

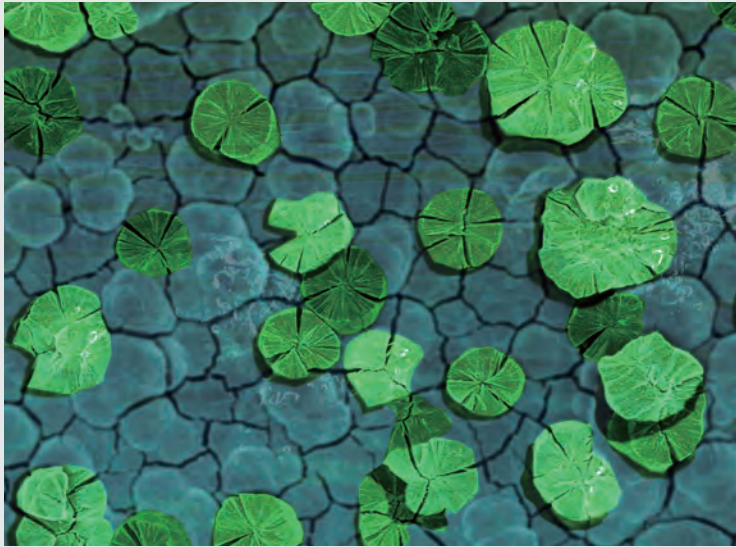


2016

Zhejiang University
School of Materials Science and Engineering

Postgraduate handbook





Author : Xiang Xiaobo

**prize works of
'Contest of materials microstructure exploration'**

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Zhejiang University Overview



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Located in the historical and picturesque city of Hangzhou, Zhejiang University is a prestigious institution for higher education with lasting history. Qiushi Academy, the predecessor of Zhejiang University, was founded in 1897, one of the earliest modern institutes for higher education established in China. In 1928, the academy was named National Zhejiang University. During the war time in 1940s, Zhejiang University moved to Zunyi, Meitan and other places in succession and stayed in West China for seven years. In 1946, Zhejiang University relocated back to Hangzhou. In 1952, due to the restructuring of national universities, Zhejiang University underwent a reshuffling of disciplines. Some departments merged into other universities and Chinese Academy of Science. The remaining departments were divided and evolved into 4 specialized higher education institutions, namely former Zhejiang University, Hangzhou University, Zhejiang Agricultural University and Zhejiang Medical University. In 1998, the four universities sharing the same ancestor merged to form the modern Zhejiang University with

the mission to become a world-leading university. In its 119-year history, Zhejiang University has always committed to cultivating talent with excellence, advancing science and technology, serving social development, and promoting mankind culture, with the spirit best manifested in the university motto "Seeking the Truth and Pioneering New Trails".

Zhejiang University is a comprehensive research university with distinctive features and a national as well as international impact. Research at Zhejiang University spans 12 academic disciplines, covering philosophy, economics, law, education, literature, history, art, science, engineering, agriculture, medicine, management and etc. With 7 faculties and 36 colleges/ schools/ department, Zhejiang University has 14 primary and 21 secondary national leading academic disciplines.

Zhejiang University has been holding the educational principle of placing people foremost, cultivating all-round competence in students, seeking the truth and pioneering new trails in search of excellence, and committed to incubating future leaders with an international vision. A large number of outstanding talents have turned out in the history of Zhejiang University. More than 200 alumni were elected to be the academicians of Chinese Academy of Science and Chinese Academy of Engineering. Advancing with the times, Zhejiang University paces the whole nation in educational reforms. Rich campus culture, advanced teaching facilities and wide

spreading international exchanges provide favorable prerequisite for student training and development.

Zhejiang University focuses on assiduous study and research, and science and technological innovation. It has launched a number of world's leading research platforms, and gathered experts, scholars and high-level research groups in various disciplines. In recent years, Zhejiang University has maintained the leading ranking in China, including publications, patents and etc., and has gained abundant important achievements in science, technology, humanities and social sciences. Zhejiang University always takes initiative in catering for national and regional needs, and exerts itself to become an influential high-level source of innovation and a pool of talents. In 2015, research fund at Zhejiang University reached RMB 3,316 million.

