

School of Materials Science and Engineering

<http://en.smse.sjtu.edu.cn/>

I . Introduction to Disciplines and Main Research Fields

Shanghai Jiao Tong University is one of the pioneers in setting up the discipline of Materials Science and Engineering (MSE) in China, which has been consistently remained in national top five in discipline rank, especially No. 1 in 2003, as evaluated by the Minister of Education. In 2007, MSE program of SJTU was authorized as the State Key Academic Program at Primary Discipline Level. MSE program of SJTU has been listed in world top 1‰ discipline of ESI for years.

Main Research Fields in MSE

Disciplines	Research Fields
Advanced Light Metal	Advanced Aluminum Alloys and Processing, High-performance Magnesium Alloys, Degradable Medical Magnesium Alloys, New Magnesium-based Energy Materials
Composite Materials	Aluminum-based Composite Materials, Titanium-based Composite Materials, Morph-genetic Materials and Bionic Composite Materials, Polymer-based Composite Materials, New Functional Composite Materials, Nano and Energy Materials
Materials Processing and Manufacturing	Materials and Solidification Technology, Plastic Deformation, Powder Metallurgy, Welding Technology, Heat Treatment, Digital Intelligence of Materials Processing, High Temperature Alloy and Component, High Strength Steel
Nano-materials and New Functional Materials	New Type Energy Materials, Electronic Information Materials, Biomedical Materials, Special Functional Thin Film, Magnetic Shape Memory and Magnetic Refrigeration Materials
Design and Control of Supermicro-Structure	Design of Super-microstructure, Super-microanalysis, Super-microstructure of Evolutionary Dynamics

II . Faculty

1. Overview of Faculty

School of MSE in SJTU is one of the schools with the highest ratio of teachers and students in China. There are about 280 faculty and staff members, including two academicians of the Chinese Academy of Sciences, three academicians of Chinese Academy of Engineering, four Chief Scientists of the Major National Basic Research Program (973), 13 members of the Thousand Talents Plan (a program to introduce overseas talents), five Chang Jiang Scholars and four winners of The National Science Fund for Distinguished Young Scholars, and a large number of excellent young and middle-aged research talents who have obtained academic achievements at home and abroad.

2. Renowned Professors

No.	Name	Research Field	No.	Name	Research Field
1	ZHOU Yaohe	Solidification Theory and Technology	11	XU Zuyao	Phase Transformation
2	RUAN Xueyu	Plastic Deformation and Digital Processing	12	PAN Jiansheng	Heat Treatment
3	DING Wenjiang	Light Alloy Fabrication and Forming Technology	13	ZHANG Deliang	Nano and Ultra-fine Powder Metallurgy
4	CHEN Mingwei	Nano-materials	14	CHEN Xiaoqi	Welding Automation
5	HAN Liyuan	Dye Sensitized Solar Cell	15	XIAO Ping	Coating Materials
6	DENG Tao	Micro and Nano Devices Energy and Sensing Materials	16	SUN Baode	Precision Casting Forming
7	ZHANG Di	Metal-based Composite Materials and Morph-genetic Materials	17	CHEN Shanben	Smart Welding
8	GAO Lian	Nano-ceramics Materials	18	LI Jianguo	Metal Solidification Theory and Solidification Control
9	WANG Haowei	Structure Function Integration Composite Materials	19	KONG Xiangyang	New Energy Materials
10	LIU Hezhou	Nano- functional Materials	20	FAN Tongxiang	Functional Metal-based Composite Materials

III. Achievements

1. Significant Research Achievements in The Last Five Years

* National Scientific and Technological Awards

In 2009

(1) The 2nd Prize of National Science and Technology Progress Award: Dynamic Control Technique and Application of Chemical Nickel-plating by HU Wenbin, ZHONG Faping, LIU Lei, TANG Yiwu, SHEN Bin, WU Yating, DENG Yida, GAN Xueping, LIU Xinkuan, TANG Shuo, etc.

* Provincial and Ministerial Science and Technology Awards

In 2014

(1) The 1st Prize of Shanghai Natural Science Award: Functional Properties of Morphology-genetic Materials with Hierarchical Elaborated Structures by ZHANG Di, FAN Tongxiang, GU Jiajun, ZHOU Han, ZHANG Wang, etc.

(2) The 1st Prize of Shanghai Technology Invention Award: Directional Solidification Technology and Equipment of Ultra-high Purity Aluminum by SUN Baode, ZHANG Jiao, WANG Jun, DAI Yongbing, HE Bo, SHU Da, GAO Haiyan, HAN Yanfeng, etc.

