

Tsinghua SIGS Newsletter

Issue 6 November 2021

Eight Tsinghua SIGS Professors Among 2021 Highly Cited Researchers

Clarivate Analytics, a leading global analytics company focused largely on academic and scientific research, released its list of highly cited researchers for 2021 on November 16th. Researchers chosen for this list have published multiple articles that are in the top 1% by citations in natural science and social science fields.

6,602 researchers from more than seventy countries are represented, including a record-breaking 935 researchers (14.2 percent) from the Chinese mainland.

Researchers from Tsinghua University received 58 mentions on this year's list. Tsinghua ranks eighth in the world and first in China for number of cited researchers.

Among the Tsinghua researchers recognized, eight are

from Tsinghua SIGS, three more than last year. From the Institute of Materials Research, seven researchers were included: Distinguished Guest Professor Hui-ming Cheng, Professor Kang Feiyu, Professor Li Baohua, Associate Professor He Yanbing, Associate Professor Zhou Guangmin, Associate Research Fellow Lv Wei, and Assistant Professor Peng Lele. Institute of Environment and Ecology Assistant Professor Zheng Bo was also recognized. Professor Kang was recognized for his work in two fields: materials science and chemistry.

Congratulations to the SIGS researchers featured on the 2021 Highly Cited Researchers List for the significant contributions they've made to their respective fields on a global scale!



(Pictured top row, left to right: Distinguished Guest Prof. Hui-ming Cheng, Prof. Kang Feiyu, Prof. Li Baohua, and Associate Prof. He Yanbing; bottom row, left to right: Associate Prof. Zhou Guangmin, Associate Research Fellow Lv Wei, Assistant Prof. Peng Lele, and Assistant Prof. Zheng Bo)

He Kebin: Forging a New Path in a New Era



Academician He Kebin had on a warm and welcoming smile when we first met for the interview. As the Dean of the Institute of Environment and Ecology (iEE) at Tsinghua Shenzhen International Graduate School (Tsinghua SIGS), he gave off a strong sense of mission, belief, and responsibility as we talked about issues of ecological and environmental protection, discipline construction and talent cultivation.

The Tsinghua SIGS iEE was officially established in October 2020. According to the core requirements of sustainable development and based on the forefront of international disciplines, the institute aims to study theories of ecological and environmental protection, investigate key technologies, and cultivate talents with global competence. What is the mission of the iEE and how does it integrate with the international community? How will it make use of resources from Tsinghua and Shenzhen to make an impact on global environmental protection, ecological civilization, and create a shared future for mankind? To answer these questions, we interviewed Prof. He to learn more about the iEE.

He Kebin is an academician of the Chinese Academy of Engineering, a professor at the School of Environment of Tsinghua University, and the Dean of the Tsinghua SIGS iEE. He received his bachelor's, master's, and doctoral degrees in Environmental Engineering from Tsinghua University, and won the National Science Fund for Distinguished Young

Scholars from the National Natural Science Foundation of China as well as the honor of distinguished professor of the Changjiang Scholars Program. He leads the "Multi-medium Combined Pollution and Control Chemistry" and the "Regional Combined Air Pollution and Control" innovation team and holds additional positions such as Vice Chairman of the National Expert Committee on Ecological and Environmental Protection and Vice President of the Chinese Society for Environmental Sciences. Prof. He serves as Chairman for the Global Emissions Initiative (GEIA) Chinese working committee, leader of the Global Energy Assessment (GEA) environmental group, and a member of the International Council on Clean Transportation (ICCT).



Integrating Traditional Disciplines with Unique Characteristics of Shenzhen

What are the unique characteristics of the iEE compared to the environmental discipline at Tsinghua University?

Although iEE was set up less than a year ago, the environmental discipline enjoyed a long history in both Tsinghua University and Shenzhen. In 2010, the Graduate School at Shenzhen, Tsinghua University (predecessor of Tsinghua SIGS) set up the Division of Energy and Environment and the Energy and Environment Innovation Base based on the discipline layout of Tsinghua and industrial characteristics of Shenzhen. These bases were of great importance to Shenzhen's new round of reform and opening up as well as scientific development. From a division to one of the "6+1" theme areas of Tsinghua SIGS, the growth of iEE is inseparable from the sustainable development goals of Shenzhen, the Greater Bay Area, China, and the world.

The environmental discipline at Tsinghua SIGS is complementary to that of Tsinghua University. In the past, environmental research at SIGS focused on water environment issues, but nowadays, its research areas have expanded to satisfy the needs of global sustainable development, national ecological civilization construction, high-quality development of the Greater Bay Area, and the socialist pilot demonstration zone in Shenzhen. Nowadays, iEE has set up six research fields according to the world's leading environmental and ecological sciences: Urban Environment and Compound Ecology, Industry and Special Environmental Protection, Land and Sea Interactive Environmental Protection, Regional Cross-media Complex Pollution and Environmental Health, Big Data and System Management of Ecological Environment, as well as Climate Change and Future Ecological Environment Protection. These six fields are based on the forefront of international disciplines, which not only inherit and carry forward the excellent discipline tradition of Tsinghua University, but also combine the characteristics of modern Shenzhen.