As of Jan. 2016, there are more than 47,339 full-time students enrolled at Zhejiang University, including approximately 14,289 graduate students, 9,153 PhD candidates, and 23,897 undergraduates. In addition, 5,849 overseas students are currently enrolled at Zhejiang University. Among its approximate 3,562 standing faculty members, 1,498 faculty members have title of professor. Zhejiang University has also gathered a leading teaching staff including 15 members of Chinese Academy of Sciences, 18 members of Chinese Academy of Engineering, 76 experts in State "1000-elite Programs", 41 chief scientists of national 973 projects, 113 Chair Professors in Chang Jiang Scholars Program, and 119 scholars awarded with National Science Fund for Distinguished Young Scholars. With seven campuses, namely Zijingang, Yuquan, Xixi, Huajiachi, Zhijiang, Zhoushan and Haining campus, Zhejiang University encompasses an area of 5,570,408 square meters with school buildings covering 2,287,856 square meters of floor space. The university library holds a collection of more than 6.83 million volumes. In addition, Zhejiang University has 7 high-level affiliated hospitals.

As a national university standing by River Qiantang, Zhejiang University is striving to build itself into an innovative and comprehensive research university with world-leading reputation. Zhejiang University will be adhering to the spirit of seeking the truth and pioneering new trails, dedicating itself to creating and disseminating knowledge, inheriting and advancing civilization, serving and leading the society, and promoting national prosperity, social development and mankind progress.

Zhejiang University badge





School of Materials Science and Engineering



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The School of Materials Science and Engineering at Zhejiang University is one of the earliest organizations devoted to research and education in materials science and engineering in China. It was founded by uniting the major of metallurgy and casting from the Department of Mechanical Engineering and the major of silicate materials from the Department of Chemical Engineering in 1978. In fact, the majors in metallurgy/casting and silicate officially started recruiting students in 1952 and 1958, respectively. The merging in 1978 led to the first Department of Materials Science and Engineering in Chinese universities. The School of Materials Science and Engineering hosts the State Key Laboratory of Silicon Materials which originates from the State Key Laboratory of High-Purity Silicon and Silane founded in 1985, the first state key laboratory at Zhejiang University. In 1989, the discipline of semiconductor materials was approved to be the State Key Disciplines. In 1999, the discipline of materials science and engineering was approved as a first-level discipline, including the second-level disciplines of materials science, materials physics and chemistry and materials processing

engineering. Based on the state key second-level disciplines of materials science and materials physics and chemistry, the discipline of materials science and engineering became the state key first-level discipline. In July 2014, the Department of Materials Science & Engineering was renamed to be the School of Materials Science and Engineering.

The School of Materials Science and Engineering consists of five institutes and one center, which are Semiconductor Materials Institute, Metal Materials Institute, Inorganic Nonmetallic Materials Institute, Materials Physics Institute, Institute of Composite Science Innovation, and the Center of Electron Microscopy. The school also hosts a series of high-level research platforms, including the State Key Laboratory of Silicon Materials, the Research Center of Ministry of Education for Inorganic Functional Materials for Surface and Structure Modification, the Provincial Electron Microscopy Centre, the Key Laboratory of Advanced Materials and Applications for Batteries of Zhejiang Province, and the Key Laboratory of Novel Information Materials Technology of Zhejiang Province. As of Dec. 2015, the school has 134 faculty members and staff. The number of professors and associate professors are 56 and 55, respectively. Among the faculty members, there are 1 academician of the Chinese Academy of Sciences, 6 National Thousand-Talents-Plan Experts, 3 Provincial Top Experts, 5 Yangtze River Professors of the Ministry of Education, 5 winners of National Distinguished Youth Program, and 11 Qiushi Professors of Zhejiang University.

