

TSINGHUA 2022 ISSUE 3 NEWSLETTER



清华大学
Tsinghua University



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FOCUS



The 15th CPC Congress of Tsinghua University opens

The 15th CPC Congress of Tsinghua University opens at the New Tsinghua Xuetang on September 29.

Entrusted by Cai Qi, a member of the Political Bureau of the 19th Central Committee of the Communist Party of China and secretary of the CPC Beijing Municipal Committee, Xia Linmao, a member of the Standing Committee of the CPC Beijing Municipal Committee and secretary of the Beijing Municipal Education Commission, delivered a speech.

Tian Xuejun, a member of CPC Leading Group of Ministry of Education and vice-minister of education, also delivered a speech.

Qiu Yong, secretary of the CPC Tsinghua University Committee, on behalf of the 14th CPC Tsinghua University Committee, spoke and delivered a report

at the conference. The report is entitled "Keep the entrusted mission in mind, take advantage of the momentum, and strive towards a new paradigm for the high-quality development of world-class universities with Chinese characteristics".

Wang Xiqin, deputy secretary of the CPC Tsinghua University Committee and president of Tsinghua, presided over the conference.

The Commission for Discipline Inspection of the 14th CPC Tsinghua University Committee made a written work report.

Nearly 500 delegates, including representatives of the 15th CPC Congress of Tsinghua University, attendees and invited participants, were present at the conference.



Youth promote climate action and green development at World Youth Development Forum

The 2022 World Youth Development Forum's thematic forum on Climate Action and Green Development was held on July 22.

The thematic forum was jointly organized by the All-China Youth Federation and Tsinghua University and co-organized by the College Alliance for Youth Ambassadors under the theme "For a Shared Future: Promoting Climate Action and Green Development with Youth and for Youth."

Wang Xiqin, President of Tsinghua University, delivered an opening address at the thematic forum.

Wang highlighted the message in a congratulatory letter Chinese President Xi Jinping sent to the World Youth Development Forum on July 21, in which he pointed out that young people of all countries should carry forward the common values of peace, development, equity, justice, democracy and freedom for all mankind, advance the Global Development Initiative with concrete actions, help to implement the UN's 2030 Agenda for Sustainable Development, and jointly write a new chapter of the era for solidarity and cooperation among young people of the world.

Wang said that in recent years, climate change, loss of biodiversity, worsening desertification, frequent extreme weather and continuous spreading of Covid-19 had posed serious challenges to human survival and development. At this juncture, it was more important for universities to shoulder our responsibilities, strengthen education beyond utilitarianism and guide young people to foster a sense of shared community to urge mankind to move firmly towards the goal of sustainability.



“From the perspective of time, climate change is not only relevant to the present generation, but also to the future generations; As for the extent of impact, climate change concerns not only us as an individual country but also all countries across the world; From the perspective of life, climate change affects not only humans, but also other species,” Wang noted.

Wang said that young people were the future of our nations and the world. He emphasized that we should guide young people through education to take responsibilities beyond the present, their native countries or areas, or even humanity, to establish a sense of national community, and to keep the fine traditional cultures from their respective nations alive. Wang believed that young people should foster a sense of a human community with a shared future and grow into a driving force for world unity and they should cultivate a sense of community of life for human and nature, and thus make sound ecological environments an inexhaustible source of sustainable human development.

In response to the common challenge of climate change, Wang noted that Tsinghua University has taken the initiative to build global cooperation platforms and has been working with all sectors by leveraging its disciplinary strength. “In recent years, we have made great strides in establishing the Institute of Climate Change and Sustainable Development and the Institute for Carbon Neutrality in succession to strengthen relevant academic disciplines and the cultivation of high-level talents,” Wang added, “We have empowered the innovative development of green and low-carbon technologies with engineering science and technology, and offered potential solutions for China in achieving carbon peaking and neutrality goals. We took the lead in initiating the Global Alliance of Universities on Climate (GAUC) and now serve as the chair of GAUC. We successfully held the GAUC Graduates Forum and organized Climate Change Global Lectures. We co-hosted the Sino-American Youth Dialogue with the Massachusetts Institute of Technology (MIT) and launched the Joint Youth Initiative for Climate Response and Biodiversity Protection under Carbon Neutrality Goals.”

Wang expressed his hope that the thematic forum would serve as an opportunity to build more platforms for exchanges and cooperation, to jointly facilitate

green and sustainable development across the world and to tap deeper into the wisdom of young people to raise their voices, enable them to assume greater responsibilities and pool their strength for a greener, lower-carbon and better future for all mankind.



Andrea Meza Murillo, Deputy Executive Secretary of the United Nations Convention to Combat Desertification, said that as the window of opportunity to avoid the worst-case climate change scenario was closing, land restoration could be a cost-effective climate solution but only if the world acted now.

She urged higher education institutions to bring young people’s energy, talent, cutting-edge skills, innovation, and creativity to bring about land restoration and drought mitigation.



Xu Xiao, Vice President of the All-China Youth Federation, said that young people should fully stimulate their potential for innovation and creativity and engage in green entrepreneurship and use the power of science and technology to promote

innovation and creativity in food conservation, ecological agriculture, clean energy, low carbon transportation and exploring new ways to protect the environment and develop the economy with better jobs.

“We are convinced that as long as young people from all countries think and act as one and pool their strength together to share the responsibility for green development, we will surely create a cleaner and more beautiful home of ours,” Xu added.



Abdulla Anees, Deputy Minister of Youth, Sports and Community Empowerment of Maldives, shared his government’s efforts in tackling climate change during his opening address, as he shed light on the significance of the role of youth in climate action and green development.

He said that to maintain the greatest level of community resilience in the face of climate change, young people had a crucial role to play, adding that government officials needed to make sure that young people’s opinions were valued and heard so that today’s young could forge their own path for the change.



Li Gao, Director-General of the Climate Change Department of the Ministry of Ecology and Environment, China, shared details about China’s recent efforts to promote clean energy and low carbon emissions during his opening remarks, as he called on young people to work to promote the construction of an ecological civilization.

He urged young people to write a new chapter by addressing global challenges, promoting sustainable development, and achieving stronger, greater and healthier global development.



Razan Al Mubarak, President of the International Union for Conservation of Nature, highlighted the need to change the way food is produced to protect nature and the natural habitats of animals.

She encouraged young people to reconnect with nature, pointing out that younger generations are overwhelmingly moving toward greater urbanization and facing a disconnection from nature. “Youth must collectively agree on your vision for the future and the place you want nature to have in that future. It is critical that young people are given the platform to conceptualize this vision. It can’t be left to the actual generation alone to set this vision for the future,” she added.

The opening session was followed by keynote speeches from eight speakers.



Li Zheng, Executive Vice President of the Institute of Climate Change and Sustainable Development at Tsinghua University, discussed carbon neutrality and green development.

Li Jun, Director-General of the Social Responsibility Bureau, State-owned Assets Supervision and Administration Commission, talked about the green development practices of Chinese enterprises.

Erik Berglof, Chief Economist of the Asian Infrastructure Investment Bank, shared his views on China's net-zero transition.

Jiang Xiheng, Vice President of the Center for International Knowledge on Development, China,

highlighted China's green development and international cooperation.

Liu Xiping, Director of the Sustainability Division of the Beijing Organizing Committee of the Olympic Games, shed light on China's experience of the green Beijing 2022 Winter Olympics.

Mette Grangaard Lund, Green Jobs Specialist at the International Labour Organization, shared insights on youth green employment.

Huang Yingfeng, Director-General of the Social Liaison Department, the Central Committee of the Communist Youth League of China, and Convenor of the National Youth Eco-Environmental Association Alliance, delivered his keynote speech on the topic "Youth Action for a Beautiful China: Outcomes and Experiences."

Tom Szaky, founder and CEO of TerraCycle, World Economic Forum Youth Global Leader, talked about circular economy and youth practice in combating climate change during his keynote address.

The opening session was moderated by Wang Binbin, Executive Secretary-General of the Global Alliance of Universities on Climate.

After that, a youth dialogue on "Youth Perspectives and Power in Climate Action" was held.

Neeshad Shafi, founder of Arab Youth Climate Movement Qatar LLC, and Liu Jichen, Young Leader for the United Nations Sustainable Development Goals, CEO of Clear Plate APP, shared their views on the sub-theme of youth leadership in climate action.

Xin Hao, co-founder of Green Zhejiang Environmental Protection Organization, member of the Zhejiang Youth Federation, and council member of the Global Water Alliance, and Mulindwa Moses, co-founder of CYE Believe Network, exchanged ideas on the sub-theme of encouraging society to promote green development.

Alice Ho, Chief Youth Officer of the Global Alliance of Universities on Climate, Sampada S. Venkatesh, Global Youth Ambassador, Global Alliance of Universities on Climate, and Xie Canyang, Head of the Tsinghua University Student Association on Net-zero Future, shared their thoughts on the sub-theme of youth empowerment for a sustainable future.



Xie Zongxu, a Youth representative from the College Alliance for Young Ambassadors, moderated the youth dialogue.

The thematic forum, held in a hybrid format, was broadcast live on multiple platforms and attended by youth representatives from around the world.



Harmony and Cooperation Civilization Forum held to discuss a new era of digital civilization

The 2022 Harmony and Cooperation Civilization Forum, with the theme "Harmony and Cooperation – Towards a New Era of Digital Civilization," was held on September 9.

The forum, jointly hosted by Tsinghua University and the International Confucian Association, brought together a diverse cohort of renowned experts from various fields around the world to discuss the unique role of "harmony and cooperation thoughts" in ordering human civilization in the digital era.

Liu Yandong, President of the International Confucian Association, said that the forum was being held to help pass on traditional culture, to uphold the diversity of world civilizations, and to promote exchanges and dialogue among different civilizations so that human civilizations can remain inclusive and harmonious.



The International Confucian Association is willing to play the platform role in integrating ancient and modern, the east and the west, contemporary values and ancient civilizations to promote exchanges and mutual appreciation in the era of digital civilization and to build a beautiful tomorrow, she added.



Fukuda Yasuo, Chairman of the International Confucian Association and former Prime Minister of Japan, highlighted the importance of dialogue in promoting harmony and cooperation across cultures during his opening remarks.

“No matter what difficulties we encounter, the key is to achieve harmony and cooperation with dialogue,” he said, emphasizing that countries should maintain trust among one another and work together to solve a wide range of issues on a global scale and promote cultural exchanges.



Qiu Yong, Chairman of Tsinghua University Council, delivered an opening address, highlighting the significance of universities in promoting digital civilization.

He said that in the digital era, universities should shoulder their responsibilities and make their contributions as they are the foundation and the source of technological breakthroughs.

He also maintained that universities should promote the utilization of digital technologies to pass down cultural heritage and to promote mutual respect and inter-independency among all cultures while creating sharing platforms for digital resources.

Stating that the digital era has brought about not only new opportunities but also new challenges, Qiu emphasized that it was important for all the stakeholders to work together to ensure that digital technologies benefit mankind. “I wish full success to the Harmony and Cooperation Civilization Forum.”



Kishore Mahbubani, former President of the United Nations Security Council and the founding Dean of The Lee Kuan Yew School of Public Policy at the National University of Singapore, said that the forum was timely as it addressed one of the most important questions of the time. He said that all the countries must come together in the United Nations and work out necessary conventions to create multilateral frameworks to manage the new digital space and new digital technologies.



The opening ceremony was hosted by Peng Gang, Vice President of Tsinghua University.

Following the opening ceremony, several speakers delivered keynote speeches.

Wang Hui, Distinguished Professor of Arts, Humanities, and Social Sciences at Tsinghua, delivered his remarks on the topic of “Revelation of Asian-African Solidarity: Harmony in Diversity and New Internationalism.”

Roger T. Ames, Vice President of the International Confucian Association and Chair Professor of Humanities at Peking University, centered his speech on the evolving digital civilization and related new technologies.

Chu Yun-han, Professor of Political Science at Taiwan University and Member of the Advisory Board of the Institute for Chinese Culture, shared his thoughts on digital civilization and shared society.

Helwig Schmidt-Glintzer, Professor of East Asian Literature and Cultural Studies at the University of Göttingen, also Vice President of the International Confucian Association, made a presentation on how to promote harmony and cooperation in a new era of digital civilization.

Li Zhongqing, the Dean and Chair Professor of the School of Humanities and Social Sciences at Hong Kong University of Science and Technology, gave his remarks on the topic of “From the Best to the Rest: How Big Data and Digital Humanities Changed Our Understanding of Chinese Academic and Scientific Elite, from 1920 to 2020.”

Apart from keynote speeches, the forum also featured three panel sessions. The first panel session was entitled “Characters, Literature and Civilization in the Digital Era,” whereas the second and third panel sessions were entitled “Exchanges and Mutual Learning among Civilizations in the Digital Era” and “International Confucianism in the Digital Era,”

respectively. The panelists in these sessions included distinguished professors and scholars from various universities and academic institutions attending online from around the world.



The forum concluded with closing remarks from Chen Lai, Distinguished Professor of Arts, Humanities, and Social Sciences at Tsinghua, Vice Chairman of the International Confucian Association and Director of the Tsinghua Academy of Chinese Learning.

The forum, which was held at the main building of Tsinghua University, adopted a hybrid online and offline format and was broadcast live in both English and Chinese on Tsinghua’s Rain Classroom.

Minor planet named after Chinese scientist Wang Dazhong



On Aug 15, the Working Group for Small Bodies Nomenclature (WGSBN) of the International Astronomical Union (IAU) released the latest issue of WGSBN Bulletin, announcing that the minor planet with international permanent number 192353 has been named after Chinese scientist Wang Dazhong.

It is a globally recognized honor for the person after whom a minor planet is named due to the issue’s seriousness, uniqueness and permanence.

