

# School of Mechanical Engineering

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## I . Introduction to Disciplines and Main Research Fields

Having a first-rate academic level in China and an international reputation, the School of Mechanical Engineering consists of four departments ( Mechanical Engineering, Power Engineering and Engineering Thermo physics, Industrial Engineering and Engineering Management, and Nuclear Science and Technology) and seventeen research institutes. The influential Ministry of Education Rankings has consistently placed all of the school's four departments among the nation's top tier, with the departments of Mechanical Engineering, Power Engineering and Engineering Thermo Physics, and Nuclear Science and Technology ranked first, third and fifth in their respective categories.

The School of Mechanical Engineering has completed international assessment that made by the world-renowned scholars. They all agree that the overall strength of the school is close to the top 50 in the world, and some of the research areas have been among the world tops. The school has been selected as one of 17 National Institute of Education System Reform. And in order to achieve the goal -- the establishment of the world-class college that cultivating the innovative talents with an international perspective, the school will carry out a series of reforms from personnel training, faculty, scientific research, and institutional mechanism for the progressive implementation.

**Disciplines and Main Research Fields**

Disciplines	Research Fields
Mechanical Engineering	Mechanical Manufacturing and Automation, Mechatronics, Machine Design and Theory, Vehicle Engineering, Industrial Engineering
Power Engineering and Engineering Thermo physics	Engineering Thermal Physics, Thermal Energy Engineering, Power Machinery and Engineering (Turbine/Internal Combustion Engine), Fluid Machinery and Engineering, Refrigeration and Cryogenic Engineering, Fuel Cell
Industrial Engineering and Engineering Management	Production Systems Engineering, Quality and Reliability, Logistics and Supply Chain Management, Service Engineering, and Productengineering

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Disciplines	Research Fields
Nuclear Science and Technology	Nuclear Energy Science and Engineering, Nuclear Material and Fuel Cycle, Nuclear Chemical Engineering

## II . Faculty

### 1. Overview of Faculty

The School of Mechanical Engineering takes great pride in its over 430 faculty and staff, of whom there are more than 330 faculties including four academicians of Chinese Academy of Engineering, two academicians of Chinese Academy of Science, six chief scientists of the Major National Basic Research Program (973), 13 members of The Thousand Talents Program, 11 distinguished professors and five chair professors of Chang Jiang Scholars Program supported by the Ministry of Education, and 12 winners of the National Science Fund for Distinguished Young Scholars.

### 2. Renowned Professors

No.	Name	Research Field	No.	Name	Research Field
1	WENG Shilie	Thermal Mechanism	12	XIE Youbai	Mechanical Engineering
2	LIN Zhongqin	Mechanical Engineering	13	ZHENG Ping	Engineering Thermo physics
3	WEN Xueyou	Power Engineering	14	DING Han	Mechatronics Engineering
4	HUANG Zhen	Energy And Power Engineering	15	WANG Ruzhu	Refrigeration And Cryogenics Engineering
5	MENG Guang	Machine Design And Theory	16	GAO Feng	Machine Design And Theory
6	ZHU Xiangyang	Mechatronics Engineering	17	LAI Xinmin	Vehicle Engineering
7	HUA hongxing	Vibration And Noise	18	JIANG Zhibin	Industrial Engineering
8	QI Fei	Combustion And Energy Conversion	19	LIU Chengliang	Machatronics Control
9	WEI Yuezhou	Nuclear Fuel Cycle	20	WU Huiying	Engineering Thermo physics
10	ZHAO Wansheng	Mechanical Engineering	21	XU Min	Vehicle Engineering
11	ZHANG Junliang	Electrochemistry And New Energy Technologies	22	ZHAO Changying	Engineering Thermo physics

### III. Achievements

#### 1. Significant Research Achievements in The Last Five Years

##### \* National Scientific and Technological Awards:

In 2014

(1) The 2nd Prize National Natural Science Award: The Mechanism of Absorption of Adsorption Refrigeration, The Theory of Circulation and Thermal Design by WANG Ruzhu, WANG Liwei, WU Jingyi, DAI Yanjun and XIA Zaizhong.

(2) The 2nd Prize National Science and Technology Progress Award: The Production Technologies and Application of Micro channel Tubes and Heat Exchanger by PENG Yinghong, CHEN Jiangping, LI Dayong, PAN Xiaoyong, TANG Ting and SHI Junye, etc.

(3) The 2nd Prize National Technological Innovation Award: Ship Anti-Shock Layer by HUA Hongxing(ranking the 3rd)

(4) The 2nd Prize National Technological Innovation Award: The Application of Key Technologies about the Regeneration of Cry cooler by HUANG Yonghua (ranking the 9th)

In 2013

(1) The 2nd Prize National Natural Science Award: The Theory of Topology and Design of Parallel Robot by GAO Feng, LIU Xinjun, ZHAO Xianchao, JIN Zhenlin and LI Weimin

(2) The 2nd Prize National Natural Science Award: The Design Theory of Fuels and the Research about How to Basically Control the Combustion and Emission of Internal Combustion Engine by Huang Zhen and LV Xingcai.