Moving forward with Reform and Innovation

The iEE aims to satisfy the needs of sustainable development of the Greater Bay Area and China.

What are its missions and how does it realize interdisciplinary integration?

New developments have been made in the environmental discipline in both the domestic and international stages. There are new requirements for interdisciplinary integration and innovative development. A strong faculty team that is able to move forward with time, blaze new trails, and constantly broaden their academic horizons is needed. For universities with long histories, it might be a problem for them to innovate and for their faculties to explore new research directions.

However, Tsinghua SIGS is inclusive and flexible in the selection of new teachers by adhering to the guideline of "International, Borderless, Entrepreneurial." We are attempting to recruit more young scholars from the international community, thereby enhancing the faculty team of the Institute. For one thing, we should pay attention to the personal development of young faculty members, so that they would further improve themselves at Tsinghua SIGS and make breakthroughs in academic research.

On the other hand, we should not only introduce foreign cutting-edge technologies, but also learn to develop advanced instruments and platforms in our own country. Thanks to the reform and opening-up policy, the high-tech industry and the industrial chain are getting increasingly mature in Shenzhen and we have better environments for scientific research, innovation, and technological research and development. We should make great efforts to achieve more breakthroughs in technological research and development in Shenzhen - a pioneer city of reform and opening up, with the help of excellent foreign and domestic talents in Tsinghua. We will seize the opportunity to move forward and change our role from "introducer" to "inventor" and "creator".

From "Participant" to "Leader": Bringing Tsinghua's Spirit and China's Voice to a Global Platform

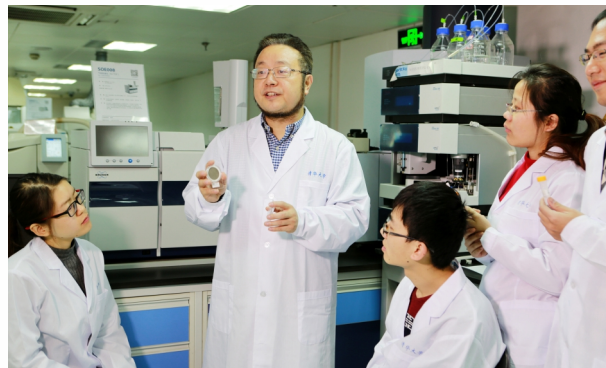
What global opportunities does iEE offer and how does it integrate with the international community?

For the past few years, the Ministry of Education of the People's Republic of China has given great impetus to the construction of new engineering disciplines and the expansion of traditional research directions. For instance, a majority of new teaching staff come from European and American countries. Their previous academic research experience and achievements will accelerate the integration of Tsinghua Shenzhen International Graduate School with the international community. In the future, more courses will be established regarding the environmental discipline, and innovative contents will be integrated into the traditional environmental ecology research.

The Institute of Environment and Ecology attaches great importance to international cooperation and joint programs. Tsinghua University is extremely experienced in participating in international research projects, such as "Future Earth." Faculties from Tsinghua in Beijing bring excellent international training methods and experience to SIGS, actively creating new opportunities for students to experience an educational approach that incorporates more contemporary spirit and international characteristics.

At present, we are preparing to design and initiate more international research and cooperative programs, to become an "initiator" and "leader," rather than a "participant." Over the years, remarkable achievements made by the Tsinghua team in the "Blue Sky Protection Campaign" and in air quality improvement have been highly recognized by the international community.

Presently, the Institute focuses on exploring new mechanisms of global cooperative projects, for example, a double master's degree program with the University of Hanover and Kanazawa University, and an all-English program of green environmental infrastructure for countries along "Belt and Road". We hope that the environmental discipline team of SIGS will make the best of the extensive experience and insightful views to



independently design and initiate more international programs. In addition, students will feel a favorable atmosphere and appreciate potential opportunities to adapt to the learning environment of the campus.

Educating Environmental Talents

How will iEE train and educate its students?

Apart from the excellent teaching staff and advanced technology R&D, talent cultivation plays a key role in the development of a university. Students who engage in the research of environmental sciences shall have the sense of mission and responsibility for ecological and environmental issues in our daily lives. For example, the well-known PM2.5 is closely related to different kinds of industries and people's daily lives. This shows that we have high requirements for the basic knowledge of students in environmental science. A seemingly simple problem about pollution source often involves many industries: students must not only know how to flexibly apply a systematic thinking framework to solve practical problems, but must also have an area of expertise and specialize in it.