Wang Dazhong, born in 1935, is a Chinese nuclear reactor engineer, an educator, and an academician of the Chinese Academy of Sciences. He has served as president of Tsinghua University and won the 2020 State Preeminent Science and Technology Award of China.

Wang has devoted decades to leading the team of Tsinghua University’s Institute of Nuclear and New Energy Technology to advance innovation in nuclear energy system.

Tsinghua holds opening ceremony to welcome undergraduates



Tsinghua University hosted an opening ceremony to welcome its new cohort of undergraduates on August 18.

Tsinghua University leaders Qiu Yong, Wang Xiqin, Wang Guangqian, Yang Bin, Li Yibing, Guo Yong, Zheng Li, Peng Gang, Zeng Rong and others attended the ceremony. Vice President Peng Gang moderated the ceremony.

Tsinghua University Council Chairman Qiu Yong affixed a Tsinghua badge to the freshmen representative.



Tsinghua University President Wang Xiqin delivered a welcome speech. He extended his heartfelt congratulations and warm welcome to all incoming freshmen on behalf of the University, and thanked their family members and teachers for their support.

He said the new undergraduates have opened a new chapter in their lives and added new vitality to Tsinghua University.

Moving forward, he said, "It is our hope that you will inherit the university motto of self-discipline and social commitment, carry forward its ethos of actions speak louder than words, and its style of rigorous, diligent, truth-seeking and creative, practice the tradition of being professional and devoted and holistically developed, and grow to be a part of the Tsinghua family with decent character, systematic expertise, innovative thinking, global vision and social responsibility."

He encouraged the new students to live up to President Xi Jinping's words: Let youth blossom in the unremitting endeavors for the motherland, the nation, the people and humankind.

He expressed his hope that the new students would carry out continuous reflection, evaluation, and constant self-improvement, and build a noble character.

"When you are reflecting upon yourself, it is important to recognize your highlights and, more importantly, to have a closer look at your shortcomings. At the same time, you should also continue to deepen your understanding of yourself through interactions and collaboration with others, and gain a more rational and objective picture of who you are at the moment," he said.

He also urged the new undergraduates to engage with others and make friends with common aspirations, highlighting the culture of teamwork at Tsinghua and the significance of team building in an individual's self-cultivation.

He said working as a team can enable individuals to cultivate character, develop tolerance, understand teamwork and enhance their ambitions. "I hope you will inherit and carry forward the wonderful traditions of our university, integrate into a team, contribute to its development, and grow into talents in the team together with like-minded partners."

President Wang also instructed incoming freshmen to put the people first and serve the people. "Only by doing so, can we go further," he said. "We are all part of the people. So, we should always put the people at the center and stand firmly with them."

Concluding his remarks, he conveyed his confidence that the incoming freshmen will shoulder the responsibilities of their countries, strengthen their beliefs, and cultivate their moral characters as they set sail for a new journey with Tsinghua.

"I hope you will plunge into the great cause of the great rejuvenation of our country. From now on, you must live up to the expectations of the youth, the times, and the people," he added.



At the opening ceremony, Wang Rui, President of the Student Union, delivered a speech as the senior student representative. He called on the new students not to let the fear of failure hold them back and to explore various opportunities offered by Tsinghua University to find their future paths.



Professor Yin Yajun from the School of Aerospace Engineering delivered a speech as the faculty representative. He shared several takeaways from his time as a Tsinghua student, hoping to inspire the incoming freshman as they embark on a new journey, and said that he has high expectations for them.

"Your university life is short and precious and it deserves all of your love and passion," he added.



In his remarks as the freshman representative, Lyu Yuxuan, a freshman at Rixin College, shared his first impression of Tsinghua University, and called on his fellow freshmen to keep their dreams in mind and work hard to fulfill them, embracing the unknown, adhering to their ideals and adapting to the times.



Tsinghua holds opening ceremony for new graduate students

Tsinghua University hosted an opening ceremony to welcome its new cohort of more than 9,000 graduate students on August 31.

At the opening ceremony, Tsinghua University President Wang Xiqin delivered a speech and extended a warm welcome to all incoming graduate students on behalf of the University.



He said that the Tsinghua campus has once again become refreshed by the arrival of new students who have come with their own stories and dreams, ushering in a new chapter in their lives.

Emphasizing that graduate students are research students, he encouraged incoming new graduate students to be reality-based and learn through practice in their studies. "To find problems and solve them in practice is to seek truth, and to serve the motherland and the people is to seek goodness. Empty talk leads to nowhere. Only practice and hard work can build a nation."

He called on the incoming students to carry forward the glorious tradition of dedication to the country and the pursuit of excellence, integrate their academic pursuits into the great cause of building a modern socialist country, and always put the people first.

He also instructed incoming graduate students to strive to make their research works thorough, simplified, easy to understand, and profound. He added: "While working on difficult problems in your fields, please remember to make your achievements more accessible and applicable."

In concluding his remarks, he expressed his hope that the new students would keep seeking truth from facts, seeking solutions from practice, learning for the people, and linking their academic pursuits with the development of the country and the nation. "I hope your research results can withstand the test of practice, the people, and history, and I hope you contribute your wisdom and strengths to the rejuvenation of our nation."

Wang affixed a Tsinghua badge to the graduate student representative Wang Yunan.



Tsinghua Vice President and Provost Yang Bin moderated the opening ceremony, attended by other University leaders.

Fu Yujie, a doctoral student from the School of Marxism and President of the Graduate Student Union, delivered his remarks as the senior graduate representative.



He urged the newcomers to be Tsinghua people with unwavering determination and perseverance and become the mainstay in a changing world.

Professor Tang Chuanxiang from the Department of Engineering Physics gave a speech at the opening ceremony as the faculty representative. He called on the new graduate students to pursue their academic endeavors at the world's top academic level, as he shared some advice on how the new students could make their time at Tsinghua more fulfilling.



Likewise, Wang Yunan from the Department of Mechanical Engineering gave a speech as the new doctoral student representative. He said that as graduates of Tsinghua students, they were obliged to grasp opportunities, rise to the challenges, and make their contributions to the disciplines and the fields they are in.



Zheng Hao from the Department of Civil Engineering delivered her remarks as the new master's student representative. She urged her fellow newcomers to work together and to study together to better themselves and create a better tomorrow.



Nearly 500 incoming graduate students attended the ceremony at the University Gymnasium, the main venue for the ceremony. More than 5,000 new graduate students watched the live broadcast in sub-venues.



GLOBAL ENGAGEMENT



Cool-Tech Air-Water Generators donated by Tsinghua University distributed at Primary Schools in SNNP region of Ethiopia

On Jun. 23-24, five air-water generators jointly donated by Tsinghua University China-Africa Leadership Development Institute(CALDI), HurRain NanoTech team and China Foundation for Rural Development (CFRD, former China Foundation for Poverty Alleviation) were successfully distributed in Key Afer Primary, Tulungo Primary, Sitimba Primary, Turmi Primary and Demeka Primary in SNNP region of Ethiopia, which will benefit 2,106 students for the clean and sanitary water. Former Ethiopian first lady Roman Tesfaye Abneh, South Omo Zone Education Department Head Weli Haile, and other officials

attended the donation ceremony. Huang Xiaocen, CFRD Ethiopian Office Director attended on behalf of Chinese donors.

The horn of Africa is facing the worst drought in decades. The consequences of lack of rain in many rainy seasons are acerbated by regional conflicts, climate change, locust infestations and the economic fallout of the covid-19 pandemic, urgent humanitarian assistance is needed. Initiated by CALDI and supported by CFRD, Lin Tengyu, a doctoral student in the Department of Mechanical Engineering of



Donation Ceremony Group Photo

Tsinghua University, led his team with great passion of creating public value in Africa. The team modified the innovative water purification solution with graphene-enabling filter, and designed the specific energy-efficient type of air-water generators effective with Ethiopian local weather. They worked over time for the prototype and made the equipment ready far in advance of schedule.

As the Coronavirus pandemic disrupted the supply chain and maritime transportation, freight rates skyrocketed, followed by the container shortages, port congestion and custom clearance delay. After two times of shipping for sample and machines, the donation finally arrived Ethiopia and passed the several rounds of quality tests by Ethiopian Food and Drug Administration under the Ministry of Health. The air-water generator, absorbing moisture from the air and producing sanitary water by simply plugging-in, is firstly introduced in Ethiopia. The down-to-earth cool tech brings the tangible benefits for local people, illustrating our university's technology strength.

Roman Tesfaye Abneh, the former first lady of Ethiopia, expressed sincere thanks to the donors and supporters at the ceremony. She said that such equipment "is very suitable for the climatic conditions in SNNP region, and children can drink safely. Ethiopia is suffering from drought and water shortage, this high-tech, zero waste, no-plastic-bottle-waste water purification solution, will directly help schools and communities."



Muda Wacho, Benna-Tsemay Woreda Main Administrator, Drank Up the First Cup of Water Made by the Air-Water Generator

Muda Wacho, Benna-Tsemay Woreda Main Administrator, drank up the first cup of water made by the machine, urged the students not to waste as the water is the source of life. Mesele Mesfin, principal of Demeka Primary showed a great deal of excitement when his school got the generator. He studied the manual for many times and promised to take good care of the air-water generator so that the children could benefit from it. On behalf of all the teachers and students, the principal expressed his gratitude to the Chinese donors.



Speech by Roman Tesfaye Abneh, Former First Lady of Ethiopia, at the Local Donation Ceremony



Curious Students Drawn by the Air-Water Generator

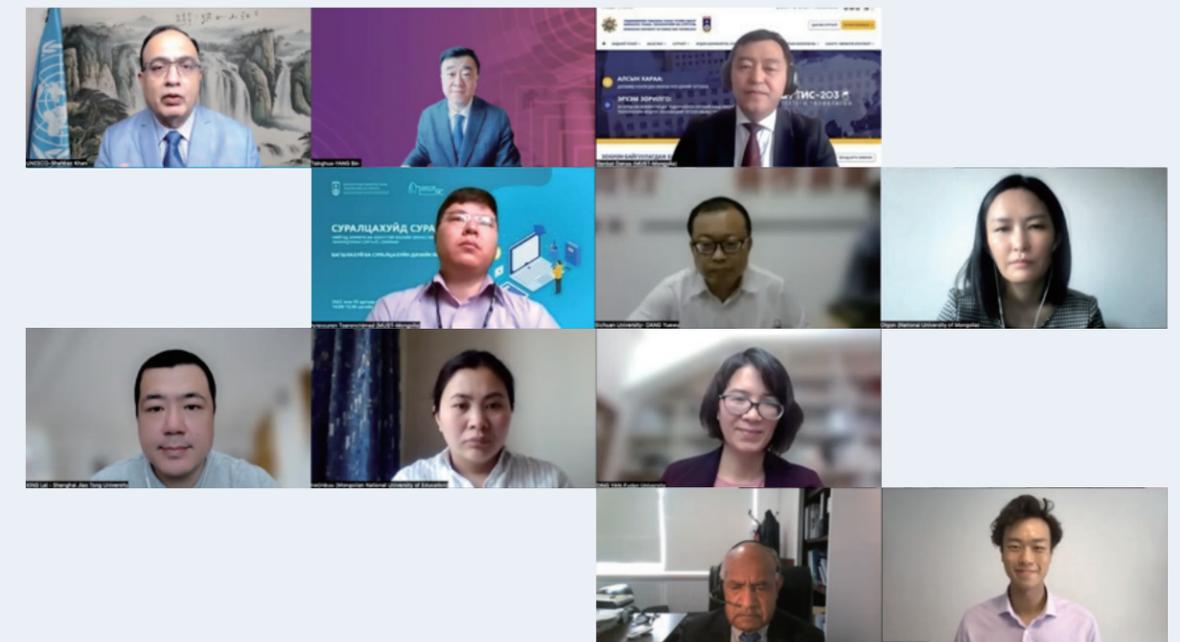
China-Mongolia Online Education Dialogue 2022: Focus on "Online Education and Teacher Professional Development"

To promote mutual understanding through reviewing our past experiences and present actions in teaching and learning, and envision the exciting shared future of higher education together, China-Mongolia Online Education Dialogue 2022 hosted by Global MOOC and Online Education Alliance was recently held. With the theme of "Online Education and Teacher Professional Development," this event aimed to actively explore the extensive and in-depth cooperation between the two countries and provide a reference for future development planning in the process of the digital transformation of higher education.

Shahbaz Khan, Representative of UNESCO China, Yang Bin, Vice President and Provost of Tsinghua University and Convenor of the Executive Committee of Global MOOC and Online Education Alliance, and Ganbat Danaa, Director of the Open Education Center of the Mongolian University of Science and Technology and Executive Committee Member of Global MOOC and the Online Education Alliance delivered opening speeches. Enoch Wong, the assistant secretariat of Global MOOC and Online Education Alliance, served as the moderator of the event.

Shahbaz Khan spoke highly of the cooperation between Chinese and Mongolian universities since the outbreak of COVID-19, which was a significant step toward online learning resources for learners across Mongolia. The cooperation between Chinese and Mongolian universities has been deepened, with a good foundation established for cooperation in such important areas as online teaching, technical assistance, and teaching capacity development. He noted that global higher education institutions need to reposition themselves in the post-pandemic era and actively transform to respond to changing social needs. UNESCO will continue to work for the quality development of global higher education and pay close attention to the application and innovation of Artificial Intelligence in education.

Yang Bin pointed out three important observations: first, we would share quality resources for international cooperation. The Global MOOC and Online Education Alliance was established for international exchanges and cooperation in joint teaching, capacity building, knowledge sharing, and public advocacy, providing a platform for university teachers to develop the



theories and applications of online education. Second, we should expand integration for faculty development. We must explore and seek innovations in the integration of the two teaching models to give full play to their advantages. Third, we should seek flexible development for faculty empowerment. We should learn from the experience of extensive online education amid the pandemic. Online education not only enables teachers to teach, but also encourages them to become mentors, co-teachers, and co-learners of students, and empowers them to play a bigger role so as to build more resilient universities.

