engineering, marine engineering, and disaster prevention and mitigation.	Basic knowledge of structural dynamics; familiarity with MATLAB/Python and/or finite element software (e.g., ANSYS) is preferred; interest in seismic engineering and disaster mitigation.	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 13 months.

Global Research Program 2027 — The List

THE LIST

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18	**Intelligent Multi-Hazard Analysis of Floating Wind Turbines under Wind–Wave–Current Loads** School of Infrastructure Engineering	SUPERVISOR **Prof. Gang Li** EMAIL gli@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/gli/zh_CN/index.htm	2	This program focuses on the structural response of floating offshore wind turbines under combined wind, wave, and current loads. Students will use OpenFAST to simulate the dynamic behavior of floating wind turbines under different environmental conditions. Machine learning techniques will be introduced to develop surrogate models for efficient prediction of key structural responses, including platform motions, tower loads, and mooring tensions. The program aims to improve the efficiency of structural response analysis and provide insights into the safe design of floating offshore wind turbines.	Students should have a basic understanding of mathematics, mechanics, and engineering fundamentals. Basic programming skills in Python or MATLAB are preferred. Familiarity with structural dynamics, numerical simulation, or machine learning would be an advantage but is not required. Students should demonstrate an interest in scientific research, good analytical skills, and the ability to learn independently.	> Complete a research report summarizing the methodology, numerical simulations, and key findings. > Deliver a research presentation to demonstrate the program results. > Contribute to the preparation of a research paper for submission to an academic journal as a co-author.
19	**Dynamic Response Monitoring and Modal Identification of Receiver Towers in Solar Power Tower Plants Based on Numerical Simulation and Deep Learning** School of Infrastructure Engineering	SUPERVISOR **Prof. Gang Li** EMAIL gli@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/gli/zh_CN/index.htm	1	This program focuses on structural monitoring and modal identification of receiver towers in solar power tower plants, with emphasis on the dynamic response and modal identification of the receiver tower under wind loads. Students will use ABAQUS to establish a finite element model of the receiver tower and simulate its dynamic responses under different operating conditions. By combining monitoring data and deep learning methods, the program will investigate automatic modal parameter identification and model-order selection under conditions of noise, missing values, and environmental variability. Machine learning techniques will also be introduced to develop surrogate models for efficient prediction of key structural responses. The program aims to provide methodological support for structural condition monitoring and safe operation and maintenance of receiver towers.	Basic knowledge of structural dynamics, finite element methods, or signal processing; familiarity with MATLAB/Python; experience with ABAQUS, deep learning, or machine learning is preferred; interest in structural health monitoring, flexible high-rise structures, and the application of artificial intelligence in civil engineering; good analytical skills and ability to learn independently.	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 12 months.
20	**Wind-Induced Response and Wind-Resistant Mitigation of Transmission Lines** School of Infrastructure Engineering	SUPERVISOR **Prof. Xing Fu** EMAIL fuxing@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/fuxing/zh_CN/index.htm	1	This program focuses on the wind-induced dynamic response and wind-resistant performance of transmission tower-line systems. The work includes the establishment of a simplified finite element model of a tower-line system, parametric analysis of wind-induced response under different configurations, and preliminary evaluation of mitigation measures.	Basic knowledge of structural dynamics or fluid mechanics; familiarity with MATLAB/Python and/or finite element software (e.g., ANSYS/ABAQUS) is preferred; interest in wind engineering, power infrastructure, and disaster mitigation.	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 12 months.
21	**Deep Learning-Based Multi-Source Monitoring Data Fusion and Intelligent Structural Modal Identification for Transmission Lines** School of Infrastructure Engineering	SUPERVISOR **Prof. Xing Fu** EMAIL fuxing@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/fuxing/zh_CN/index.htm	2	Transmission lines are critical infrastructure components of power systems, and their dynamic characteristics play an important role in operational condition assessment, structural health monitoring, and safe operation and maintenance. However, transmission-line monitoring data are often characterized by heterogeneous data sources, noise interference, missing values, and variations in environmental conditions and operating states, posing challenges to reliable data fusion and accurate structural modal parameter identification. This program focuses on the intelligent analysis of structural monitoring data and operational modal identification for transmission lines. The research will focus on the development of preprocessing and fusion algorithms for multi-source monitoring data, as well as deep learning-based methods for intelligent structural modal parameter identification and automatic model-order selection using monitoring data. The program aims to provide methodological support for structural condition monitoring and intelligent operation and maintenance of transmission lines.	Basic knowledge of structural dynamics, signal processing, or machine learning is expected. Familiarity with MATLAB/Python and deep learning frameworks (e.g., PyTorch) is preferred. Experience in monitoring data analysis or finite element analysis is an advantage. Students should have an interest in structural health monitoring, transmission-line engineering, and the application of artificial intelligence to infrastructure safety.	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 12 months.
22	**Monitoring the Pollutants in Drinking Water Source Reservoirs** School of Infrastructure Engineering	SUPERVISOR **Associate Prof. Xiaoqiang CHEN** EMAIL xqchen@dlut.edu.cn HOMEPAGE faculty.dlut.edu.cn/DUT412/en/index.htm	1	Focusing on pollution source tracing for urban water supply sources as well as water quality monitoring and assessment, this work carries out water quality investigations and analyses of source reservoirs, develops proficiency in water quality analysis methods and data interpretation techniques, and thereby provides technical support for professionals engaged in related scientific research and management.	Basic knowledge of water environment science, analysis skill of water quality and the data management	> Finish a research report. > Give one research presentation (a. references review; b. technical presentation). > Submit one paper to a journal as a co-worker in 13 months.