The spirit of innovation is also an indispensable qualification for students. Society is rapidly changing, and socio-environmental problems and their corresponding solutions are always evolving. The textbooks I used as a student may not have much reference value for today's students. Therefore, whether or not students are successful is not measured by the amount of knowledge they have accumulated, but more by the methods they have used to study problems and even the means they have used to create knowledge for society. This is the core direction of our training.

Interviews

I do not generally use the label of "successful people" to define students. What is "success"? I believe that "success" is not about how much fame and fortune one gets, but as long as one can make full use of what one has learned and make substantial contributions to the development of the country and the advancement of society, one is successful. Harvard University once conducted a survey on some successful people. Those people shared a similar quality that was not related to genetics but was often formed and cultivated. One of the common denominators is a clear goal. Many successful people have shown extraordinary ambition from a very young age and have set clear goals and strict requirements for themselves. A good environmentalist must see the connection between today's education, tomorrow's work, and the day after tomorrow's career, and use today's learning as a solid foundation for the future. Such students are often full of energy, and their contribution to the country and society will be more promising.

Forging a New Path in the New Era

How will iEE incorporate characteristics of Tsinghua and Shenzhen in making an impact on global environmental protection, ecological civilization, and create a shared future for mankind?

The development of higher education institutions and different disciplines are adapting to the development needs of China and the world. Current research on socio-economic and environmental issues are also problems that are encountered or will be encountered by other countries and regions. Hence, there will be new opportunities and challenges for iEE in the future.

We set strict requirements for our students, which stress the coexistence of striving spirit and innovation consciousness, integrated with the Shenzhen paradigm. It has been more than 40 years since the reform and opening-up policy was implemented. Shenzhen is a model city, which bears hardship and seeks innovation. The experiences of the Shenzhen Special Economic Zone are good learning materials for our students. Our students can acquire theoretical knowledge from the development and growth of Shenzhen and learn about integrations

with industrial development. Various fast-growing enterprises in Shenzhen provide a wide range of practice platforms and learning opportunities. At the same, it is also hoped that students would communicate with alumni through SIGS to learn about their struggles, receive insights from them, and feel the pioneer spirit and responsibility as members of the Shenzhen Special Economic Zone.

If Tsinghua University is compared to a vessel, Tsinghua Shenzhen International Graduate School is a boat sailing in front of the vessel. In the process of school management, it carries forward the unique spirit of the Shenzhen Special Economic Zone, promoting innovative teaching and scientific research, and paving a new road by virtue of "breakthrough," "innovation," and "action." What needs to be emphasized is that "trial and error" is not a negative concept. On the contrary, it is integrated with creation experience, and is one of the basic qualities of realizing innovative breakthroughs in aspects of teaching team recruitment and talent cultivation, as mentioned above.

As we celebrate the 110th anniversary of Tsinghua University and the 20th anniversary of Tsinghua SIGS this year, could you please talk about your hopes for Tsinghua, SIGS and iEE?

On April 19th, General Secretary Xi Jinping visited Tsinghua University and pointed out that Chinese education is capable of cultivating outstanding talents and that we should have full confidence, broaden our visions, and incorporate things of diverse nature to improve education. I was deeply impressed by these words. They were the prospects and requirements of President Xi for Tsinghua University and even the Chinese education system. In the future, we will continue to make efforts to facilitate the dual landing of scientific research results and talents, dedicate ourselves to promoting the construction of the Institute of Environment and Ecology, train more high-quality talents, and contribute to Tsinghua's strength for global sustainable development and the construction of ecological civilization.

Peter Russell: Redefining the Future of Architectural Education



In 2020, Tsinghua Shenzhen International Graduate School (Tsinghua SIGS) established the Institute of Future Human Habitats (iFHH) and welcomed Professor Peter Russell, Canadian architect, educator, and researcher as its inaugural Dean. Based on the intersection of architecture and related disciplines in the 21st century, iFHH will focus on the frontiers of future human habitats and take design thinking as the core innovation power to create more intelligent and sustainable built spaces. Before joining Tsinghua SIGS, Russell has served as Dean of the School of Architecture at RWTH Aachen University in Germany and Delft University of Technology in the Netherlands, leading both faculties in advancing architectural education. He has also participated in many fruitful projects in China, such as designing an interactive-city-game as part of the Chinese-German pavilion at the Shanghai Expo 2010.

Can you tell us more about the newly established iFHH and its first cohort?

We are creating here a brand-new school of architecture in the world. iFHH is based on borderless thinking, a commitment to digitalization, and interdisciplinary research. The borderless premise of Tsinghua SIGS and iFHH provides a great opportunity for us to redefine architectural education and the cross-discipline skill sets that architects need so that they are better prepared for solving present-day problems.