The School of Materials Science and Engineering is devoted to the fundamental science research, application-oriented fundamental research and engineering technology development in the fields of materials micro- and nano-structures, information materials, energy materials, advanced structural materials and biomedical materials. The school endeavors to target the international scientific frontier, focusing on national grand demands and regional economic needs. A series of key national research projects, belonged to the 973 program, 863 program, science and technology support program, major and key programs of the National Science Foundation of China, have been carried out here. The outstanding research achievements have nurtured 3 second-class prizes of National Natural Science, 13 National Awards for Invention, 3 National Awards for Progress in Science & Technology and numerous high-impact papers published in prestigious journals such as SCIENCE and NATURE. For the subject of materials science, the school was ranked the 13th among all the universities in the world according to the essential science indicator (ESI) report in Dec. 2015.

The School of Materials Science and Engineering has established postdoctoral research platform and PhD/ master/ undergraduate programs for the first-level discipline of materials science and engineering, founded one national characteristic specialized subject in functional materials, and constructed the provincial lab-teaching demonstration center of materials science and engineering. In recent years, the school recruits ~100 undergraduate students, ~120 master students, ~60 PhD students annually, devoted to educating future leading talents. Up to now, 3 PhD students have won the award of the National Top 100 PhD Thesis, while 7 PhD students have won the Nomination Award of the National Top 100 PhD Theses. ~70% of undergraduates pursue to the postgraduate study in China or overseas, placing the school in the frontier in this respect within the entire Faculty of Engineering at Zhejiang University.

In accordance with the university motto "Seeking the Truth and Pioneering New Trails", the School of Materials Science and Engineering follows the core value of "Understanding Morality, Seeking Truth, Advancing Materials and Creating legends". The School is stepping forward, with great efforts and passion, to establish a world-class materials discipline. We are devoted to create and disseminate knowledge, inherit and promote culture, serve and guide the society, and contribute to the advancing of materials science and engineering in China as well as the world.





Postgraduate education

1. Master Degree

1.1 Objectives

Master graduates from School of Materials Science and Engineering at Zhejiang University shall possess firm theoretical foundation, professional knowledge and experimental skills in materials discipline. They possess capabilities and skills to research independently in materials science for being competent professionals in the investigation of high-tech materials and project management.

1.2 Study Period: 2.5 years

1.3 Requirements for graduation

No less than 31 credits is compulsory for graduation of the master degree. This includes 5 credits for public courses, 1 credit for skill training courses, no less than 12 credits for professional degree courses, 11 credits for major-related optional courses, and 2 credits for reading reports.

1.4 Study Requirements

(1) Reading report: All master students are required to attend no less than 4 academic forums and no less than 1 poster exhibition organized by the school. All are required to submit no less than 2 reports of research-related seminars, and 4 reports for literature reading in the postgraduate management system.

(2) Research proposal: All master students are required to submit a research proposal within the first academic year, no less than 1.5 years before dissertation defense.

(3) Publication: At least 1 scientific paper related to the research project to be published in Chinese core journals (CSCD).

1.5 Important knowledge point

Materials Design and Processing, Structure and Properties of Materials, Thermodynamics and Kinetics of Materials; Modern Research Method of Material; Advanced Functional Materials



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1.6 Curriculum

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Public Course	5002001	Chinese	2	Chinese	Compulsory
	5022002	Introduction of China	3	Chinese	
	0000999	General Quality Courses (no less than 1 credit)	1	Random	
Professional Degree Course	0922006	Structure and Properties of Materials	2	English	
	2621001	Materials Design and Processing	2	English	
	2613002	Computational Materials Science	2	English	
	0924002	Electron Microscopy for Materials Science	2	English	
	2621005	Thermodynamics of Materials	2	English	
	2611001	Selected Topics in Materials Research	2	English	
	0922007	Thermodynamics and Kinetics of Materials	2	Chinese (ppt in English)	

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Professional Degree Course	0921024	Solid State Chemistry	2	Chinese	
	0921025	Physics Theory of Semiconductors	2	Chinese (ppt in English)	
	0922004	Modern Research Method of Material	2	Chinese	
	0924001	X-Ray Diffraction and Its Applications	2	Chinese	
	0922005	Wet Chemical Synthesis and Preparation of Materials	2	Chinese (ppt in English)	
	0923021	Physics and Technology of Semiconductor Thin Films	2	Chinese	
	0923028	Crystal Growth	2	Chinese	
	0921026	The Solid Phase Transformations and Their Effect on Property	2	Chinese	
	0923029	Dislocation Principles and Material Strengthening	2	Chinese	