(3) International Science and Technology Cooperation Award: by NI Jun

##### \* Provincial and Ministerial Science and Technology Awards:

In 2014

(1) The 1st Prize Ministry of Education (MOE) Natural Science Award: Provincial and Ministerial Science and Technology Awards: The Characteristics of Nonlinear Dynamics and Vibration Control of Micro-Electric Mechanical System by MENG Guang, ZHANG Wenming, LIU Jingquan, CHEN Di and YANG Bin.

(2) The 1st Prize Mechanical and Industrial Technology Invention Award: Effective and Sophisticated Cutting Technologies and Tools With Their Parts Hard To Process by CHEN Ming, AN Qinglong, MING Weiwei, SHEN Bin and SUN Fanghong, etc.

(3) The 1st Prize Mechanical and Industrial Technology Progress Award: The Building and Application of Multi-Level Emulated Platform of Refrigeration and Air-Conditioning Installations by DING Guoliang, CHEN Jiangping, HU Haitao, SHI Junye, CHEN Zhijiu and YAO Ye, etc.

In 2013

(1) The 1st Prize MOE Science and Technology Progress Award: The Fabrication Techniques of Micro-Channel Tubes and Its Application in Heat Exchanger by PENG

Yinghong, CHEN Jiangping, LI Dayong, TANG Ying, SHI Junye, ZHANG Yingying, GE Yafei and GE Fanggen, etc.

(2) The 1st Prize Shanghai Technology Invention Award: The Key Techniques of Operating Effective and Sophisticated CNC Equipment and Its Application by XIONG Zhenhua, SHENG Xinjun, WU Jianhua, HE Minjia, YANG Tangyong, DING Han, NING Jun and ZHUANG Chungang.

## 2. Major Scientific Projects in The Last Five Years

### Innovation Projects Supported by National Nature Science Foundation of China

LIN Zhongqin	The Digital Design of Sophisticated Equipment( Stage III)
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### Major Project of Chinese National Programs for the Research and Study of Apparatus

MENG Guang	The Design, Control and Development of Super-Large Electromagnetic Vibration Table in Dynamics
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### National Science Fund for Distinguished Young Scholars

LV Xingcai	The Combustion and Emission of Internal Combustion Engine
ZHU Limin	Technologies of Digital Manufacturing and Processing
PENG Zhike	The Identification of Frequency Domain of Non-Linear Dynamics Applied in Sophisticated Electromechanical System

### Major National Basic Research Programs (973)

LAI Xinmin	Chief Scientist	The Basic Scientific Problems of Thin-Wall Structure Of a New Generation of Super-Large Rockets
GAO Feng	Chief Scientist	The Basic Scientific Problems of Robots for Emergency in Nuclear Power Plant
ZHU Xiangyang	Chief Scientist	The Scientific Basis of Integration of Biology, Machine and Electricity in Rebuilding Human Functions
HUA Hongxing	Chief Scientist	The Research about Vibration Noise

### Major National Programs

CHEN Ming	The Demonstration Base of Titanium Alloys for Advanced Aerospace Products
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**National High Technology Research and Development Program (863)**

ZHANG Junliang	The Low Pt. High Performance Fuel Cell Stack Technology
JIN Huiliang	The Technologies of Identifying, Locating and Controlling Targets in Smart Agricultural Equipment
JIN Xianlong	Calculating Software of Super-Large Engineering Equipment with the Application of Structural Mechanics
WANG Yuzhang	The Research and Demonstration of Power Released by 30kw Gas Turbine Step by Step
HUANG Zhen	Study on Electric Vehicle Engine of National VI Standard Fueled by Dimethyl Ether

**IV. International Collaboration**

Exploring new approaches to collaborate with the world's leading universities is an integral part of the school's mission to enhance its education and research abilities. With a focus on innovation, the school offers a variety of opportunities to help faculty and students acquire the knowledge and skills they need to compete in the global arena. Over the years, the School has made partnerships with top-ranked engineering educational institutions around the world. By setting the all-English curricula and introducing the advanced curriculum systems, the school implements different types of over study which occupies 30 percent of all the students. So far, co-educational programs aiming at graduate students are as below:

(1) Double Master Degree Program: Northwestern University, Norwegian University of Science and Technology, Ecole Nationale Supérieure d'Arts et Métiers, Kyushu University, Pusan National University.

(2) Combined Master and Ph.D. Degree Program: Paris Tech, Polytechnic Di Milano

(3) Master Degree Program: Institute of French Petroleum School

**V. Platforms for Scientific Innovation****1. Research Centers**

(1) Gas Turbine Research Institute of SJTU

(2) Nuclear Power Technology and Equipment Research Institute of SJTU

**2. Co-built Social Practice Bases (CSPB) for Graduate Students**

(1) CSPB with Shanghai Electric Power Generation Group

(2) CSPB with Shanghai Volkswagen

(3) CSPB with SAIC-GM-Wuling Automobile Co., Ltd

(4) CSPB with GE-CTC

(5) CSPB with National Key Lab of Diesel Engine Turbo Charging Technology

## **Ⅵ. Distinguished Alumni**

QIAN Xuesen, the Father of Aerospace of China, graduating in 1934;  
GU Songfen, the Father of High-speed Fighter, graduating in 1951;  
LI Tianhe, the Father of High-voltage Direct Current System, graduating in 1946;  
WANG Xiji, the Founder of Space Technology of China, the teacher in SJTU;  
LIU Youmei, the Father of High-speed Train of China, graduating in 1961.