In 2020, we welcomed our first cohort of 23 students into iFHH's architecture program. Coming from 19 cities in China and with backgrounds in urban design, civil engineering, industrial design, and other professional fields, these students all share the urge to make the world a better place through big data and digitalization. We hope to create a program where students will develop and combine other skill sets and passions with their education to become better architects and stewards of the environment.

I look forward to teaching and working with these students. Our first cohort is extremely brave for choosing to embark on a newly launched program and I hope to see the collaboration (and collision) of ideas among them.





There is a lot of intersection between architecture, technology, and engineering disciplines in iFHH. Can you tell us more about the interdisciplinary learning and research that will take place at the institute?

Research in the built environment cannot be a singular discipline anymore. We need to combine with other disciplines and schools to conduct our research and figure out how to manage the built environment and steward its development in the best way possible.

Interdisciplinary collaboration and developing lateral thinking are important because architects do not just build; they also need to know how biological systems function, how circularity works in the built environment, and how transportation systems are managed—all these become part of the process when you want to design part of a city.

The institute will be providing an application field for a lot of the fundamental research conducted in the "6+1" theme areas at Tsinghua SIGS. I think it is iFHH's main role to show that we can be inclusive and combine different disciplines to make better solutions. Building upon the excellent foundation that Shenzhen provides, I hope that iFHH will achieve more international collaboration, help Tsinghua SIGS reach its goal as a world-class international graduate school, and serve as a "magnet" connecting researchers in Tsinghua SIGS, universities in China and around the world to build better future human habitats.

You have built a long career in architecture and specialize in the development and application of computation in the built environment. What sparked your interest in this field?

I have always wanted to be an architect. Building things, making cities, and working on projects have always been fascinating to me. Growing up in a family of computer scientists, I was also exposed to computers at a young age before many others had a chance.

When I started studying architecture, I noticed that computers were bringing new changes and addressing inefficiencies in the field. Over the past 200 years, we have been doing things by hand, but now software such as computer-aided design (CAD) and building information modeling (BIM) can help us quantify data and bring structure to information. My passion has thus been to find systematic ways of organizing architectural information to make better buildings.

What attracts you to Shenzhen after spending so many years working and advancing architectural education in Europe?

Shenzhen is a city that embraces the future and provides a perfect environment to conduct future human habitats research. Having visited China several times since 2006, I have witnessed the rapid changes in the country's development and am especially impressed by its technological advances. For example, while there are still communities in Europe that are thinking of going electric in 5 years, once the Shenzhen government has made a decision to reduce carbon footprint, measures are implemented immediately. Now we have built a fleet of over 16,000 electric buses and 22,000 taxis. Such efficient and decisive decision-making has enabled Shenzhen to be a city that embraces the future.

Shenzhen's green initiatives, fast-developing high tech industries, and support for higher education have also created a great environment for the study and research of future human habitats. The attitude here is that if something is coming in the future, we do not want to wait

Interviews

for it. For an architect, it also means that the city is willing to listen to new ideas to improve its built environment. It is a very exciting place to be in.

What are your hopes for iFHH and for its students?

If we want to do anything at Tsinghua SIGS, we want to create a place of safety so that students can feel supported in their pursuits.

Often when you ask beginning students what they want to do or who they want to be, they might not have an answer. However, I think a lot of students actually do know what they like, they just need to be honest with themselves, take the time to experiment, and take a leap of faith. That is key to figuring out who you want to be.

Tsinghua SIGS has been able to show students that there is potential here to follow their own ideas, and I hope iFHH

will be a place where students feel that they can get the support, information, and knowledge to pursue their interests—a safe place to take a leap.

In Canada, there is a tradition where an iron ring is conferred to graduating engineers. The circlet of iron goes on the little finger of an engineer's dominant hand as a constant reminder to maintain a high standard of professional conduct in their work. With iron being a strong and durable material, it is also a symbol of strength, representing the power and great responsibility that engineers hold in their hands.

Following this Canadian tradition, I hope to gift our first graduating cohort a ring to remind them of their responsibilities as designers of the future. I hope that our graduates, with their own ring, will carry forth the innovative spirit of Shenzhen and Tsinghua, and devote themselves to making the world a better place for humanity to thrive.

Research

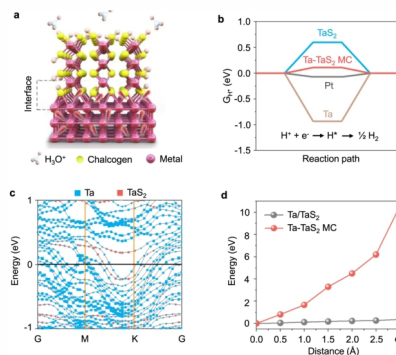
Associate Prof. Bilu Liu and Team Develop Ta-TaS₂ Monolith Catalyst for Highly-Efficient Hydrogen Evolution

The excessive use of fossil fuel energy has caused serious environmental problems. Hydrogen (H₂) is a clean energy carrier with zero-carbon emission and can be produced by water electrolysis driven by renewable energy, which is beneficial for future global carbon neutrality. Reducing the use of noble metals or developing noble-metal-free catalysts with high activity and durability for this process have been targeted for decades, but are far from satisfactory, especially under the large current densities demanded by industry.