According to Ganbat Danaa, the Mongolian University of Science and Technology, as one of the founding members of the Global MOOC and the Online Education Alliance, has developed in-depth exchanges and cooperation with other members of the alliance in the past two years. The Mongolian University of Science and Technology has launched an online training program for teachers' digital skills, committed to using information technology to develop online collaboration models, using open teaching resources to promote teachers' professional development, and serving students' access to quality education.

In the case study and panel discussion, representatives from six universities delivered exciting speeches, showing successful stories of their respective practice in teacher development.

Purevsuren Tserenchimed, Senior Specialist of the Open Education Center of the Mongolian University of Science and Technology, mentioned that facing various challenges during the pandemic, the key aspect of teacher development is to enhance the competence of digital skills for the teachers and motivate a sensitive direct and learning community for teachers.

According to Dang Yuewu, Dean of Academic Affairs Office of Sichuan University, Sichuan University adheres to the principle of keeping pace with the times in education and teaching, strengthens teaching reform and innovation, deeply stimulates teachers' endogenous motivation, and constantly improves their teaching ability through three levels of double certificates, workshops and teaching innovation competition.

Otgontsetseg Sukhbaatar, Head of the Center for Faculty Development and Digital Learning of the

National University of Mongolia, introduced the faculty development system and emphasized the importance of teachers' online skills, network security, and curriculum design.

Xing Lei, Assistant Director of the Center for Teaching and Learning Development of Shanghai Jiaotong University, introduced the trinity system of teacher training: evaluation, training, and certification. Shanghai Jiaotong University improves teachers' teaching quality through various types of training, provides feedback on teaching improvement for courses, teachers, and institutions through the "MATE" evaluation system, and provides qualification identification and process guarantee for teachers' professional development through the Core Quality system.

Norjinbuu Baljinnyam, Lecturer in the Department of Information Technology of the Mongolian National University of Education, mentioned that this year, the Mongolian National University of Education launched the Education Quality Development Year, focusing on large-scale training activities such as teacher continuing education webinars, "digital teacher" long-term training, online teaching organization and method training to improve teachers' teaching ability in the digital era.

Ding Yan, Associate Researcher of the Research Institute for Higher Education and Deputy Director of the Center for Faculty Development of Fudan University, introduced the Fudan-QM Collaboration, which is committed to exploring quality standards that are essentially equivalent to international standards and can solve problems in the construction and application of online courses in Chinese higher education by means of course review and teacher training, combining an international perspective and taking root in the local context.

The participants also discussed the reform of the teacher training system, the formulation of teaching quality standards, and the strategic planning of teaching quality. The participants agreed that the dialogue was a complete success and hoped that the universities of the two countries could work together to promote borderless online education cooperation, explore the deep integration of teaching and education, and jointly envision and create a bright future for higher education in the digital era.

Tsinghua Global Summer School 2022 kicks off

At 9:00 am on July 4th (Beijing time), the Tsinghua Global Summer School 2022 (GSS 2022) officially started. A total of 1,160 outstanding students from over 300 universities and 71 high schools in 94 different countries and regions worldwide gathered online for the opening ceremony. Professor Yang Bin, Vice President and Provost of Tsinghua University, and Ms. Beate Trankmann, United Nations Development Program (UNDP) Resident Representative for China, delivered opening remarks.



Tsinghua Vice President Yang Bin delivers a welcome address

Yang Bin welcomed the students to the GSS 2022. He pointed out that we now find ourselves in a period that demands great actions as the world is undergoing profound changes unseen in a century. Global health, climate, and challenges to international exchange and cooperation, require us to join hands to find global solutions. He emphasized that, on the High-level Dialogue on Global Development held on June 24th, President Xi Jinping called for a "united, equal, balanced and inclusive" global development partnership. As a global university that shoulders international responsibilities, Tsinghua is committed to achieving greater levels of SDG-oriented global collaboration and education programs.

Yang noted that Tsinghua University is resolutely motivated to address the challenges of the new era. It is an era of opportunity and action, and one that requires us to promote global engagement and cooperation, embrace the digital and green transformation, and strive for sustainable development. It is with these missions that the GSS

embarks on a new journey and extends Tsinghua's fundamental commitment - to educate and cultivate talents. Young students worldwide are expected to participate in this program and explore innovative ways to solve critical challenges.

Yang believed that the GSS will play an essential role in responding to global challenges and realizing the goal of sustainable development by imparting knowledge, serving the future, and cultivating youth leaders through masterclasses, workshops, SDG Hackathons and other events. He encouraged every participant to get involved, take action, and collaborate to apply knowledge into practical solutions for the future. He looked forward to seeing the fruitful outcomes and contributions of students and wished every participant, and the program itself, a great success.



Ms. Beate Trankmann delivers her opening remarks

Ms. Beate Trankmann, United Nations Development Program (UNDP) Resident Representative for China, said in her speech that our planet is facing a severe environmental crisis. While we have learned a lot about our environment since then, we have not done enough to protect the Earth – our only home. She was glad that the theme of GSS 2022 – "A Healthy Planet for Sustainable Development" – addresses the urgent need to collectively rebuild our broken relationship with nature. She encouraged students to spend part of their summer thinking about how to make a greener, more sustainable, inclusive and equitable future a reality for all, and meanwhile attempting to master skills and expertise required to address today's multiple planetary crises and realize sustainable development.

Ms. Beate Trankmann extended her appreciation to Tsinghua for its dedication to the SDGs. This annual summer school is a unique and engaging program to foster the next generation of change-makers and build a more sustainable world. With that, she wished the students an exciting and rewarding summer school experience and hoped they could use their energy and intellect to contribute for the realization of UN SDGs.

During the performance segment of GSS opening ceremony, spectacular online footages were presented, showcasing the 24 solar terms on Tsinghua campus, the style of bringing together the different traditions of China and the West, of ancient and modern, of science and the humanities, as well as Tsinghua's open, inclusive, international, friendly and progressive atmosphere.

To follow, Professor Li Jinliang, Dean of the International Office, and Professor in the School of Economics and Management, Tsinghua University, gave an insightful lecture entitled "The Chinese Economy: Prosperity and Prospects", marking the first of the Masterclasses to be held during the summer school.

Li introduced the overall situation of China's recent economic development from three key aspects: achievements, challenges and opportunities. He guided students to explore key factors behind China's rapid economic rise, and stated that since 1978, China's economic rise has been mainly the result of industrialization and urbanization. Today, the Chinese economy has stepped onto a new stage, and is also facing new opportunities and challenges.

Li believed that despite multiple challenges such as maintaining economic equilibrium, financial stability and environmental sustainability, as the Chinese economy steps onto a new stage, its economic development has shifted from "high-speed growth" to "medium-high-speed growth". China's economic structure has become more optimized, with the fruits of development benefiting a wider range of society, and has moved from factor-driven and investment-driven to innovation-driven. At the same time, China has unwaveringly adhered to the principle of common prosperity and inclusive sharing of development outcomes. In the 40 years of growth since 1978, these changes have strengthened China's social and economic foundations, and have also enabled its economy to maintain a vision of strong and sustainable development. Li Jinliang concluded his Masterclass by emphasizing that continued reform



Professor Li Jinliang launches GSS Masterclasses

and opening up is the way forward for a robust Chinese economy, in which innovation is key. In the Q&A session that followed, he provided detailed responses to questions asked by participants.

The GSS 2022 will be held from July 4 to July 10. With the theme: "A Healthy Planet for Sustainable Development," GSS 2022 is a seven-day program organized collaboratively by over 20 Tsinghua academic institutions and four non-academic institutions, with the aim of "independent learning, intelligent teaching, universal schooling, and high-quality education." The courses cover a wide range of fields including education, economics, sociology, the humanities, artificial intelligence, and leadership, and come in diversified forms such as masterclasses, workshops, SDG hackathons, and cultural experience activities. Student associations have been invited to co-organize workshops, and students are encouraged to host workshops and activities, in order to enhance their sense of participation, inspire opinions on health and sustainable development from a student perspective, and facilitate the cultivation of innovative thinking and the introduction of sustainable development concepts to integrate academics with innovation and interaction.

This year marks the third year of the Tsinghua Global Summer School online. Reviewing the past, more than 3,000 outstanding young talents have participated in the program. With openness and inclusiveness, Tsinghua Global Summer School is committed to helping young talents worldwide acknowledge a deeper understanding of the world and China in the post-COVID era, encouraging them to cooperate, innovate, and contribute to creating a better world.

For more details, please visit the website of Tsinghua Global Summer School:
<https://www.tsinghua.edu.cn/gss/>

Tsinghua hosts the 10th World Peace Forum

The 10th World Peace Forum (WPF) opened on July 3 under the theme "Preserving International Stability: Commonality, Comprehensiveness and Cooperation."



Tsinghua University President Wang Xiqin, who is also Chairman of the forum, delivered opening remarks at the forum's opening ceremony.

He noted that this year marked the 10th anniversary of the forum and thanked all those who have provided support to the forum.

Wang Xiqin said that for the past decade, the World Peace Forum has closely followed the trend of international security, with topics covering both traditional and non-traditional security. The forum would continue to uphold the concept of seeking security through development, equality, mutual trust,

cooperation, and innovation, and to play a positive role in promoting international security exchanges.

"At present, complex factors such as the global pandemic, regional conflicts and competition among major powers are intertwined. The international community urgently expects to achieve win-win cooperation and safeguard world peace through solidarity and coordination," said Wang, adding that the theme of this year's forum highlighted the new features of the complexity of security issues.

He expressed his hope that all the guests at the forum would have in-depth exchanges and express their views freely, so as to provide valuable reference for all countries in the world to judge the international security situation and grasp the orientation of development; enhance mutual understanding among countries by building a common discourse system and letting ideas collide with each other; explore innovative ideas to coordinate both traditional and non-traditional security; figure out effective ways to strengthen international security cooperation and to promote world peace.

The WPF is China's first non-governmental high-level forum on international security, jointly initiated by Tsinghua University and the Chinese People's Institute of Foreign Affairs in 2012.



The 10th WPF was held in a hybrid online and offline format.

Among the speakers at the forum are Yukio Hatoyama, Prime Minister of Japan (2009-2010), Ban Ki-moon, Secretary-General of the UN (2007-2016), Kevin Michael Rudd, Prime Minister of Australia (2007-2010, 2013), Dominique de Villepin, President of France (2005-2007), Igor Ivanov, President of the Russian International Affairs Council, Surakiart Sathirathai, Deputy Prime Minister of Thailand (2005-2006), Rashid Alimov, Secretary-General of the Shanghai Cooperation Organization, and Kamal Kharazi, Advisor to the Iranian Supreme Leader and Minister of Foreign Affairs of Iran (1997-2005).

Wang Chao, President of the Chinese People's Institute of Foreign Affairs, and Yan Xuetong, Secretary-General of the World Peace Forum, attended the forum's opening ceremony, which was moderated by Tsinghua University Vice President and Provost Yang Bin.

The opening ceremony was followed by a plenary session held under the theme "Preserving World Peace." During this session, Yukio Hatoyama, Prime Minister of Japan (2009-2010), Ban Ki-moon, Secretary-General of the UN (2007-2016), and Kevin Michael Rudd, Prime Minister of Australia (2007-2010, 2013), delivered their remarks.



Yukio Hatoyama said that major powers like China, the United States, and Japan should work together in the spirit of friendship and forgiveness and uphold world peace and stability.



Ban Ki-moon highlighted the significance of multilateralism and international cooperation under the United Nations in preserving world peace and ensuring a more sustainable future for humanity and the planet.



Kevin Michael Rudd shared his views on China-US relations and preserving world peace and security.



Four plenary sessions and 16 panel discussions were held as part of the 10th WPF. Topics such as European security order, stabilizing China-US relations in an unstable world, the United Nations and world order, regional institutions and order, were covered.

The forum concluded on July 4.

GAUC launches 'Climate x' Campaign 2022

The Global Alliance of Universities on Climate (GAUC) launched the 'Climate x' Campaign 2022 globally on Sept. 5.

The campaign, which pools the collective strengths of GAUC's 15 member universities and gains the firm support from its global partners, features a three-level structure: a national program of 'Climate x' Leadership Training Pilot (the Pilot) co-initiated by Sciences Po in French and Tsinghua University in China; a regional event of the African Regional Forum on Climate Change organized by Stellenbosch University in South Africa; and three events at the international level, namely the Global Youth Climate Week (the Week), the 2022 Global Youth Summit on Net-zero Future, and the GAUC COP27 high-level event.



Tsinghua University President Wang Xiqin, who is also the Chair of GAUC's Board, delivered welcome remarks at the launching ceremony of the campaign.

He said that the adverse impacts of climate change on the natural ecological system have continued to spread into the economy and society, strengthening public awareness of the vulnerability of the world to these impacts and highlighting the need for collective urgent actions.

"Being here with you today, I see the power of youth heading to an optimistic prospect of a sustainable net-zero future," he added.

He then described climate change from three dimensions: spatial, temporal and species.

From the perspective of spatial dimension, he said, climate change poses existential threats upon all of us, regardless of national boundaries, which require us to rise from differences and act as one. From the

perspective of temporal dimension, climate change is not only relevant to our lives, but also to the future of the next generations. And from the perspective of species dimension, climate change is closely intertwined with the well-being of mankind and other species.