In 2013

(1) The 1st Prize of Ministry of Education (MOE) Technology Invention Award: Excellent Achievement Prize for Scientific Research of Institutions of Higher Education by WANG Haowei, LI Xianfeng, CHEN Dong, ZHANG Yijie, ZHOU Yaohe, WU Renjie, etc.

(2) The 1st Prize of Shanghai Technology Invention Award: High-strength and Heat-resisting Magnesium Alloy and its Application in Aerospace Field by WU Guohua, DING Wenjiang, ZENG Xiaoqin, PENG Liming, WANG Yingxin, DONG Jie, WANG Qudong, GUO Xinngwu, JIANG Haiyan, LIU Wencai, etc.

(3) The 2nd Prize of Scientific Research Excellence Award of Institutions of Higher Education (patent): The Preparation Strategy of Anti-seawater Glass Fiber Reinforced Epoxy Resin Composites by SUN Kang, LI Wei, TAO Ke, JIANG Xueliang, YANG Chao, etc.

In 2010

(1) The 1st Prize of Shanghai Technology Invention Award: High Strength and Toughness Mg-RE Alloy with Shape-and-performance Controllability Integration and its Development of Application Technology by PENG Liming, DING Wenjiang, ZENG Xiaoqin, JIANG Haiyan, WU Guohua, GUO Xinngwu, WANG Qudong, FU Penghuai, DONG Jie, etc.

2. Major Scientific Projects in The Last Five Years

Major projects of Chinese National Programs for the Research and Study of Apparatus

LI Jianguo	The Real Time Observation Method and Device for Electrostatic Suspension Metal Melt and its Solidification Process Based on Synchrotron Radiation
LI Jinfu	The Multi-function Solidification Apparatus for Real-time Study of Solidification of Metallic Alloys by Synchrotron X-ray Radiography

National Science Fund for Distinguished Young Scholars

FAN Tongxiang	The Advanced Structural Ceramics
HU Wenbin	The Hydrometallurgy Preparation of Nano Metal (Alloy) Powder and the Control of the Morphology and Structure

Major National Basic Research Programs (973)

SUN Baode	Chief Scientist	the Major National Basic Research Program
LI Jianguo	Chief Scientist	The Scientific Basis of Large Homogeneous Forgings for New Energy Equipment
ZHANG Di	Chief Scientist	The Fundamental of the Synthesis of Advanced Metal Matrix Composites

National major project of Ministry of Industry and Information

HUA Xueming	13GFZ-KG02-051-01 17.6 million RMB
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IV. International Collaboration

Exploring new approaches to collaborating with the world's leading universities is an integral part of the school's mission to enhance its education and research capacities. Under the guidance of the Teaching Steering Committee, the school has established the postgraduate core curriculum system and full-English teaching courses. Up until now, nine full-English courses have already been initiated. At present, our school has carried out high-level cooperative education with more than ten world well-known universities, established dual degree program with Northwestern University, The Ohio State University and Institute National Polytechnique de Grenoble, and conducted exchange program with Johns Hopkins University, University of Bremen, Norwegian University of Science and Technology and University of Manchester.

V. Platforms for Scientific Innovation

1. Research Center

- ◇ The National Key Lab of Metal Matrix Composites
- ◇ National Engineering Research Center of Die & Mold CAD
- ◇ The Research Center of Light Alloy Net Forming National Engineering
- ◇ Shanghai Key Lab of Materials Laser Processing and Modification
- ◇ Shanghai Engineering Research Center of Magnesium Materials and Applications
- ◇ Shanghai Key Lab of Advanced High-Temperature Materials and Precision Forming

2. Co-built Social Practice Bases (CSPB) for Graduate Students (more than 50)

- (1) CSPB with SJTU Materials Engineering Nano Technology and Application
- (2) CSPB with Baoshan Iron & Steel Co. , Ltd. - SMSE Engineering Education
- (3) CSPB with General Motors (China) Co. , Ltd. - SMSE Engineering Education
- (4) CSPB with Shanghai Volkswagen Joint Development Co. , Ltd -SMSE Engineering Education

VI. Distinguished Alumni

- ◇ ZHOU Zhihong, Academician of China Academy of Sciences, expert of metallurgy and metal materials, former faculty of Shanghai Jiao Tong University
- ◇ ZHAO Liancheng, Academician of China Academy of Engineering, alumnus graduating in 1963
- ◇ CENG Jinhai, former chairman of Jiangnan Shipbuilding (Group) Co. , Ltd. , alumnus graduating in 1969
- ◇ YAO Zheng, Chairman of Hongkong Jefeng Group, alumnus graduating in 1970
- ◇ MA Kaigui, President of North American Shanghai Jiao Tong University Alumni Association, alumnus graduating in 1970