Besides large current operation, in practice, stability is another key issue for hydrogen production electrodes, and is usually obtained by anchoring catalysts on a conductive substrate using a binder like Nafion. With this method, the energy conversion efficiency is low, indicating the need to design the catalyst/substrate interface in a conceptually different way.

Recently, Prof. Bilu Liu's research group and cooperating

researchers have developed a new monolith catalyst (MC) with robust and metallic interface for highly-efficient hydrogen evolution at large current density. The MC can be prepared in large scale and at a low cost, which fills the gap between lab tests and industrial use. Because of the way the material is prepared and its high catalytic performance, this method, published recently in the journal *Nature Communications*, may be applied to other materials or reactions to solve problems in the energy, chemistry, and industrial fields.



Link to full article: <https://doi.org/10.1038/s41467-021-26315-7>

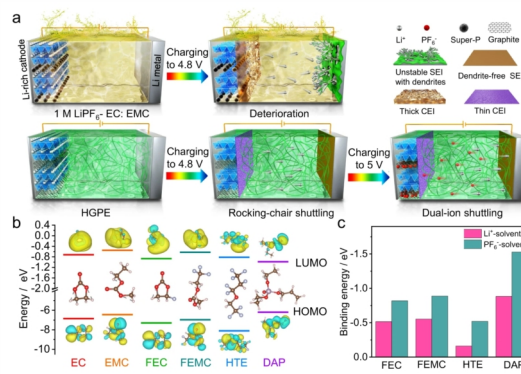
Researchers Investigate "Iconic Shuttle Relay" for High-Voltage Lithium Batteries

Lithium (Li)-based batteries, particularly Li-ion batteries, have dominated the market of portable energy storage devices for decades. However, the specific energy of Li-ion batteries is approaching their theoretical limit (300 Wh kg^{-1}), making it difficult to satisfy the requirement for long-distance driving with a single charging of electric vehicles. To further increase the energy density of Li-based batteries, the upgrading of electrode and electrolyte materials is urgently desired.

To address this issue, Prof. Baohua Li and Dr. Dong Zhou from Tsinghua Shenzhen International Graduate School, Prof. Guoxiu Wang from the University of Technology Sydney and Prof. Michel Armand from the CIC ENERGIGUNE Institute in Spain have collaborated to report the combination of a heteroatom-based gel polymer electrolyte (HGPE) with a hybrid cathode comprising of a Li-rich oxide active material and graphite conductive agent to

produce a high-energy "shuttle-relay" Li metal battery, where additional capacity is generated from the electrolyte's anion shuttling at high voltages.

The team's paper based on this research was published recently in *Nature Communications*.



Link to full article: <https://www.nature.com/articles/s41467-021-26073-6>

New Progress in Intuitive Human-Machine Interfaces for Smart Gloves

The teams of Associate Professor Hongyan Fu and Assistant Professor Wenbo Ding, both from Tsinghua University Shenzhen International Graduate School and Tsinghua-Berkeley Shenzhen Institute (TBSI), have recently made important achievements in the research of human-machine interfaces (HMI). In their recent paper, the teams have proposed a simple structured sensitive bending angle triboelectric nanogenerator (BA-TENG) and designed an intelligent HMI system from flexible devices to real-time wireless communication modules and graphical interfaces. The bending angle sensor can detect multidimensional information in hand gestures, including finger bending angles, bending speed, and bending time. The multi-dimensional signal extraction of hand gestures is realized by the flexible sensor and the signal processing system.

By extracting and analyzing multidimensional signal features, different dimensions of HMI are realized,

including smart home (lighting control, for example), robotic control, and a virtual keyboard that enables user recognition (its recognition accuracy rate can reach up to 93.1%). This research work, which was featured on the front cover of *Nano Energy*, provides new ideas for developing multidimensional HMI, which has unlimited potential for future HMI applications.

Link to full article: <https://doi.org/10.1016/j.nanoen.2021.106330>



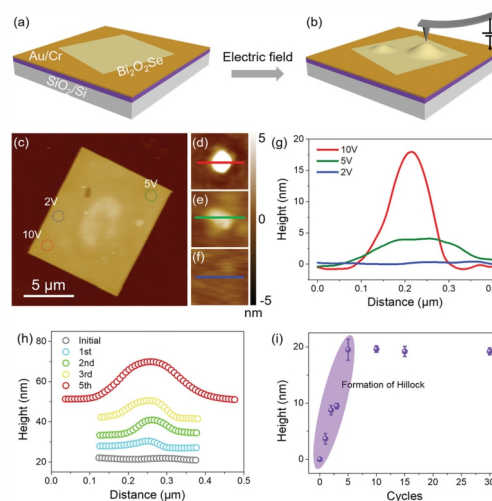
SIGS Research Team Reports Out-of-Plane Resistance Switching of 2D Bi₂O₂Se at Nanoscale

Two-dimensional (2D) semiconducting bismuth oxyselenide (Bi₂O₂Se) has been widely used in photodetectors, sensors, and RRAMs due to its high stability and decent mobility. However, almost all these devices are based on in-plane carrier transport at the microscale.