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Professional Degree Course	0923024	Introduction to Amorphous Materials and Physics	2	Chinese	
	2621002	Fundamentals of Energy Materials	2	Chinese (opt in English)	
	2621003	Biomaterials and Bio-interfacial Responses	2	Chinese	
	2621004	Science of Photonic Materials	2	Chinese	
Major-related Optional Course	2613003	Laboratory Safety Education	1	Chinese	Compulsory
	0923025	Metal-Hydrogen Systems	2	Chinese (opt in English)	
	0923040	State-Of-Arts of Materials Science	2	Chinese (opt in English)	
	2623005	Electrochemical Measurement Technology	2	Chinese	
	2623006	Chemistry for Functional Materials	2	Chinese	

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Major-related Optional Course	0923022	Optoelectronic Materials	2	Chinese	
	0923023	Advanced Inorganic Materials	2	Chinese	
	0923039	Nanomaterials and Nanodevices	2	Chinese	
	2623001	Porous and Mesoporous Materials	2	Chinese	
	2623002	Dielectric Measurements and Their Physical Principles	2	Chinese	
	2623003	Advanced Structural Ceramic Materials and Their Application	2	Chinese	
	0923026	Characterization of Semiconductors	2	Chinese	
0923027	Impurity and Defect in Semiconductor	2	Chinese		

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Major-related Optional Course	2623008	Introduction of Material Physics	2	Chinese	
	2613004	Ferroelectric Physics	2	Chinese	
	0943002	Energy Materials and Battery Technology	2	Chinese	
	0943003	Magnetism and Magnetic Materials	2	Chinese (ppt in English)	
	2643002	Composite Materials Engineering	2	Chinese	
	0943004	Electroceramics: Materials and Applications	2	Chinese (ppt in English)	
	0943006	Wide Bandgap Compound Semiconductor Materials and Related Devices	2	Chinese	
	2643001	Semiconductor Manufacturing Technology	2	Chinese	
	0943001	Principles and Technology of Solar Cells	2	Chinese	

1.7 Schedule

Event	Academic Year	Semester	Month	Description
Research proposal	First Academic Year	Spring Semester	April	The viva regarding research proposal will be organized by supervisors. After presentation, the proposal content is to be submitted to postgraduate student management system, and its related paperwork is required to be submitted to postgraduate office.
Reading Report Assessment	Third Academic Year	Autumn Semester	November	Assessment includes: (1) Participation of poster exhibition. (2) Reports for research-related seminar attended (no less than 4 reports) . (3) Attendance of postgraduate academic forums. The relative content is required to be uploaded to postgraduate student management system before the deadline scheduled, and all related paperwork shall be submitted. 2 credits in total for the reading report.

Event	Description
Approval of Degree Application	After reaching compulsory study period, there are four opportunities for applying master degree each year, and the deadlines are on every 10th of February, May, August and November, respectively (Notice will be given if February or August meets vacation). All degree applications are required to be made in postgraduate student management system, and the form of dissertation application (with the signature of supervisor) and the proof of research achievements need to be submitted to the postgraduate office for approval confirmation.
Dissertation Assessment	All dissertation will be reviewed by 3 experts. If one or more reviewers recommend 'major revisions', the dissertation defense will then be postponed to the following semester.
Dissertation Defense	The defense for master dissertation is organized by the school. If failed, the re-defense for dissertation will be postponed by at least six months.

2. Ph.D Degree

2.1 Objectives

Ph.D graduates from School of Materials Science and Engineering at Zhejiang University shall master the related theory, knowledge and experiment skills in materials discipline and research frontier. They possess capabilities in innovation, independent investigation and management for scientific research in materials field, for being senior professionals in the innovation of high-tech materials and project management.

2.2 Period: 3 years

2.3 Requirements for Course Study

No less than 14 credits is compulsory for Ph.D degree application. This includes 4 credits for public courses, 8 credits for professional degree courses and major-related optional courses (no less than 6 credits for professional degree courses), and 2 credits for reading report.

