

# School of Aeronautics and Astronautics

<http://www.aero.sjtu.edu.cn/index-en.html>

## I . An Introduction to Disciplines and Main Research Fields

The school of Aeronautics and Astronautics has one primary discipline named Aeronautical and Astronautical Science and Technology, and has the right to granting Master's degree of this primary discipline. After 30 years development, the primary discipline has formed three main research fields: Aircraft Design, Aerospace Information and Control, and Aerospace Propulsion theory and Engineering. The Aircraft Design ranks the advanced level in the world in the subject of unsteady aerodynamics, especially the vorticity dynamics. And the overall design of large-scale aircraft takes the lead in China. Many fields, such as hypersonic aerothermodynamics, aero-optics, scramjet combustion theory, and strength test have come up to internal advanced levels. The Aerospace Information and Control serves the major special projects, National High Technology Research and Development Program (863), key model engineering, and national defense pre-research. The advantage of this research lies that it puts in to use the information processing and control technology in military and national defense, civil aerospace and its research, as well as the development and service of space mechanical and electrical integration products. Also, we have reached the international advanced level in the aspects of target tracking and information fusion, space flexible manipulation, and satellite navigation vulnerability monitoring. In addition, we have reached the advanced level at China in areas of design of near space aero craft, distributed spacecraft overall and avionic integrated system. And the Aerospace Propulsion theory and Engineering undertakes the major research and development projects of national aviation engine, working for China's major strategy. It has come up to the international level in such areas as turbine blade aerodynamic heat transfer and the prediction of aero engine lifetime and taken the lead at China in areas of design of advanced compressor of comprehensive high load and mechanism study of complex flow field within the mechanical impeller.

Main Research Fields of School of Aeronautics and Astronautics

Disciplines	Research Fields
Aircraft Design	Aerodynamic, Structural Strength, Human Factors, Functional Materials, etc.
Aerospace Information and Control	Target Tracking, Information Fusion, Guidance and Control, Satellite Navigation, and Integrated Navigation, etc.
Aerospace Propulsion Theory and Engineering	Pneumatic Engine Thermodynamics, Aerodynamic Noise

## II . Faculty

### 1. Overview of Faculty

There are 66 faculty members, including one academician of Chinese Academy of Engineering, one scholar of the Thousand Talents Plan of China, two chair professors, four distinguished professors of Chang Jiang Scholars, two distinguished visiting professors, five experts of the Thousand Talents Program of Shanghai, two scholars of the New Century Talents Project, 12 professors, 21 associate professors, two special associate professors, and 11 lecturers.

SJTU Board of Strategic Experts on Aerospace Science and Technology is made up of 29 academicians of the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE), experts and leaders from the General Armament Department, China Aerospace Science and Technology Corporation, China Aerospace Science and Industry Corporation, State Administration for Science, Technology and Industry for National Defense (SASTIND), CAS Shanghai Branch, Commercial Aircraft Corporation of China, Ltd. (COMAC), AVIC Commercial Aircraft Engine Co., Ltd., and Civil Aviation Administration of China. The board is chaired by two SJTU alumni: WANG Liheng, senior consultant of China Aerospace Science and Technology Corporation and CAE academician; and the other is GU Songfen, deputy director of Science and Technology Committee of AVIC as well as CAS and CAE academician. The board mainly focuses on facilitating the establishment of close relationships between SAA and aerospace industry. The experts of the board serve as a bridge on building the major research platform for schools to participate in the key tasks of the main battlefield; and at a technical level, the experts provide supports to the aerospace science and technology of the school; lastly, for school development and personnel training in the field of aerospace science and technology, they play the role of strategic consulting.

## 2. Renowned Professors

Number	Name	Position	Research Interests
1	TANG Changhong	Academician of the Chinese Academy of Engineering, the Deputy Chief Engineer of Aviation Industry Corporation of China (AVIC), the Dean of School of Aeronautics and Astronautics, Shanghai Jiao Tong University.	Aircraft Aeroelastic Structural Strength Overall Design
2	JING Zhongliang	The executive dean of SAA, distinguished professor of the Chang Jiang Scholar supported by the Ministry of Education of China, the recipient of the Science and Technology Award for Chinese Youth.	Spacecraft, Avionics System
3	James C. Wu	Chair Professor of SAA and emeritus professor at Georgia Institute of Technology, distinguished aerodynamics expert.	Aerodynamics
4	Hugh H. T. LIU	Distinguished professor of SJTU, associate director and tenured professor at the Institute for Aerospace Studies, University of Toronto (UTIAS).	Flight Control System Design, Multi-machine Cooperative Control, Flight Control System Real-time Simulation
5	YOU Zhong	Winner of the Thousand Talents Plan of Shanghai, awarded by the Royal Academy of Engineering and British Civil Engineering Society.	Folding Structure Principle
6	DUAN Dengping	Candidate of the New Century Talents Project and selected by the Hundred Talents Plan of CAS.	Space Science
7	WANG Hai	Professor, in charge of many national and provincial researches.	Design and Strength of Aircraft Structure
8	LIU Hong	PI in multiple supersonic and hypersonic missile aerodynamic heating programs, candidate of the Shanghai Young Star of Science and Technology foundation in 2003.	Supersonic and Hypersonic Missile Aerodynamic Heating, Control System Design
9	HU Shiqiang	Professor, winner of a number of provincial research awards.	Nonlinear Filtering, Information Fusion Technology, Image Understanding and Analysis