In an article published in late August, Associate Prof. Bilu Liu's research team reported unique out-of-plane resistive switching in nanoscale 2D Bi₂O₂Se by conductive atomic force microscopy (CAFM) technique. They found that hillocks, which make the Bi₂O₂Se become conductive, are formed on Bi₂O₂Se after applying a vertical electrical field. The researchers also observed the transformation from bipolar to stable unipolar conduction in thick Bi₂O₂Se flakes possessing such hillocks. This work reveals unique nanoscale out-of-plane transport

behavior in 2D Bi₂O₂Se, providing additional direction for fabricating vertical devices based on this emerging 2D material.

Link to full article: <https://onlinelibrary.wiley.com/doi/full/10.1002/adfm.202105795>



Awards

Students Receive Top Prize at 10th National Marine Vehicle Competition

The project, "Spherical Unmanned Surface Vehicle," submitted by Wang Kaiyong, Shu Mingrui, Li Mingyang, Jing Hongzheng, and Wang Jingwei from the Institute for Ocean Engineering won the championship of the A2 group in the New Concept and Innovative Design Category and was awarded a special prize at the 10th National Marine Vehicle Competition.

Their project proposes a new conceptual design of a spherical omnidirectional rolling surface vehicle. The motion pattern of the vehicle is changed from traditional propeller propulsion to rolling on the water surface so that it can adapt to complex coastal environments and can move among the ocean's surface, intertidal zones, algae, and other coastal water environments.

The China Marine Vehicle Design and Construction Competition is the highest-level, largest-scale, and broadest-in-scope science and technology innovation competition for students in the fields of naval architecture and marine engineering in China.



Associate Professor Bilu Liu Awarded Distinguished Young Scholars Grant

Bilu Liu, Vice Dean, Associate Professor, and PhD student advisor at the Institute of Materials Research and Vice Director of the Shenzhen Geim Graphene Center, will receive funding from the Natural Science Foundation of China (NSFC) to continue his work in two-dimensional materials. Associate Professor Bilu Liu's work focuses on the controlled preparation of two-dimensional mineral materials and their functional applications in the fields of clean energy, electronics, and optoelectronics.

The NSFC awards grant to young scholars who have achieved outstanding performance in fundamental research.

SIGS Researchers Zheng Hai-Tao and Wu Zhiyong Win Tencent AI Lab Research Project Awards

Associate Professor Zheng Hai-Tao's project "Incorporating Multi-Type and Multi-Structure Knowledge into Pretrained Language Model" received the Innovation in Technology Awards at the 2020 Tencent AI Lab Rhino-Bird Focused Research Program Conference. The project results have a variety of applications, such as malicious text detection, auxiliary writing systems, and chatbots.

At the conference, Associate Research Fellow Wu Zhiyong's project, "Fine-grained duration and pitch modeling for high-quality singing voice synthesis," was awarded the Outstanding Project Award. His project improves duration and pitch modeling and the controllability of singing voice synthesis.

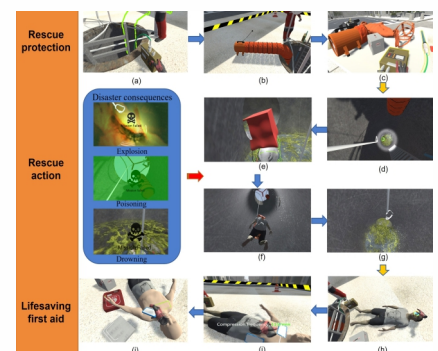
SIGS Associate Professor Qi Mingyao Wins Award at Guangdong Science and Technology Innovation Conference

Qi Mingyao, associate professor, PhD advisor, Deputy Director of Logistics Key Laboratory of the Department of Logistics and Transportation, and his team received the second prize of the Guangdong Science and Technology Progress Award for their project "Key technologies and applications of the intelligent customs clearance system of smart border ports." Results from the project have been applied in key national strategic projects, such as the construction and operation of the Hong Kong-Zhuhai-Macao Bridge.

SIGS Professor and Students Receive First Prize at CCVR2021

Lu Song, Ji Xinyue, Li Xin, Yang Huan, and their advisor Associate Professor Wang Fei from the Division of Humanities and Social Sciences, Safety & Technology Research Institute won the first prize at the 2021 China Competition on Virtual Reality. Associate Professor Wang received the Exceptional Advisor Award.