2.4 General Requirements

(1) Reading report: All Ph.D students are required to attend no less than 4 academic forums and no less than 1 poster exhibition organized by the school. All are required to submit 3-6 reports of research-related seminars, and 6 reports for literature reading in the postgraduate management system.

(2) Research proposal: All Ph.D students are required to submit a research proposal and its related documents within the first academic year, no less than 1.5 years before dissertation defense.

(3) Mid-term assessment: In the middle of the third semester, the progress status of course study and scientific research will be assessed.

(4)Publication: No less than 1 scientific paper related to the research project to be published in SCI indexed journals and 1 scientific paper published in EI indexed journals.

2.5 Important knowledge point

Structure and Properties of Materials, Thermodynamics and Kinetics of Materials; Modern Research Method of Material; Field Theory and Tensor in Materials Science

2.6 Curriculum

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Public Course	5002001	Chinese	2	Chinese	Compulsory
	5012001	Survey of China	2	Chinese	
Professional Degree Course	2611001	Selected Topics in Materials Research	2	Chinese	Compulsory
	0911003	Special Topics on Materials Science and Engineering	2	Chinese	
	0913004	Field Theory and Tensor in Materials Science	2	Chinese	
	0922006	Structure and Properties of Materials	2	English	
	2621001	Materials Design and Processing	2	English	
	2613002	Computational Materials Science	2	English	
	0924002	Electron Microscopy for Materials Science	2	English	
	2621005	Thermodynamics of Materials	2	English	

Classification	Course Code	Course Name	Credits	Teaching Language	Notes
Major-related Optional Course	2613003	Laboratory Safety Education	1	Chinese	Compulsory
	0922007	Thermodynamics and Kinetics of Materials	2	Chinese	
	0922004	Modern Research Method of Material	2	Chinese	
	0921025	Physics Theory of Semiconductors	2	Chinese	
	0923021	Physics and Technology of Semiconductor Thin Films	2	Chinese	
	2621002	Fundamentals of Energy Materials	2	Chinese	
	0923023	Advanced Inorganic Materials	2	Chinese	
	0923025	Metal-Hydrogen Systems	2	Chinese	
	0921026	The Solid Phase Transformations and Their Effect on Property	2	Chinese	
	2613004	Ferroelectric Physics	2	Chinese	

2.7 Schedule

Event	Academic Year	Semester	Month	Description
Research proposal	First Academic Year	Spring Semester	April	The presentation for research proposal will be organized by supervisors. After presentation, the proposal content is to be submitted to postgraduate student management system, and its related paperwork is required to be submitted to postgraduate office.
Mid-Term Assessment	Second Academic Year	Autumn Semester	October	The credit completed and the research progress will be assessed by postgraduate office. All students are responsible for submitting the relevant forms of assessment.
Reading Report Assessment	Third Academic Year	Autumn Semester	November	<p>Assessment includes:</p> <ol style="list-style-type: none"> (1) Participation of poster exhibition (No less than 1 time) (2) Reports for research-related seminar attended (No less than 6 reports) (3) Attendance of postgraduate academic forums <p>The relative content is required to be uploaded to postgraduate student management system before the deadline scheduled, and all related paperwork shall be submitted. 2 credits in total for the reading report.</p>

Event	Description
Approval of Degree Application	After reaching compulsory study period, there are four opportunities for applying doctor degree each year, and the deadlines are: every 25th of January, April, July, and October, respectively (Notice will be given if January or July meets vacation). Ceremony of degree awarding will be held on 30th of March, June, September and December, respectively. All degree applications are required to be made in postgraduate student management system, and the form of dissertation application (with the signature of supervisor) and the proof of research achievements need to be submitted to the postgraduate office for approval confirmation.
Dissertation Assessment	All dissertation will be reviewed by 5 experts. If one or more reviewers recommend 'major revisions', the dissertation defense will then be postponed to the next time.
Dissertation Defense	If dissertation review passes, the doctoral dissertation defense is organized by supervisors. If failed, the dissertation re-defense will be postponed by at least six months.