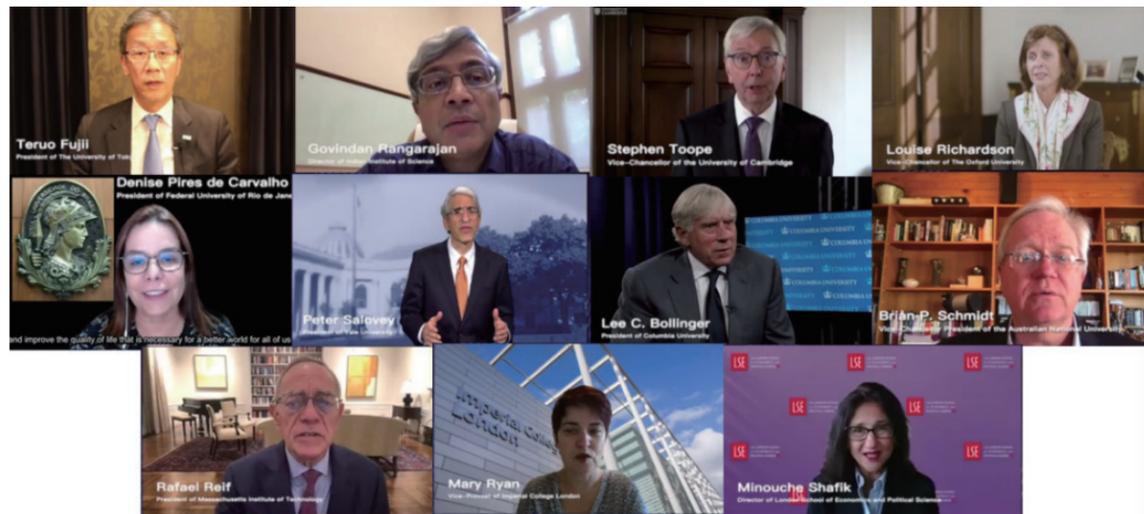
To conquer a challenge with such complexity, he stressed that it requires us to break the border of disciplines, to see the synergy between climate change and every social and economic sector, and to leverage that synergy for effective and innovative solutions. "With the letter 'x' from the theme, this campaign emphasizes that synergy specifically."

"With our hands joined tightly, I look forward to more emerging opportunities for greater achievements," he said, concluding his remarks.

Initiated by Tsinghua University in 2019 during the World Economic Forum in Davos, GAUC aims to provide collective leadership of global higher education efforts to address climate change. Today it consists of 15 of the world's leading universities from nine countries and across six continents. By launching the 'Climate x' Campaign, GAUC aims to offer an innovative solution to the progress of global climate governance and a concrete contribution to the success of COP27 by preparing the world's youth, promoting a synergetic approach, and mobilizing multi-stakeholders.



"This is a time of enormous challenges. Our health and well-being, peace, prosperity, and nature itself are under threat. The most pressing problems confronting nations are ultimately global in nature, and they demand global solutions. The focus of the 'Climate x' campaign is an excellent example this," said Amina J. Mohammed, the UN Deputy Secretary-General, in her address to the event.



Professor Li Zheng, the Secretary General of GAUC and Executive Vice President of Tsinghua's Institute of Climate Change and Sustainable Development (ICCS), moderated the opening session at Tsinghua. Professor Li expressed his gratitude towards the support from GAUC member universities and global partners. "Everything would not have happened without a group of dedicated dreamers," he said.

Echoing the three-level structure of the campaign, the launching ceremony then broke into three sessions to illuminate the systematic design of the campaign, led by Sciences Po, Stellenbosch University, and Tsinghua University.

Sciences Po led the first session on the pilot program as its co-initiator.



Sciences Po President Mathias Vicherat said that the climate emergency required that we take into full account the complexity of the situation as well as involve and engage all stakeholders if we are to act globally and effectively. "I am as such calling on our students as well as our partner universities to invest

in these opportunities but also to work with us in co-creating other spaces in which our communities can work together to make a difference in the fight against climate change," he added.



Sciences Po Vice Director Vanessa Scherrer also delivered her remarks at the ceremony.



Ahead of the campaign's official launch, the Pilot program enrolled and cultivated over 150 students from GAUC member universities, forming the first cohort of GAUC Global Youth Ambassadors (GAUC Ambassadors). The GAUC Ambassadors, divided into

21 interdisciplinary and cross-culture teams, have developed innovative solutions, ranging from digital games and mobile applications to panel discussions and community engagement, which will be featured throughout the campaign.

Dr. Charlotte Halpern, a researcher in political science at Sciences Po who led the Pilot's lecture on climate governance, moderated the session. Alice Ho, the Chief Youth Officer of GAUC, brought global audiences a video on the pilot and invited representatives of the GAUC Ambassadors to share their experiences, followed by a certification ceremony of the GAUC Ambassadors.

The second session of the launching ceremony focused on the African Regional Forum on Climate Change (the Forum), the regional-level component of the campaign in the lead-up to the 27th Conference of the Parties to the UN Framework Convention on Climate Change (COP27), taking place in Egypt this November. Stellenbosch University, GAUC's only member university in Africa, voluntarily took the responsibility in organizing the Forum.



"Climate Change is real, and its effects distressing. The most recent IPCC report highlights the many current and potential risks facing African nations," said Wim De Villiers, the Rector of Stellenbosch University. "That's why it's an honour for Stellenbosch University's School for Climate Studies to be collaborating with the GAUC on this ground-breaking event."

Covering diversified topics such as food and water security, disaster risk reduction, sustainable and reliable energy, and the impact of climate change on people and businesses, the hybrid Forum, which will take place from September 5th to 9th, aims to provide a platform for engaging multiple institutions and multi-stakeholders in climate change science and its applied social and policy implications in Africa.

Professor Guy Midgley, the interim director of Stellenbosch's School for Climate Studies moderated the session. Representatives of GAUC ambassadors introduced the Forum during the session.

The introduction of Campaign's events at the international level began with a video on the success of GAUC's Climate x Summit in 2021, which presented 30 events by GAUC member universities and global partners during the COP26 and attracted over 1.25 million participants worldwide.

Based on the experiences of the Climate x Summit in 2021, GAUC proposed to the UN Framework Convention on Climate Change (UNFCCC) to launch the Global Youth Climate Week (the Week). Scheduled ahead of each COP, the Week is going to help youth to generate more concrete impacts on the progress of global climate governance by convening and coordinating their actions. Ms. Patricia Espinosa, the then Executive Secretariat of UNFCCC appraised that the proposal would provide an impactful contribution to the UNFCCC process by mobilizing and institutionalizing the efforts being made by global youth in the response to climate change.



Dr. Wang Binbin, the Executive Secretary General of GAUC, extended GAUC's invitation to global organizations and institutions that care about the sustainable development of humanity's future to co-initiate the Week this October jointly.

Tsinghua hosts 2022 Carbon Neutrality Economic Forum



The 2022 Tsinghua University Carbon Neutrality Economic Forum met to establish and improve green and low-carbon circular economic development and promote a comprehensive green transformation of economic and social development in Beijing on August 27. This year's theme was "Innovation Drives Development, Technology Leads the Future". Renowned experts and scholars from government departments, social organizations, energy companies, and domestic and foreign "dual carbon" sectors gathered to discuss carbon and emission reduction and to explore the future of the green economy.

and implement the requirements of the Five-sphere Integrated Plan into the university's operations. He said the University will start from the three dimensions of time, space, and life to educate and guide students and enhance their sense of community for the Chinese nation, of the community with a shared future for mankind, and of the relationship between mankind and nature. He said Tsinghua will further promote exchanges and cooperation among educational, academic and industrial sectors, and strive to make greater contributions to serving the national "dual carbon" strategy.



Wang Xiqin, president of Tsinghua University, said in his opening speech at the forum that green development is a strategic path for ecological civilization, an important proposition to achieve "peak carbon and carbon neutrality", and a broad and profound systemic socio-economic change that requires society's joint efforts. Tsinghua University and Sinopec Group convened the Carbon Neutrality Economic Forum to gather wisdom and strength; realize "dual carbon" goals; and promote the coexistence of humankind and nature. Facing the future, Tsinghua University will combine the forces of scientific and technological development with resources for cultivating talent and innovation,



Li Yizhong, former minister of the Ministry of Industry and Information Technology (MIIT) and president of the China Federation of Industrial Economics (CFIE), said in his keynote speech that accelerating the construction of a clean, low-carbon, safe, and efficient energy system is the key to achieving dual carbon goals and necessary to optimize energy structure and ensure a smooth transition. It is the responsibility of every industry to achieve the dual carbon goals, he said, and necessary to sort out the carbon emission distribution of key industries, discover carbon footprints, and establish a standard accounting and testing system for carbon emissions. Food, clothing,

housing, and transportation also have carbon footprints, so consumers must also shoulder the responsibility of reducing emissions and prioritize conservation, he said. Lastly, it is necessary to coordinate policy measures, strengthen scientific and technological breakthroughs, and achieve control of the intensity and total amount of carbon emissions. A sound carbon trading market should be established and a carbon tax should be introduced, he said. China should make more technical breakthroughs, promote the industrial application of technological achievements, and provide solid scientific and technological support for carbon reduction and zero carbon.



Zhao Dong, director, general manager, and deputy secretary of Party Leadership Group at Sinopec Group, said in his keynote speech that profound changes in the international political and economic structure and global energy supply system are presenting new challenges for China's energy security and adding pressure to green and low-carbon development. As a pillar industry of the national economy, the petroleum and petrochemical industry will accelerate the development of green oil and gas fields, green refining and chemical industries, green storage and transportation systems, and green circular systems, and move towards green and low-carbon development. He said Sinopec pays close attention to the global energy transition trends under its "dual carbon" goals. In the future, it will comprehensively promote clean fossil energy, large-scale clean energy, and a low-carbon production process to reduce and eliminate total carbon emissions, enhance green energy supply, optimize corporate energy structure, make green and low-carbon technology breakthroughs, participate in building the national carbon market, and strive for net zero emissions.



Li Shousheng, chairman of China Petroleum and Chemical Industry Federation (CPCIF), said the petrochemical industry will play a dual role as traditional energy supplier and future energy pioneer. The "dual carbon" goal will bring great challenges to the petrochemical industry, and will help China's chemical industry to reach a higher level of supply and demand balance, promote technological innovation, and facilitate cohesive development of the petrochemical industry and various other industries.



Li Chuangjun, director of the New Energy and Renewable Energy Sources Department of the National Energy Administration (NEA), said the move to green and low-carbon energy is a global consensus, and renewable energy is an important pillar for China to reduce emissions without reducing productivity. He introduced the development mode of China's renewable energy, the classification and regional layout of demonstration projects during the 14th Five-Year Plan period, and relevant policy support.



Bai Chong-En, dean of the School of Economics and Management, Tsinghua University (Tsinghua SEM) and Mansfield Freeman Chair Professor, presided over the opening ceremony of the forum and delivered a keynote speech. He suggested establishing a comprehensive, effective, fair and long-term predictable carbon price system; using a systematic price mechanism to facilitate resource allocation across time and domains; and better dealing with foreign carbon tax systems to promote the realization of dual carbon goals.

The event also featured three sub-forums under the themes of "carbon neutrality and energy transformation", "carbon neutrality and technological innovation", and "carbon neutrality and new economy", hosted by associate deans Xu Xin, Li Jizhen, and deputy dean He Ping of Tsinghua SEM. The guests conducted in-depth discussions and enthusiastic exchanges on topics such as carbon neutral development, future energy transformation, technology-driven carbon neutrality, and the development of new economic forms under carbon neutrality. Renowned scholars, experts and entrepreneurs spoke and participated in dialogues.



The forum was convened by Tsinghua University and Sinopec Group, co-organized by Tsinghua SEM, ICON, and China Economic Publishing House, and hosted by the Executive Education Center of Tsinghua SEM. The forum also featured a launch announcement for "Dialogue with Eco-Explorer."

The "Eco-Explorer" program was initiated by Tsinghua SEM in 2021. Its first phase brought together 50 renowned entrepreneurs and investors in the domestic "dual carbon" field. Through learning and exchange, they conducted joint research with first-class disciplines at Tsinghua University, developed a platform for integrating enterprise-university-research institute, and jointly contributed solutions, wisdom and strength to China's dual carbon goals.

Yang Bin meets UNDP resident representative in China

Yang Bin, Vice President and Provost of Tsinghua University, met with Beate Trankmann, UNDP resident representative in China, to seek cooperation in sustainable development, on Sept 20.



In his speech, Yang introduced Tsinghua's efforts to realize the UN's Sustainable Development Goals (SDGs), including the launch of the university's SDGs Report, the setting up of the Institute for Carbon Neutrality, and the organizing of an expert team on science and technology ethics education.

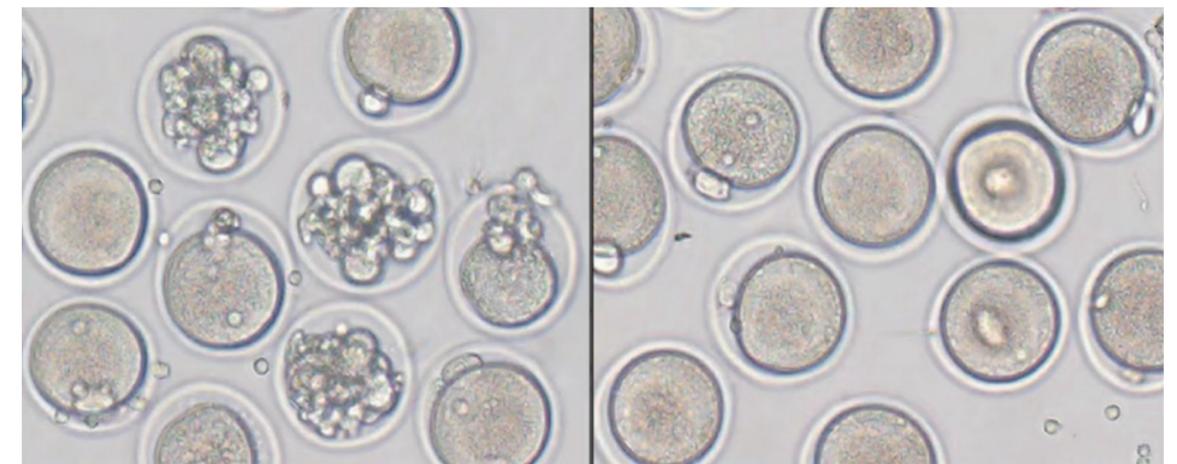
Trankmann acknowledged that UNDP and Tsinghua have a sound history in youth talent training, artificial intelligence cooperation and governance, and expects to collaborate more closely in the future.