The team's project combines virtual reality with applied games to create a system for rescue drills in confined spaces. The team's game addresses major inadequacies in emergency safety education and training for rescue professionals, providing a standardized process for professional rescue and a method for disaster chain deduction. The game also offers a professional and immersive tutorial in confined space rescue tasks.



SIGS Hosts 2nd International Interdisciplinary Innovation Forum



The Tsinghua SIGS 2nd International Interdisciplinary Innovation Forum (2021) attracted more than 300 scholars on October 14th. Joining online and offline, attendees included representatives from top international universities and research institutions, including Harvard University, University of California-Berkeley, Imperial College London, Hong Kong University, and Tsinghua University.

The forum aims to offer a discussion and exchange platform for domestic and overseas scholars and to attract talented scholars to the SIGS campus.

The event's speakers included Executive Dean Gao Hong; CPC Committee Secretary Wu Xiaofeng; Associate Deans Ma Lan, Zuo Jian'e, and Victor Chan; Institute of Future Human Habitats Dean Peter Russell; and Institute of Environment and Ecology Dean's Assistant Wu Qianyuan.

Executive Dean Gao Hong began the event with welcoming remarks and a presentation on the campus's history and vision for growth. She was followed by Associate Deans Victor Chan, Ma Lan, and Zuo Jian'e who discussed faculty recruitment, research, and the SIGS educational philosophy, respectively.

Peter Russell, Dean of the Institute of Future Human Habitats, and Professor Wu Qianyan shared their experiences in academic research and teaching at SIGS.

Tsinghua SIGS 2nd International Interdisciplinary Innovation Forum will continue in the upcoming weeks with sub-forums in specific academic disciplines for shortlisted candidates.

Applications for Tsinghua University-Kanazawa University Double Master's Degree Program Now Open

The double master's degree program offered by the Tsinghua SIGS Institute of Environment & Ecology and Kanazawa University has started to accept applications for its first cohort. The three-year program is taught in English. Students spend a year and a half at Tsinghua SIGS and then the same amount of time at Kanazawa University. Those who complete the program will be awarded a full-time Master's Degree in Resources and Environment by Tsinghua University and a Master's Degree in Engineering by Kanazawa University in Japan.

Kanazawa University has a long history. It was founded in 1949 and is one of the first three national universities in Japan. It is also one of the major institutions of higher education in the Hokuriku region. As a Top Global University selected by the Japanese Ministry of Education, Culture, Sports, Science, and Technology, it is an accredited institution under the Japanese University Internationalization Program.

The program combines Kanazawa University's strengths in the fields of Environmental Engineering, Environmental Science, and Environmental Management with Tsinghua's expertise in Environmental Science and professional training. The program places great emphasis on cultural exchange and international relations, as well as multidisciplinary cross-cultural and professional development. Students complete a six-month professional practicum in organizations, such as environmental protection enterprises, government departments, research institutions, and NGOs in both China and Japan.

Tsinghua University-Kanazawa University Double Master's Degree Program plans to enroll 20 students in its first year. For those interested in applying for the program, please check the Tsinghua SIGS website:

<https://www.sigs.tsinghua.edu.cn/en/2021/0818/c1668a28896/page.htm>.

"World Languages & Cultures Tour" Lecture Series Kicks Off at Tsinghua SIGS

The "World Languages & Cultures Tour" Lecture Series, an event jointly organized by Tsinghua SIGS, Peking University Shenzhen Graduate School, and Harbin Institute of Technology, Shenzhen, began this semester. The six-part series hopes to broaden the global perspectives of University Town's students and faculty.

At the inaugural lecture event on September 12th, Tsinghua SIGS CPC Committee Secretary Wu Xiaofeng and Associate



Dean Zhang Chuanjie gave opening remarks. After, specially invited Vice President of Beijing Foreign Studies University's School of Hispanic and Portuguese Studies, Li Ziyang, delivered a lecture about Hispanic language and culture. Teachers and students enjoyed traditional Argentinian snacks prepared for the event whilst chatting with their fellow attendees.

Professor Gong Yu from Peking University School of Foreign Languages delivered the second lecture in the series, entitled "The Ancient Civilization of Mesopotamia and its Influence on Later Generations," at Peking University Shenzhen Graduate School on October 17th. Professor Gong spoke about Mesopotamian artifacts and documents from historical, religious, legal, and literary perspectives.

Upcoming lectures in the series will touch upon Persian, Russian, and Zulu culture.