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Number	Name	Position	Research Interests
10	ZHAN Xingqun	Professor, expert in navigation guidance and location service.	Navigation Guidance and Control
11	TENG Jinfang	Professor, recipient of over 10 national and provincial awards.	Advanced Compressor Design, Turbomachinery Aerodynamic Thermodynamics
12	WANG Fuxin	Professor, winner of one Second Prize of the National Science and Technology Progress Award, one First Prize and two Third Prizes in the Ministerial Science and Technology Progress Award.	Aerodynamic Characteristics of Helicopters, Aircraft Complex Flow Mechanism and Control
13	CHEN Ji'an	Professor, in charge of key national science and technology projects and the National High-Tech Research and Development Program (863).	Rigid Composite Structure Design Analysis and Structural Health Monitoring Technology
14	LUO Jianhua	Professor, guest professor at the CREATIS INSA Lyon, France.	Image Reconstruction and Image Processing

### III. Achievements

From 2009 to 2014, SAA has undertaken 20 key research projects supported by National Natural Science Foundation of China, including one major project with the key support of National Natural Science Foundation of China; and published 118 articles on important academic journals at China and abroad.

SAA has established cooperative relationship with many research institutions and enterprises, including COMAC-SJTU Joint Innovation, Research, and Development Base, COMAC-SJTU Research Center for Civil Aircraft Maintenance Engineering, SJTU-AVIC Joint Lab for Aircraft Environmental Monitoring Systems, SJTU-AVIC Joint Research Center for Avionics Integrated Technology, Radio Electronics Research Institute, AVIC-SJTU Joint Center for Civil Aircraft Development and Technology, Shanghai Aerospace Material and Structure Test Center, and SJTU-Eighth Research Institutes of CASC Joint Lab for Space Vehicle Systems.

### IV. International Collaboration

Since its foundation, SAA has been committed to international cooperation and exchange

guided by the principle of “Openness, Cooperation, and Sharing”. SAA has maintained close and wide-ranging research cooperation and academic exchanges with many famous overseas universities and research institutions. Collaborations with six foreign universities have been established, including “2+2 Undergraduate Joint Training Program” with the University of Sydney, Monash University, and University of Sheffield, “Dual Master Degree Joint Training Program” with University of Toronto, “Postgraduates Exchange Program” with University of New South Wales, and “NSF Doctoral Joint Training Exchange Program” with Iowa State University. Each year, the school holds several international conferences, at which our professors assume important posts such as co-chairpersons. There are 13% of our faculties on the editorial board of international journals. SAA actively engages in international scientific cooperation and has made a contribution to the Big Dipper International Collaboration Projects. All these efforts have enabled SAA to play an increasingly influential role in the international academic community. Up to now, there have been ten students who have completed Joint Training Program with University of Toronto and gained Dual Master Degree.

## V. Platforms for Scientific Innovation

- (1) COMAC-SJTU Joint Innovation, Research, and Development Base;
- (2) COMAC-SJTU Research Center for Civil Aircraft Maintenance Engineering;
- (3) SJTU-AVIC Joint Lab for Aircraft Environmental Monitoring Systems;
- (4) SJTU-AVIC Joint Research Center for Avionics Integrated Technology, Radio Electronics Research Institute;
- (5) AVIC-SJTU Joint Center for Civil Aircraft Development and Technology;
- (6) Shanghai Aerospace Material and Structure Test Center;
- (7) SJTU-Eighth Research Institutes of CASC Joint Lab for Space Vehicle Systems;
- (8) Global Navigation Satellite System Service Enhancement Center, Ministry of Science and Technology.

## VI. Distinguished Alumni

(1) QIAN Xuesen, graduated from the Mechanical Engineering, Jiao Tong University in 1934, a former professor of Massachusetts Institute of Technology and California Institute of Technology. He is the World-renowned scientist, aerodynamic expert, and the founder of the China Manned Space.

(2) WU Ziliang, materials scientist, Chinese Academy of Sciences, committed to the development of high-tech materials and materials science, and cultivated a large number of technology professionals.

(3) YANG Jiachi, an expert in aerospace technology and automatic control, also an expert in instrumentation and automation, the founder of automatically detects study and academician of Chinese Academy of science.

- (4) WANG Xiji, academician of Chinese Academy of science, space technology experts, one of the pioneers of China's space technology
- (5) CHEN Nengkuan, a famous metal physicist and academician of Chinese Academy of science.