Featured Activities



1. Contest of materials microstructure exploration

The School of Materials Science and Engineering, ZJU has held the contest of materials microstructure exploration since March, 2010. Six contests have been successfully held so far, and attracted over 500 students, making this contest a college-level brand activity. This contest follows the theme of 'explore the microstructure of materials and uncover the source of fascination'. It encourages the students to innovatively express and reveal the fascinating world of materials microstructure using optical or electronic microscope. The purpose of this contest is to improve the artistic taste of the students majored in science and engineering, including their art percipient, expressive skills and annotation ability of humanistic spirit, and enrich their humanistic connotation, by the means of combining science and arts during the innovation of fascinating works.

From the monograph of <Science is Like Flowers>

published in **Zhejiang Daily** which reported the first contest, to the monograph published in Chinese Science News which reported the third contest using three continuous sessions in full page, this contest has received more and more attention from the media, and set off a boom in campus. Besides the students from school of materials science and engineering, this contest has also attracted students from the department of polymer science, school of photoelectricity, school of chemical engineering, physics department and other colleges. Moreover, the students from other brother universities or colleges, such as Hangzhou Dianzi University, Huzhou Normal College, Taizhou College etc, are also involved. Dalian University of Technology, Shanghai Jiaotong University and other domestic brother universities have contacted us regarding the details of contest, and recommend works to participate this activity.

In addition, excellent works with abundant ideological value, colorful artistic value and advanced scientific value have been made into various cultural artifacts like postcard, calendar and etc. More and more exhibitions have been made via websites, new media platform, live shows and other means to carry forward the socialist core values, spread new principles to seek truth, goodness and beauty, and finally realize the objective of cultivating people with culture.

The contest of materials microstructure exploration is not only a crossed journey of science and arts, but also a successful attempt to combine professional knowledge with the construction of campus culture. In the aspect of culture spreading, this



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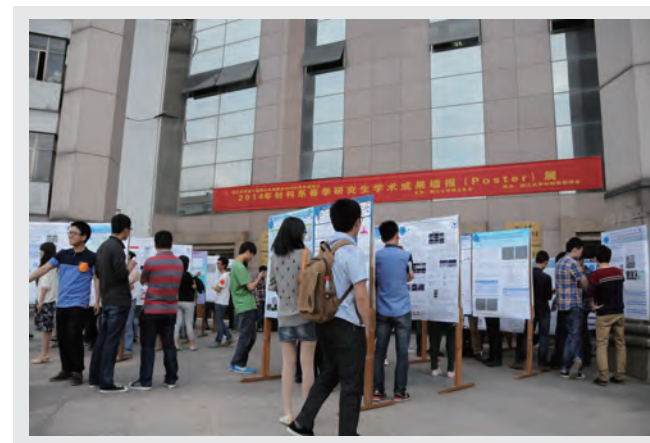
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contest generates many excellent photography works of microstructure art, and awards winners including postgraduate students, undergraduate students and overseas students from International Education College. Moreover, it has promoted the students' humanistic quality comprehensively. In the aspect of science popularization, with mass science media's follow-up, it has enlarged the social impact of materials science, carried forward the scientific spirit, and contributed to the promotion of the scientific literacy of the public. In the aspect of scientific research, some original works in this contest are important achievements in scientific research, which have been published by international leading journals like <Journal of American Chemistry Society>.



2. Poster Exhibition for Research Achievement

The poster exhibition for research achievement held by School of Materials Science and Engineering is a brand activity to cultivate the academic communication ability of postgraduate students and enhance their innovative thinking. Poster can introduce the research contents and working achievements by clear charts and succinct words, which is a common form of academic communication in international conferences, and a general way to exchange research ideas in universities or institutes. Holding poster exhibitions indicate that the School of Materials Science and Engineering pays considerable attention on postgraduates teaching, and it's an innovative exploration to the ways of comprehensive quality training and the education modal.



The poster exhibition organized by the School of Materials Science and Engineering for over ten times is held in every long semester, and it has now become a grand academic event for each semester. In general, this activity attracts over 40 faculty staff and 100 students. The master students (2.5 years period) and Ph.D students (3 years period) would make at least one presentation, and the 5-year Ph.D students should attend this poster exhibition at least twice. The administration office will keep a record on the participation of this activity which contributes as reading report credits. Postgraduates should not only work hard and accomplish research achievements, but also be skillful in exhibiting achievements to the public using professional words and charts. This is the intention of this activity. In the process of exhibition, every contributor introduces his or her research background, method, content, and results to the teachers and schoolfellows, and teachers may provide relevant guidance and advice following his or her research experience. After the exhibition, combining the experts' marks and students' votes, the gold, silver and bronze awards are finally elected out.