Office of Global Affairs Holds Meetings for New International Faculty Members and HK-MO-TW students

As Tsinghua SIGS is becoming more international, a growing number of international professionals are joining the school. On October 6, the Office of Global Affairs held a meeting with newly recruited international faculty members to strengthen communication between international faculty and administrative offices, as well as to help the new faculty adjust to life and work at SIGS. Associate Dean Zhang Chuanjie, Office of Global Affairs Director Ma Zhenyi, Office of Human Resources Deputy Director Lin Yan, Zhang Zhenghua from the SIGS Labor Union, and staff members from the Office of Campus Management and Services attended the event.

The Office of Global Affairs, alongside the Office of Campus Management & Services and the Office of Student Affairs, also held a similar meeting on September 7th for students from Hong Kong, Macau, and Taiwan with 19 students attending.



The Office of Global Affairs will continue to organize similar opportunities for faculty and students to interact with the administration to address various topics about campus life. By creating a relaxed and open atmosphere where faculty and students can freely share their thoughts and suggestions, the school will be better able to meet their needs, improve efficiency, cut down on red tape, and build a more international campus.

University Town's Diverse Community Celebrates Mid-Autumn Festival



On the afternoon of September 25th, in the wake of the Mid-Autumn Festival, the Tsinghua SIGS Office of Global Affairs and HIT Shenzhen Office of International Affairs organized a mid-autumn-themed campus meetup. The event was open to the University Town of Shenzhen community and attracted over 40 local, HK-TW-MO, and international faculty members and students, including representatives from Canada, Italy, Japan, Mexico, Pakistan, the United States, Uzbekistan, and Zimbabwe. Attendees enjoyed icebreakers, mooncake making, and a tea party at the event.

The Campus Meet-up series, jointly organized by Tsinghua SIGS and Harbin Institute of Technology Shenzhen, is open to University Town's students and faculty. The series aims to encourage interaction and understanding of different cultures in the community.



New International and HK-MO-TW Students Tour Shenzhen

On September 10th, Tsinghua SIGS International Scholars and Students Center (ISSC) took new students from Hong Kong, Macau, Taiwan, and abroad on a tour that started in Nantou Ancient Town and ended at the Shenzhen Museum of Contemporary Art and Urban Planning, offering a glimpse of the city's history and a taste of its modernity.

At the Museum of Contemporary Art and Urban Planning, students viewed exhibits on Shenzhen's urban planning, landmark buildings, literature, art, and technologies, which all speak to the city's charisma as a capital of innovation and creativity. The museum itself was designed by Coop Himmelblau, an avant-garde deconstructionist architect firm from Austria.

After a tiring, yet meaningful day getting to know the city as part of their orientation activities, the group felt ready to jump into their academic lives at SIGS and in Shenzhen!



Voices from SIGS: Meet Our New Students!



Jung Sinyeong

Major: Environmental Science and
New Energy Technology at TBSI

Jung Sinyeong, from Korea, is a graduate of Shanghai Jiao Tong University and is passionate about OLED (Organic Light-Emitting Diode) technology. When applying to SIGS, he was especially interested in

the work of Associate Professor Wei Guodan's research group in OLED technology and the dual degree nature of the program.

Sinyeong is looking forward to being immersed in the city of Shenzhen, with its technological innovation, openness to foreign investment, and managerial expertise. He is particularly impressed by the city's dedication to lowering carbon emissions and its fleet of electric taxis. He can't wait to explore what he calls, "the concrete forest carpeted with electronic gems," or Huaqiangbei, Shenzhen's electronics market area.



Li Yingyue

Major: Future Human Habitat Design,
Masters of Architecture

Li Yingyue has an undergraduate degree in architecture from the South China University of Technology. She participated in a dual degree program with the Polytechnic

University of Turin, spending three years in Turin, Italy.

"I've been to Shenzhen many times. I really like the city, its white clouds and blue skies and the fact that it is between mountains and the ocean. I also like how open and inclusive it is. I especially appreciate the diverse architecture here," she shares.

Shenzhen — the ideal laboratory for testing new theories — is integral to Yingyue's major, Future Human Habitat Design. She is looking forward to opportunities for applying her knowledge in design and building in this city, especially through opportunities available to her through SIGS and the Greater Bay Area development projects.

Updates

Shared Study Space Opens

A shared study space in room 1717 of the Information Building has opened for students. The facility is available from 6:00 to 23:00 and has 54 carrels. Happy studying!

Dasha River Ecological Corridor Adds Access Points

There are two new entry points for the Dasha River Ecological Corridor on the south edge of campus that can be accessed via facial recognition for SIGS personnel. One is located on the west side of the Shahe Chunhua Bridge and the other is to the south of the SIGS basketball courts. Come out to bike or walk while enjoying nature on the greenway!

Fall 2022 Applications Are Online!

Pursue your academic dreams with unique opportunities and interdisciplinary research! Join other brilliant students on our beautiful Shenzhen campus! Apply now for master's and doctoral programs at <http://gradadmission.tsinghua.edu.cn/f/login>

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