Staff from the UNDP and Tsinghua's Office of International Affairs observed the meeting.

SCIENTIFIC INNOVATION



Antibodies show potential to boost fertility for women with ovarian failure



Mouse models show that an antibody therapy could normalise reproductive performance.

A Tsinghua University team led by Professor Bai Lu has recently shown that administering an antibody called Ab4B19 promotes the development of ovaries and enhances fertility in mouse models with a condition called premature ovarian failure.

Premature ovarian failure is a leading cause of infertility, affecting 1–5% of women aged under the age of 40, explains Lu. The disease occurs when the ovaries aren't producing typical amounts of the hormone estrogen, or releasing eggs regularly. However, the mechanisms underlying the condition remain poorly understood, and there is no effective treatment.

Remarkably, treatment with the Ab4B19 antibody, which is also known to stimulate neuronal growth, completely reversed deficits in ovarian follicles, which are small sacs in the ovaries that release eggs and hormones. The treatment also normalized ovarian hormones and restored the number and quality of immature eggs in the mouse models¹.

Here we see mouse cells, known as oocytes, that develop into eggs within mammalian ovaries. The black arrows point to abnormal oocytes from a

cyclophosphamide-induced-premature ovarian failure model group (left), while oocytes from a cyclophosphamide-induced-premature ovarian failure group treated with Ab4B19 antibodies appear relatively normal. The scale bar is 150 μm.

In the study, Ab4B19 was shown to penetrate ovarian follicles via the bloodstream and activate a key receptor on brain-derived neurotrophic factor (BDNF) proteins, says Lu. The receptor, tropomyosin receptor kinase B (TrkB), regulates hormones during follicular development, among other things.

More targeted treatment

Lu's keen interest in targeting BDNFs dates back to 2013, when he reviewed the possibilities for using BDNF-like molecules to treat neurodegenerative diseases², which is his speciality area. BDNF is critical for neuronal growth and synaptic repair, explains Lu, a professor at the Tsinghua University School of Pharmaceutical Sciences. BDNFs have also been linked to premature ovarian failure in genetic association studies.

However, the protein itself cannot be used as a drug for several reasons. "One is that BDNFs are difficult



proportion of females that delivered offspring was up 38.7% for the antibody-treated group.

Professor Bai Lu is from the Tsinghua University School of Pharmaceutical Sciences.

Wider fertility potential?

The TrkB receptor had never been considered as a drug target for the treatment of premature ovarian failure before, says Lu. But single-cell transcriptome analysis suggests that Ab4B19 may elicit similar effects to the mouse models in human cells.

Lu's group has also confirmed that the antibody activates TrkB signalling in human cell cultures of human ovary tissue. The next step for the team is clinical trials to look at the response and for any side effects in humans who are experiencing premature ovarian failure.

The researchers also hope their treatment could one day help boost fertility in women. The group noted in their study that BDNF expression is down-regulated in follicles of older women.

"Given the data so far, we believe that an Ab4B19 treatment could contribute to improving fertility in premature ovarian failure patients, as well as increasing the reproductive capacity of pets, endangered species, and agricultural animals," Lu says.

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to diffuse in tissues," Lu says. Because of this, they remain at injection sites without penetrating deeply. Another reason is that the protein is easily degraded by enzymes in the body and so its half-life in the blood stream is less than two hours.

In addition, high local concentrations of BDNF may activate their other main receptor, called p75NTR, Lu explains. This receptor is prominently expressed in dying neurons linked to muscle movement (motoneurons), and its activation may have detrimental effects on ovarian follicles.

In 2019, Lu's team published a paper outlining a strategy for using TrkB agonistic antibody Ab4B19 to activate BDNFs to treat motoneuron degeneration³. Using both cultures and mouse models, this study showed that administering the antibody didn't activate p75NTR and it enhanced motoneuron survival.

In the premature ovarian failure study, Ab4B19 was also specifically activating TrkB, but not p75NTR, says Lu. And unlike BDNFs, the antibody exhibits a half-life of at least two weeks and diffuses readily in tissues.

Reversing damaging conditions

In the 2022 study, premature ovarian failure mouse models were injected with the antibody via their tail veins. After 16 days, this was shown to reverse the symptoms of the condition by normalising hormonal changes that injure the ovaries, preserving egg development and restoring the number and quality of immature eggs.

For example, in one of the mouse models, the antibody treatment corrected the disrupted cycle of ovulation. For both models, it reversed abnormalities in the level of the hormone estradiol. Both sets of mice showed improvements in shape and number of follicles. In addition, for one mouse model group, the

China's first home-grown COVID-19 antibody drug enters market

China's first home-grown COVID-19 antibody drug, which showed an efficacy of 80% in reducing hospitalizations and deaths in clinical trials, has entered the commercial market, its developer announced recently.

The antibody cocktail therapy, made of two monoclonal antibodies Bii-196 and Bii-198, is administered intravenously.

It was jointly developed by a research team from the country's prestigious Tsinghua University, the Third People's Hospital of Shenzhen in south China, and Bii Biosciences, the Hong Kong-listed biotech company.

Last December, the drug was approved by China's National Medical Products Administration (NMPA) to treat adult and some child patients who are at high risk of developing severe COVID-19.

In March, it was included in the country's COVID-19 diagnosis and treatment guidelines as a recommended therapy.



It has been reportedly added to the reimbursement drug list covered by health insurance in many provinces in China.



The transcriptional regulatory function of HMCES in mouse embryonic stem cells revealed by Q. Xi-lab from Tsinghua University

Despite the fundamental roles of TGF-β family signaling in cell fate determination in all metazoans, the mechanism by which these signals are spatially and temporally interpreted remains elusive. The cell context-dependent function of TGF-β signaling largely relies on transcriptional regulation by SMAD proteins.

On July 12, 2022, Qiaoran Xi's research group from Tsinghua University published an article in Cell Reports entitled as "HMCES modulates the transcriptional regulation of nodal/activin and BMP signaling in mESCs". In this study, they discovered that the DNA repair-related protein, HMCES, contributes to early development by maintaining nodal/activin- or BMP signaling-regulated transcriptional network. HMCES binds with R-SMAD proteins, co-localizing at active histone marks. However, HMCES chromatin occupancy is independent on nodal/activin or BMP signaling. Mechanistically, HMCES competitively binds

chromatin to limit binding by R-SMAD proteins, thereby forcing their dissociation and resulting in repression of their regulatory effects. In *Xenopus laevis* embryos, *hmc*es KD causes dramatic development defects with abnormal left-right axis asymmetry along with increasing expression of *lefty1*. These findings reveal HMCES transcriptional regulatory function in the context of TGF-β family signaling.

Associate Professor Qiaoran Xi from the School of Life Sciences, Tsinghua University, is the corresponding author of this article. Tao Liang and Jianbo Bai are the co-first authors. Post-doc Xuechen Zhu, Dr. Hao Lin from Professor Qinghua Tao's lab contributed to the *Xenopus* experiments. Wei Zhou carried out the bioinformatic analysis, Shixin Ma contributed to a part of in vitro interaction experiment; they are from Qiaoran Xi's group. This work was supported by an NSFC grant, a MSTC grant and the CLS program.

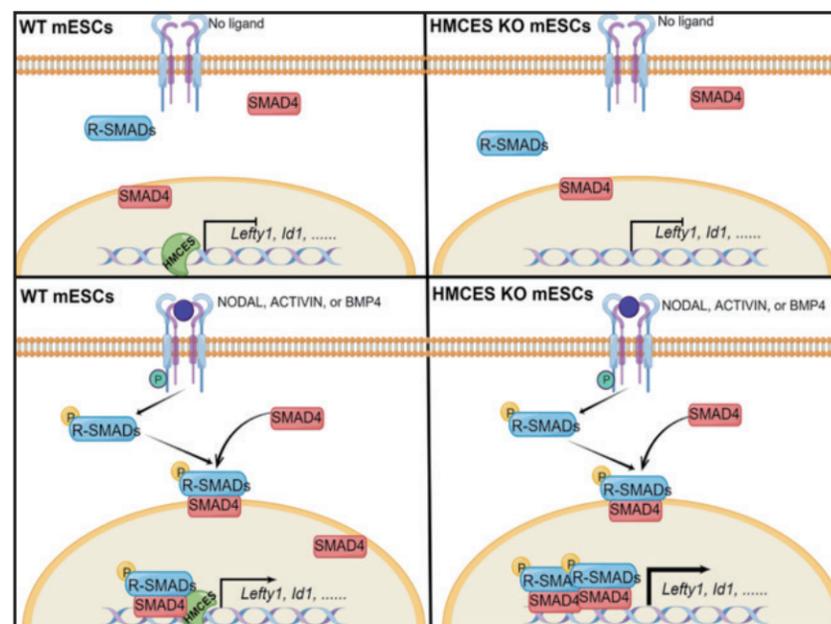


Figure 1: HMCES modulates the transcriptional regulation of nodal/activin and BMP signaling in mESCs.

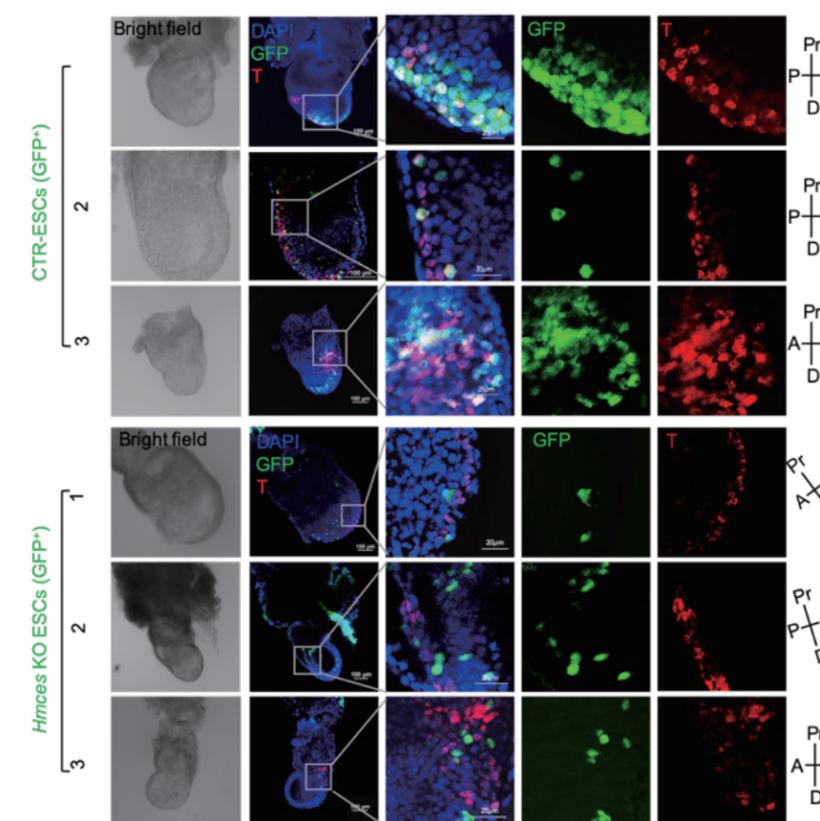


Figure 2: Deletion of HMCES impairs the differentiation potential of mESCs.

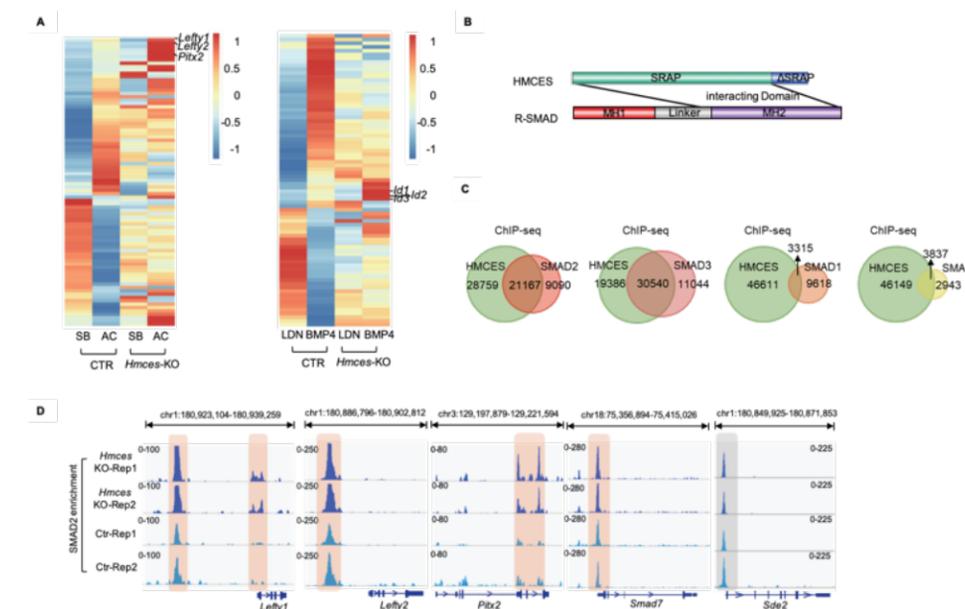


Figure 3: A, Depletion of HMCES alters TGF-β family regulated transcriptome; B, HMCES interacts with SMAD; C, HMCES colocalizes with SMAD at chromatin in mESCs; D, HMCES regulates transcription through counteracting SMAD TFs association on chromatin.