Open communication is the foundation of creating the academic atmosphere and cultivating innovation ability. The students' research thoughts can be widely enlarged and the ability to reveal the scientific achievements can be greatly enhanced by exchanging ideas in poster exhibition. In recent years, our students have been awarded in various international academic conferences. It can be inferred that the poster exhibition has provided a good practice chance and exercise platform for students moving towards international academic communication stage.

3. 'Qiushi' Forum of Materials Science

'New century, new material, and new life'. 'Qiushi' forum of Materials Science is a well-known brand of academic forums created and hosted by the School of Materials Science and Engineering. It invites world's leading professors in materials discipline to share their scientific research and exchange ideas. It has significant impact inside and outside of the campus. It is warmly welcomed by teachers and students, and acquires much attention from domestic and overseas academic experts. This activity is aimed to broaden the students' academic horizon, cultivate innovation consciousness, promote the cross-disciplines ability, and eventually make everyone enjoy scientific research, inspire innovation and love life.

Since 2010, this forum has been held for over 45 times and the invited experts all had fortissimo subject representativeness, and most of them were the pioneering figures in their research field. Over 10 overseas top materials scientists including Nobel Prize Winner in Chemistry and the discoverer of C₆₀, Prof. Harold W. Kroto, Nobel Prize Winner in Physics and one of the STM inventors, Prof. Heinrich Rohrer, chief scientist at Lawrence Berkeley national laboratory, Prof. Robert Ritchie, academician in American Academy of Sciences and foreign nationality academician in Chinese Academy of Sciences, academician in Royal Swedish Academy of Sciences, Prof. Mao Huguang, academician in American Academy of Sciences and foreign nationality academician in Chinese Academy of Sciences, Prof. Wang Zhonglin had been invited to attend this forum and provide academic lectures. The contents of their talks covered cutting-edge frontiers, like materials microanalysis, high strength and high roughness biomimetic materials science, high pressure materials science and nanometer materials. The total teachers and students inside and outside of the university who have attended the forums have reached over 3000.

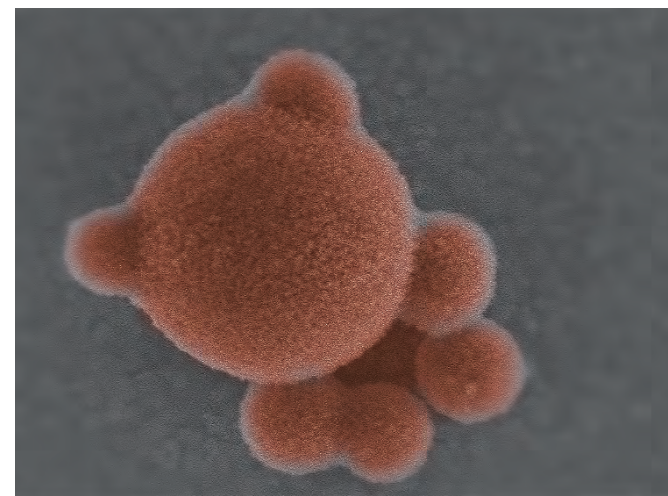


Compared to normal academic presentations, 'Qishi' forum of Materials Science pays more attention on the scientific innovation and interdisciplinary communication. Moreover, fused with propositions of study experience and science life, the forums explain profound theories in simple language, and lay emphasis on stimulating and enlightening audience. What's more, the forums invite our own faculties to discuss with the lecturers and make summary allegation, which promotes the understanding of the topics. Sufficient time for free questions and discussion has enabled the students to actively participate in communication.

Nowadays, 'Qishi' forum of Materials Science has become a well-known brand of academic forums with significant impact inside and outside of the campus at ZJU. It is welcomed by all students, and it has attract great attention from domestic and overseas academics.



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