Tsinghua professors win computer federation award



On Aug 6, China Computer Federation (CCF) announced the "CCF 60th Anniversary Outstanding Contribution Award" on the celebration of its 60th anniversary.

Six professors from the Department of Computer Science and Technology of Tsinghua University won the individual awards for their contributions to the development of the CCF. They are academician Zheng Weimin, professors Shi Chunyi, Wu Wenhui, Zhong Yuzhuo, and Hu Shimin, and associate professor Wang Hong.

At the same time, Tsinghua University was presented the Unit Award of Outstanding Contribution Award, as many experts have been involved in the governance of CCF for a long time and held important positions.

The "CCF 60th Anniversary Outstanding Contribution Award" recognizes individuals and units who made outstanding contributions to the CCF at all levels and important projects during the founding and development of CCF.

A total of 60 individuals and 11 units were selected and honored.

Professor Sun Hongbin wins FEIAP Engineer of the Year 2022



The 30th General Assembly of the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) announced the Engineer of the Year 2022 in the Philippines on July 29.

Recommended by the China Association for Science and Technology (CAST), Sun Hongbin, a Professor of Tsinghua University, won the FEIAP Engineer of the Year 2022 award.

He is the second Chinese engineer who has won the award since CAST became a full member of the FEIAP.

Sun, also Vice-President of the Taiyuan University of Technology (in charge of administrative work) and Deputy Chairman of Energy Committee of the World Federation of Engineering Organizations (WFEO), has long been dedicated to the research and teaching of power system dispatching and control, and smart grid and energy internet technology, with a particular focus on energy management systems, automatic voltage control and integrated energy systems.

In the past 25 years, he led the team at Tsinghua



University that developed the first commercial AVC system in the world, which has been widely applied and recognized as a milestone breakthrough in global smart grid development. In China, 81% generation capacity of Fossil-fired/Hydro power plants and 56% generation capacity of Wind/PV farms have been close-looped controlled successfully by the innovative AVC, which made the operation of China's power grid (the biggest power grid in the world) more reliable, more low-carbon, and more cost-effective. The innovative AVC has also been implemented in the control center of PJM interconnection, the largest regional power grid in USA. Thanks to his seminal contributions, AVC has become one of the fundamental wide-area control systems for power grids around the world.

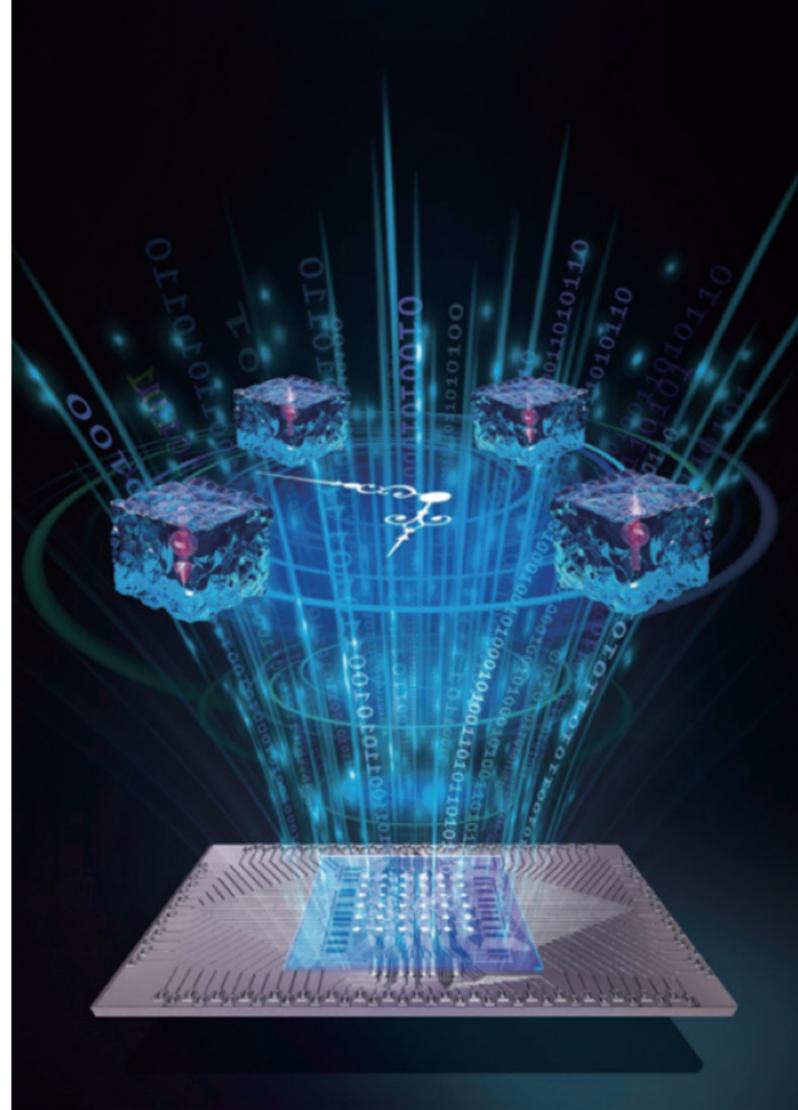
Additionally, Sun authored the book *Internet Energy*, founded the IEEE Conference on Energy Internet and Energy System Integration, initiated the IEEE PES energy internet coordination committee and served as its first chairman, as well as having acted as the Deputy Chairman of Energy Committee of the WFEO, making great contributions to the development of energy internet both at home and abroad.

The winning of this prize has increased the international influence of China's engineering sector.

The FEIAP is a regional international organization and was founded in 1978 with the support of UNESCO and other international organizations.

The FEIAP aims to promote the technological cooperation and communication of information between members, encourage the mutual recognition of membership for engineers from different countries in the region, support engineering related meetings and strengthen communication and cooperation between international, regional, governmental and non-governmental organizations.

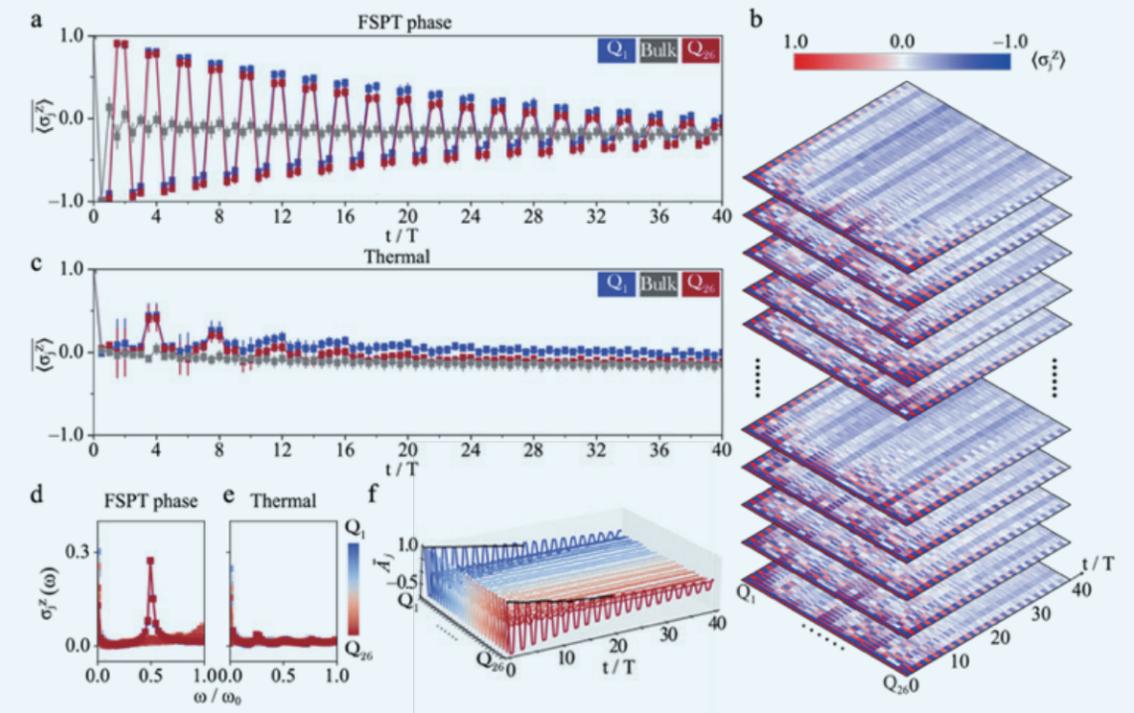
The FEIAP established the award of Engineer of the Year to encourage engineers to make bigger contributions to the engineering field in the Asia-Pacific region.



Advance in realizing time crystals with a programmable quantum processor

Prof. Dongling Deng's team at Tsinghua University, in collaboration with researchers from Zhejiang University and others, has experimentally observed signatures of non-equilibrium Floquet symmetry-protected topological (SPT) phases with a programmable superconducting quantum processor for the first time, according to a paper recently published in the scientific journal *Nature*.

Quantum many-body systems away from equilibrium host a rich variety of exotic phenomena, and many of them are forbidden by equilibrium thermodynamics. One of those paradigmatic examples is the discrete



time crystals, where time-translational symmetry is spontaneously broken in periodically driven systems. Signatures of discrete time crystals have been reported in various experiment platforms including trapped ions, solid-state spin systems, ultracold atoms and superconducting processors.

In contrast to previously reported conventional time crystals, Tsinghua scientists and their collaborators have reported the observation of a distinct type of non-equilibrium state of matter, Floquet SPT phases, which are implemented through digital quantum simulation using an array of programmable superconducting qubits. They observed robust long-lived temporal correlations and subharmonic temporal response only at the boundaries and not in the bulk over up to 40 driving cycles, and exhibited that the subharmonic response of boundary observables is independent of the initial state. In addition, they experimentally demonstrated that the Floquet SPT phases are robust to small symmetry-respecting perturbations, and mapped out a phase boundary between the Floquet SPT phase and the thermal phase.

The interplay between topology and discrete time crystals gives rise to the new non-equilibrium phase

of matter—topological time crystal, which enriches the types of discrete time crystals and expands our understanding of the quantum world. The digital quantum simulation approach explored in this experiment is generally applicable to the simulation of a wide range of non-equilibrium systems.

The corresponding authors of the paper are IIS Assistant Professor Dongling Deng and Research Professor Zhen Wang from Zhejiang University. Co-first authors are PhD students Wenjie Jiang from IIS, Xu Zhang and Jinfeng Deng from Zhejiang University. Other authors include researchers from the group of superconducting quantum computation at Zhejiang University, Prof. Alexey V. Gorshkov from University of Maryland, Dr. Fangli Liu from QuEra, Prof. Thomas Ladecola from Iowa State University and Prof. Zhexuan Gong from Colorado School of Mines. This work was partially supported by the National Natural Science Foundation of China, the National Basic Research Programme of China, Tsinghua University Start-up Fund and the Shanghai Qi Zhi Institute.

Link to the paper: <https://www.nature.com/articles/s41586-022-04854-3>

TSINGHUA COMMUNITY



Gary Wong: Telling China's stories to the world

Editor's Note

He was raised in a grassroots family in Tuen Mun in the New Territories in Hong Kong, China. He has an undying Hong Kong spirit in his heart and a lifelong ambition to serve the community. He holds a Bachelor of Arts from the University of Hong Kong, a Bachelor of Laws from the University of London, and a Master of Studies in Diplomatic Studies from Oxford University. He was named Tsinghua University Student of the Year for 2021. He is a Ph.D. student in sociology at Tsinghua University - Gary Wong Chi-him. This year marks the 25th anniversary of Hong Kong's return to the motherland. Let's read Gary Wong's story.



Gary is outspoken in defending national interests on international platforms and actively uses his voice to tell China's stories to the world.

In the article "What is the real purpose of the U.S. tracing the origin coronavirus" published by the South China Morning Post in August 2021, Gary firmly defended our national interests and spoke against the United States. The article was republished by the Office of the Commissioner of the Chinese Ministry of Foreign Affairs in Hong Kong and many mainland media.

In July 2021, Gary wrote an article titled "Remembering the Beginning - Leading Hong Kong to Prosperity through Governance". In particular, Gary shared his views on nurturing the next successors to "one country, two systems" to pave the way for the future development of Hong Kong.



Representing the United Nations Association of China at the 46th Meeting of the United Nations Human Rights Council in Geneva, Gary spoke about the human rights situation in Hong Kong after the implementation of the Hong Kong National Security Law. He revealed the truth about the situation in Hong Kong and showed his commitment to the country and Hong Kong courageously, rebutting the malicious criticisms of Western countries.

Since August 2021, Gary has been publishing English commentaries for China Daily and serving as an English commentator for various media platforms, spreading the stories of China, promoting "one country, two systems" and influencing the world from the perspective of the new generation in Hong Kong.



Back in 2012, when Gary was only 30 years old, he founded the "InspiringHK Sports Foundation", taking his first step to serve the youth and give back to the community. The vision of the Foundation is to create youth through sports.

By 2021, the Foundation has raised tens of millions of Hong Kong dollars and provided learning and training opportunities in more than 30 sports for over 10,000 youngsters from the grassroots. His actions have helped create social mobility, promoted gender equality, social inclusion and healthy living, and attracted support from the HKSAR Government, schools and NGOs. The Foundation has become a young, positive and influential force for philanthropy and social innovation in Hong Kong.



Gary holds numerous positions on various governmental boards and committees in Beijing in order to actively promote the exchange between the Chinese mainland and Hong Kong.

In Hong Kong, Gary holds five public offices in the HKSAR Government, most of which are related to children and youth. He has also been appointed by the Chief Executive of HKSAR, Mrs. Carrie Lam, as a non-official member of the Children's Commission and a member of the Equal Opportunities Commission, respectively.

In November 2021, Gary participated in the Hong Kong Legislative Council election, running for the Election Committee Constituency. "After improving the electoral system and implementing patriots' rule, I hope to contribute more to the governance of Hong Kong."

Yue Siyu: Carving out a career path to tackle climate change

Editor's Note

Tsinghua University plays an active role in promoting the 17 UN Sustainable Development Goals (SDGs) by nurturing innovative talents, enhancing research, among many other important ways. Yue Siyu, who delivered a graduation speech as one of student representatives at the Class of 2022 commencement ceremony, was a doctoral student in the Department of Earth System Science. She will be joining the National Climate Center, where she will help with the modeling of the national climate change strategic plan and offer technical support to China's international climate negotiations.

As a girl who grew up in a coastal area, she had rarely climbed mountains. But that changed in 2018 when she started pursuing her doctoral studies focusing on climate modeling in the Himalayas.

In the last five years, Yue Siyu not only climbed mountains but also did significant research on the impact of climate change in the Himalayas and the Qinghai-Tibet Plateau. She participated in the Second Tibetan Plateau Scientific Expedition and Research Program twice in 2018 and 2019 and has published five Science Citation Index (SCI) papers.



Yue Siyu on Qinghai-Tibet Plateau

This June, Yue Siyu graduated with the Class of 2022. With a doctoral degree in hand, she is joining the National Climate Center, where she will continue her research on climate change.

Pursuing scientific research with rigor

As a doctoral student, Yue Siyu pursued her passion for scientific research rigorously. In 2019, her research encountered a bottleneck. She had been working on a model to predict the characteristics of climate change in the southern Qinghai-Tibet Plateau through global large-scale climate factors. However, due to the complicated influence process, she couldn't deduce the reasonable and strong relationship based on the existing technology and theories.

Hoping to overcome the problem, Yue Siyu visited the International Pacific Research Center in Hawaii, USA, in February 2020. There, she carried out her work under the guidance of Professor Bin Wang of the University of Hawaii, the winner of the Carl-Gustaf Rossby Research Medal in climatology.

From the roof of the world to the tropical island, Yue Siyu was driven by her desire to search for solutions to climate change, which has accelerated the melting of snow in the Himalayas and caused sea levels to rise. Her doctoral thesis centers on the very impact of climate change.



Yue Siyu (right) and her friend

Helping others thrive

Besides being a highly-motivated researcher, Yue Siyu was also a responsible student counselor.

During her overseas study in 2020, the students she tutored were going to graduate. Despite a six-hour time difference, she helped them go through all the formalities online. When they graduated, the whole class sent her handwritten greeting cards and gifts to express gratitude.

"My principle is to perform real services, and any work is truly valuable only if it also helps others," she said.

She credits her adviser Yang Kun for encouraging her to engage in various activities outside her academic studies and act for the common good of all.



Professor Yang Kun and his students

The journey ahead

At the National Climate Center, she intends to work with the same dedication and spirit she pursued her research at Tsinghua. She will help with the modeling of the national climate change strategic plan and offer technical support to China's international climate negotiations.

"I have always been interested in exploring the intersections of ecology, science, and technology. I am excited about the journey ahead," she said. "It may be a bit cliché to say, but it's worthwhile to serve the national strategy and closely align my fate with the motherland and work to build a community with a shared future for mankind."



Yue Siyu (second from the right) with her friends



Tsinghua University wins 24th Women's CUBA

Editor's Note

Last week, Tsinghua University won the 24th Women's CUBA China University Basketball Division with 7 wins and 0 losses!

This is the 3rd time that Tsinghua has won the championship.

Song Kexin, the captain of Tsinghua women's basketball team, was named MVP of the season. Tsinghua women's basketball coach Yang Banban was named the best coach in CUBA.

Today, let's read Song Kexin's story at Tsinghua, who has made remarkable achievements as a player of the school's basketball team.

Song Kexin

Song Kexin entered Tsinghua in 2017 and has acquired many championship titles since then, including CUBA (Chinese University Basketball Association) and the Chinese National Games.

Faced with such brilliant achievements, Song is still very modest. She never regarded herself as a talented player.

"Basketball is a sport for giants. I'm not tall enough, so I have to train harder to improve my techniques," said Song.

Her favorite player is Stephen Curry, an American NBA basketball player with a height of 1.88m, not very tall for male basketball players. "I like him just because even

though he doesn't have outstanding body conditions, he's able to get his own foothold in the NBA, create his own technical features, and make them popular among basketball lovers all over the world."

She started to undertake professional basketball training when she was in year six in elementary school. Since then, she started her journey as a young basketball player. From Xi'an to Tsinghua, from an ordinary sports lover to a member of the Chinese women's basketball training team for the Olympics, Song is firmly walking on the path of pursuing her dream.

Song has been admitted to the School of Social Sciences, and she will start her postgraduate studies this autumn. A brand-new studying experience is awaiting her, and she has a clear plan for her future.

"Of course, my future career will be closely related to basketball. Sports management might be one of my future directions, and I'm also quite interested in teaching basketball as a professional coach."



Mei Ciqi: Unlocking students' potential is the duty of teachers

Editor's Note

Mei Ciqi, Associate Professor at the School of Public Policy and Management of Tsinghua University and Dean of Xinya College, has made himself known to a much wider public through his several thought-provoking lectures, such as "Three functions of failure in college life" at the opening ceremony, "Imperfect public administration" during the pandemic. Let's read Mei's story to learn more about his passion for teaching and how he employs innovative teaching techniques to unlock students' full potential.



Pursuit of quality education

The foundation of good education lies in teaching, and the foundation of good teaching lies in teachers. Mei always keeps that in mind and pursues it with determination.

Classroom education is the main channel to talent cultivation. As an educator, Mei has constantly been innovating pedagogical methodology, devoting himself to providing quality education.

In Mei's view, the pursuit of quality education never ends. "I try to build self-consistent systems for each course. Before class, I will spend long time analyzing the logic of my class so that I can enter the flow state in advance. After class, I will also collect feedback from my students for further modification and improvement," says Mei.

Every time his course ends, Mei's students are often left with the feeling of wanting to hear more from him.

The course "Basics of Political Science" taught by Mei Ciqi was recently selected as one of the fourth batches of "exemplar courses" at Tsinghua University. This course is organized around the core theories of political science, and answers how public power

arises, how it is organized, how it is managed, and how it is restricted from the perspectives of political philosophy and science.

In Mei's classes, knowledge teaching and knowledge application are intertwined. To let students comprehend and apply knowledge better, he often encourages them to simulate realistic political scenes through role-playing. By turning the latticed bed into a secret polling site and using the empty milk crate as a ballot box for election, Mei reuses waste materials and tries to create a "genuine" election site for students, enabling them to consider political issues more clearly and carefully. Such a curriculum not only raises students' enthusiasm, but also helps them to acquire and apply what they have learned.

His students said that through the simulation, they gradually learned to think independently and apply their knowledge to find solutions to practical problems.

"Education itself is a constructive process," Mei said. "Teachers should plant the seeds of truth, kindness and beauty in students' minds and guide them to buckle their first buttons in life."

Searching solutions to real problems

Mei is an expert in central government-local government relations in China. "China today is a target for study that many researchers dreamed about," he said. "It's developing rapidly and constantly being challenged. These types of research opportunities are very rare."

China's institutional resilience and governance capacity in the fight against COVID-19 have provided vivid cases for researchers, presenting new theoretical issues and challenges. In Mei's article entitled "Policy style, consistency and the effectiveness of the policy mix in China's fight against COVID-19", he offers a unique explanation for China's performance during the pandemic: "A policy mix comprised traditional measures, i.e. strict community lockdown, cross-jurisdictional mobilization of resources and officials' sanction contributed to the eventual effectiveness of China's response to the pandemic." This paper was included in the latest edition of ESI Highly Cited Papers.

As an associate editor and editorial director of China Public Administration Review, Mei looks forward to seeing more young scholars devoting themselves to the study of China's real issues. Since 2021, the China Public Administration Review has launched the "One Hour for a Youth Talent•Four Seasons" workshop to promote the growth of young scholars.



Telling China's stories

When Mei was the director of the Center of Writing and Communication of Tsinghua University, Mei led more than 20 young teachers to design the course "Writing and Communication".

"China itself is wonderful and needs to be spoken out," says he.



From "Made in China," "Cultural Heritage" to "History and Future of Artificial Intelligence," "Chernobyl," "China under the Epidemic," and "Education and Elites," Mei and his team guided students to care about practical issues and explore China stories. This course is more than writing, it is also about the way of thinking.

"It not only opens up a new field for students, but also helps them to think logically about what they want to explore," Mei says.

Monitoring carbon emissions to achieve net-zero future



Deng Zhu, as the Best Paper Award winner, addressed the Award Ceremony of the Global Youth Summit on Net-Zero Future

Deng Zhu, a current Ph.D. graduate at Tsinghua University's Department of Earth System Science, has been working on tracking the dynamics and patterns of global CO2 emissions from human activities.

Deng has authored around 20 academic publications, including some in high profile journals like Nature Communications and Nature Geoscience.

The international research team he participated in, called the Carbon Monitor, has been trying to estimate the global anthropogenic CO2 emissions at a daily interval in near-real-time. By monitoring the latest changes in CO2 emissions, the gap between current efforts and the need to achieve climate targets can be continuously updated. Until not long ago, the estimation of CO2 emission was based on an annual basis and had a time lag of more than one year. As climate change worsens, it has become vital to have timely data, based on which an effective and timely response could be put into effect to address the problems arising from climate change. And this is where his research project comes in.

Deng and his Carbon Monitor team use a combination of high-frequency statistics, geolocation data, satellite imagery, and advanced algorithms, to track daily activity levels and emissions in major sectors, such as power, industry, and transportation. They have taken

the lead in near-real-time CO2 emission monitoring, providing data to GCP, WMO, UNEP, and other research institutions.



Deng Zhu presented his Carbon Monitor research on the 2021 Sino-American Youth Dialogue

Deng was a student of remote sensing and geographic information science during his undergraduate studies. Then he joined Tsinghua six years ago for a master's degree, majoring in earth system science.

Although interdisciplinary studies are complex, Deng says such studies have broader implications. As an interdisciplinary subject, earth science links marine, land, gases, geography, and everything about the globe.



Deng Zhu and his team won the golden award on the 10th Tsinghua University Innovation Contest

Currently, he and his colleagues are working on using satellite data to study trends in carbon emissions, hoping to find possible applications for verifying their current estimations. At the same time, he hopes everyone can play their part in combating climate change as small actions can make a big difference.

"Paying attention to greenhouse gas emissions is more than necessary. Efforts like choosing greens, planting more trees, reducing the use of air conditioners, and adopting more ecologically friendly transportation means will help us and, more importantly, our decedents too," he adds.

He acknowledges that it took a while for him to realize the gravity of climate change. "Upon coming to Tsinghua, as I started to systematically study the implications of climate change, I realized how serious and complex the problem was," says he. That very realization was what motivated him to design his major on the carbon emissions monitoring research.

"For the climate issues, scientists seem to be one of the most important forces, but it doesn't mean others have no role," he says. "We need everyone's acknowledgment and determination to solve this problem altogether."



Deng Zhu participates in an investigation in Indonesia

Promoting sign language, connecting with deaf community

Editor's Note

Since 2018, the United Nations has declared September 23 as the International Day of Sign Language to raise awareness of the importance of sign language.

At Tsinghua, there is a group of students who are deeply attached to sign language. On this special day, let's read the story of the Sign Language Association!



清华大学学生手语社
Sign Language Association

"We have activities every week," said the president Gao Yian from the Department of precision instrument, "the association has sign language classes for school every week, teaching basic sign language grammar and simple words. The teachers are all club members who have received systematic training. Sometimes we also invite deaf people or teachers from special schools to have lectures."



The club also has some public service activities. Once they tried to teach deaf students in high school physics and math, and they also organized and invited deaf friends to participate in various public welfare activities and gatherings.

Participating for not only compassion, but also understanding

The Sign Language Association participates in sign language promotion and social services in many ways.



When talking about deaf people, the former club president Chen Nina not only shows the compassion that normal people have, but also emphasizes a kind of real understanding. "Actually, deaf people just want more opportunities to communicate with us. What we want to do more is to promote sign language culture, so that more college students can use sign language to communicate with their deaf friends."

Warm and harmonious, always striving for a joint passion

The association members are all passionate about sign language. One of the senior members Zhang Yunyi from the Department of civil engineering, who joined the club ten years ago, is still involved in club activities and doing research on sign languages.

The atmosphere in the association is warm and harmonious. The members share the same goal, and the club is developing by inheritance and sharing: the senior members teach the newcomers sign language, and train them to be teachers.

Today, the association continues its daily teaching activities, practicing songs and uploading them to Bilibili, which receives much highly admiration. In the future, the club will carry on to promote sign language and offer help within its power so that we can create a more inclusive language environment.

Learning sign language is perhaps just mastering a particular language technique. But learning to use the heart to help people in need is what one can learn by being part of this organization.



DIVERSE CAMPUS

From Shenzhen and the Greater Bay Area to the World

Tsinghua Shenzhen International Graduate School (Tsinghua SIGS) was born from the expansion and integration of the Graduate School at Shenzhen, Tsinghua University and the Tsinghua-Berkeley Shenzhen Institute. It aims to build an international, borderless, and entrepreneurial graduate school focusing on research in the following 6+1 theme areas: Materials Science, Data Science & Information Technology, Biopharmaceutical & Health Engineering, Ocean Engineering, Future Human Habitats, Environment & Ecology, and Innovation Management. In addition to boosting the development of Shenzhen, global development is also a vital part of SIGS's vision for a world-class graduate school.

In a complex and changing world, SIGS has been solidifying its cooperation with top-notch universities around the world, including UC Berkeley (U.S.A.) and the Technical University of Munich (Germany). It is expanding global collaboration with high-level institutions, promoting cooperation and exchanges with universities in the region via the Asian Universities Alliance (AUA), and exploring the possibility of collaborating with institutions from Africa and Latin America in all academic fields with the help of Tsinghua University, Shenzhen Foreign Affairs Office, and Chinese embassies and consulates abroad.



2022 TBSI Retreat



2nd Tsinghua SIGS-TUM Smart Materials Online Workshop



SIGS Institute of Biopharmaceutical and Health Engineering (iBHE) and professors from University of Tokyo meeting on joint PhD program

SIGS is dedicated to improving the global competence of its students. It has been actively launching joint programs with other world-renowned universities and building international research specialties and model courses. To build a diverse, multi-layer, and multi-channel overseas student exchange system, SIGS has been strengthening connections and collaboration with overseas universities, research institutes, and enterprises through exchange programs, short-term overseas study trips, summer schools, overseas internships, short-term group cultural exchanges, and internships and job opportunities in international organizations. It has also organized seminars on language, culture, and international affairs to enhance students' global vision.



"World Languages & Cultures Tour" Lecture Series



International students at the 2022 Dragon Boat Festival boat race



SIGS professor talking with local community members

Through cultural events and social activities, SIGS also helps international students learn about Chinese culture, the growth and development of Shenzhen, and the great changes China has been through since its Reform and Opening-up. SIGS has been actively promoting resource-sharing and integration among universities, communities, and enterprises, leveraging its unique advantages for student education, and working with the Shenzhen Municipal Government in various fields, including the development of the Shenzhen International Block Initiative.

The SIGS Phase I Construction Project features a shared space of around 1,300 m² for self-study, reading, exchange and discussion, item storage, and copy and printing as well as various shared spaces,

such as a kitchen, gym, activity center, common areas, and a dance room. These facilities provide professors and students with a multi-dimensional cultural and leisure services space, facilitating cross-cultural exchanges and integration.

The Campus Services Center and the International Students & Scholars Center are located next to each other to provide “one-stop” campus services for international students and faculty. They promote global campus through digital systems, which satisfy the requirements of mobile work and bilingualization, including in housing management. With this system, all students and faculty can look up housing information and pay fees conveniently.



The Campus Services Center and the International Students & Scholars Center



AUA Biodiversity Photography Exhibition at Shenzhen Central Book City

Bilingual signage, including road signs, maps and door signs will continue to be provided across the campus with unified VI design to elevate the international image of the campus and facilitate daily life on the campus for both Chinese and international students and faculty.

SIGS has also been expanding its global communication channels, constantly improving its English website and optimizing content for a better browsing experience. Campus news is frequently updated on its overseas social media accounts to strengthen connections with its students and faculty. Now, the formerly printed “SIGS Newsletter” has become “Tsinghua SIGS Weekly” (an e-newsletter) with optimized content in Chinese and English, bringing updates about the development of SIGS to those who care.

From January to April 2022, SIGS organized the AUA Biodiversity Photography Contest to promote cultural exchange among Asian universities, awarding 12 excellent work prizes after two rounds of selection. To further extend the influence of the contest, SIGS, AUA and the Shenzhen Foundation for International Exchange and Cooperation (SFIEC) co-hosted the AUA Biodiversity Photography Exhibition with 100 works on display, calling for public participation in biodiversity protection.

In September 2021, SIGS adopted a bilingual format for its administrative documents. This change aims to improve the efficiency of administrative procedures for international students and faculty and raise the standard of service of its administration team, with

the goal of better attracting and retaining international students and faculty.

SIGS also worked on building a high-level, international, efficient, and well-trained global affairs liaison team and improving its cross-cultural communication ability via regular professional training, work seminars, and cross-cultural events.

SIGS aims to become more international, open, inclusive, and resilient. At SIGS, the Tsinghua motto of “Self-discipline and Social Commitment” meets the innovative spirit of the Shenzhen Special Economic Zone. Echoing the development of the Greater Bay Area and the mission to build a world-class university and disciplines, SIGS will actively explore new ways of school operation via high-level international cooperation initiatives, high-level talent cultivation, and high-quality innovative practices to support national development and tackle global challenges with innovation and openness.



Global affairs liaison officer at a cross-cultural exchange event

Tsinghua undergraduates from the Department of Computer Science and Technology win major awards in NSCSCC



The award ceremony of the CPU design competition of the 6th "Loongson Cup" National Student Computer System Capability Challenge (NSCSCC) was held online on August 21. The competition attracted 146 teams from 54 universities nationwide.

Two teams from the Department of Computer Science and Technology of Tsinghua University entered into the finals of the competition. The team "ZenCove", composed of undergraduates Cui Yikai, Zhang Wei, and Wang Tuowei, took home the special prize of the finals, and the team "Vivado2019.3", composed of Ding Shaofeng, Tian Kaifu, Wen Bosi, and Xu Chenxi, claimed first prize. Three teachers, Chen Kang, Lu Youyou and Li Shanshan won the excellent instructor prizes.

The finals of the compiler design competition and the award ceremony of the operating system design competition of the NSCSCC were both held online on August 22.

The compiler design competition attracted 152 teams from 62 universities nationwide. Two teams from the Department of Computer Science and Technology entered into the finals. Among them, the team composed of undergraduates Jiao Jinghui, Wang Jiannan, Wang Ziyuan and Li Xinlong took home the competition's special prize, the team composed of Fan Ruwen, Zhang Qihao, Xu Wenbo and Hao Zixu won the first prize. Associate professor Chen Yu won the excellent instructor prize.

In the operating system design competition which contains two race tracks, 110 teams from 68 universities participated in the OS kernel implementation race track, and 242 teams from 76 universities signed up for the OS functional challenge race track nationwide.

Four teams from the Department of Computer Science and Technology successfully entered into the finals. Among them, team "Maturin", composed of undergraduates Bi Haoyang and You Yuyang, won first prize in the OS kernel implementation race track, and team "QUINT", composed of Xiang Chendong, Wang Zhidong and Sun Xun, won first prizes in the OS functional challenge race track.

The team, composed of Sun Yutao and An Yifan, as well as the team of An Zhida won the third prizes in the OS functional challenge race track. Two teachers, Xiang Yong and Chen Yu won the excellent instructor prizes.

Jointly initiated by the Ministry of Education and the expert group on system capacity development research, the NSCSCC is the only national competition for university students to independently design a general-purpose CPU, an operating system, and a compiler, with the aim of advancing the training of innovative talents in the computer field.

Modern drama Copenhagen staged at Tsinghua University



As one of activities for the 40th anniversary of the reestablishment of Tsinghua University's Department of Physics, the modern drama Copenhagen, performed by artists from the National Theatre of China, was staged at the New Tsinghua Xuetang from September 2 to 3.

This activity was co-hosted by the Art Education Center and the Department of Physics of Tsinghua University with a view to bringing high-level performances to the campus and fostering greater levels of aesthetic education. Besides the staging of Copenhagen, a series of activities have been planned to attract the participation of artists, professors and students in order to further enhance the performance into a mode of aesthetic education integrated with appreciation, experience, perception and communication.



Zhao Hong, director of the Art Education Center, Director Wang Xiaoying, Professor Xue Ping of the Department of Physics, Professor Wang Wei of the Department of the History of Science (From left to right)

The modern drama Copenhagen premiered in the United Kingdom in 1998. In 2003, director Wang Xiaoying brought the modern drama to stages across China, attracting the attention of both artists and scientists. The drama's scientific ethics, its ultimate concern for humanity and adherence to a humanistic spirit triggered the thoughts and concerns of audiences.

To enhance the educational value of the performance, a lecture was held at the New Tsinghua Xuetang on September 2. The lecture explored the drama Copenhagen from the perspective of the history of science.

The lecture invited Professor Liu Bin from the Tsinghua University Department of the History of Science to share his interpretation of the modern drama Copenhagen, enlightening audiences and helping them understand the essence of science and its relationship to society from a humanistic standpoint.

On September 3, seven students from the Department of Physics, Department of the History of Science, Department of Chinese Language and Literature and the School of Social Sciences engaged in face-to-face interaction with director Wang about the drama Copenhagen. They held discussions on the history of science, the dramatic arts, ethics and humanity and learned about the experiences that inspired the drama, allowing them to gain a deeper understanding of the drama.

The Art Education Center will continue to look for more opportunities to cooperate with schools and departments at Tsinghua University in order to explore practical modes of aesthetic education.



Yang Miao from the Art Education Center, Director Wang Xiaoying, Professor Zhang Yuegang of the Department of Physics, Professor Xia Ying of the Department of Philosophy (From left to right)

Tsinghua's computer science soars to greater heights

Editor's Note

TsinghuaVision series captures the recent years' development of Tsinghua University, showcasing the educational offerings, achievements and visions of schools and departments of Tsinghua University. This article is part of our TsinghuaVision series, which features the Tsinghua University's Department of Computer Science and Technology.

As the most booming, robust, and influential intellectual field, computer science and its application have become an important cornerstone of a country's overall competitiveness. The Department of Computer Science and Technology has worked to drive the national innovation strategy, cultivate talents and develop cutting-edge technologies and solutions, advancing the development of science and technology in building a community with a shared future for mankind.

The Tsinghua University Computer Science Advisory Committee, consisting of more than 20 academicians from home and abroad, including five Turing Award winners, highlighted in 2017 that "Tsinghua University has come a long way in building computer science, and has grown into a leading constructor

of the discipline among domestic universities and a world-leading computer research and teaching institution." "Tsinghua has made impressive progress in computer science. Its faculty and students in this field have been equipped to undertake top-level research and bear fruits that lead the world," the Committee said in a statement in 2018.

Fostering future talents

In terms of curriculum construction, the department has restructured the teaching contents of the undergraduates' core curriculum. Tsinghua has realized its teaching goal of independently developing one functional computer, one operating system core and one compiler system based on a unified instruction set, making itself the first Chinese university to set a complete computer system in undergraduate courses.

The department has developed the "Five Star Plan," where personalized teaching is offered to meet the students' needs of overall quality improvement and personalized development. The Plan has significantly enhanced the teachers' sense of achievement in education and the students' sense of gain in improving their abilities, as well as strengthened the discipline of computer science at Tsinghua to provide all-round and full-time education.



The 2021 Student Award Conference and Zhong Shimo Scholarship Review Meeting



International Summer School

The department works hard to build the all-English "Advanced Computing Master/Doctoral Program," with nearly 200 students from over 40 countries covered by the 16 all-English courses. It has also established joint training programs with world-class universities to create a whole process and multi-dimensional international training mechanism for students, including:

- Tsinghua-CMU dual master's degree program,
- Tsinghua-USC dual master's degree program,
- Sino-German doctoral training program,
- Tsinghua-NUS doctoral training program.

The department has cultivated a group of well-grounded and innovative undergraduates through unremitting exploration and efforts. Its undergraduate supercomputing team has won the most titles in the world: the World University Supercomputing Competition 16 times, and a grand slam of three supercomputing competitions in 2018. Moreover, its all-English "Advanced Computing Program" was recommended by Forbes as one of the best 10 international master's programs in AI and data science in 2021.



Professor Jack Dongarra, the 2021 Turing Award winner, presents the SC19 Student Supercomputing Competition Award to the Tsinghua Student Supercomputing Team



Article published by Forbes on the department's computing program

Leading Innovation Hub

The department implements an active, open and effective talent cultivation policy, developing itself as an important talent center and a leading innovation hub in the world.

The department has established a faculty team with international competitiveness that is in line with the needs of the national strategy.

Oriented to future subjects, the department is also devoted to emerging research directions such as quantum computing and brain-inspired AI.

To that end, it works to attract outstanding talents with scientific research strength and teaching philosophy both from home and abroad to join its faculty, while attaching great importance to the continuous capacity enhancement of its faculty members.

Research driven

The department is mission-driven. It has participated in or presided over the construction of many national research institutions and infrastructures, such as the Beijing National Research Center for Information Science and Technology, and has undertaken several major projects at the national level, attaining numerous research achievements of global significance.

With the optimized allocation of advantageous resources, the department has developed significant research directions, including:

- high-performance computer systems,
- secure and reliable next-generation Internet,
- AI theory and its applications.

The department has pooled its strength and made important research progress. Some notable achievements are:

Won the ACM Gordon Bell Prize twice, the highest-level international award in the field of high-performance computing applications, with the help of China's 100P supercomputer; proposed the world-leading Source Address Validation Architecture (SAVA), which has been commercialized and achieved large-scale application, to enhance the trustworthiness of the source address and tackle related security and technical problems; established the third-generation theoretical framework for safe, robust, and explainable AI and produced abundant scientific results with international significance. In the past five years, the department has won second prize in the National Natural Science Awards and three second prizes in the National Science and Technology Progress Awards.



The project "Development, Key Technology and Mass-Scale Application of Source Address Validation Architecture for the Next-Generation Internet" was awarded the grand prize of the Science and Technology Progress Awards of the Chinese Institute of Electronics, the only one for the year 2020.



The 2017 ACM Gordon Bell Prize Award Ceremony

The department has provided an environment and supporting system conducive to the establishment of a world-class computer science discipline. In the Global Forum on the Development of Discipline held in 2018 and 2021, attendees discussed some major issues hindering the development of computer science and made positive contributions to the advancement of the discipline.

Moving forward, the department will further endeavor to usher in a new era for the development of computer science.



The Second Global Forum on Development of Computer Science



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