TSINGHUA NEWSLETTER

ISSUE 3
2021

清華大學
Tsinghua University

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FOCUS

Tsinghua University commemorates the 100th Anniversary of the Founding of the CPC

On June 28, Tsinghua University commemorated the 100th anniversary of the founding of the Communist Party of China (CPC) and commended advanced collectives and individuals at the New Tsinghua Xuetang.

Chen Xu, Secretary of the CPC Tsinghua University Committee, delivered a speech at the meeting, which was presided over by Tsinghua President Qiu Yong.

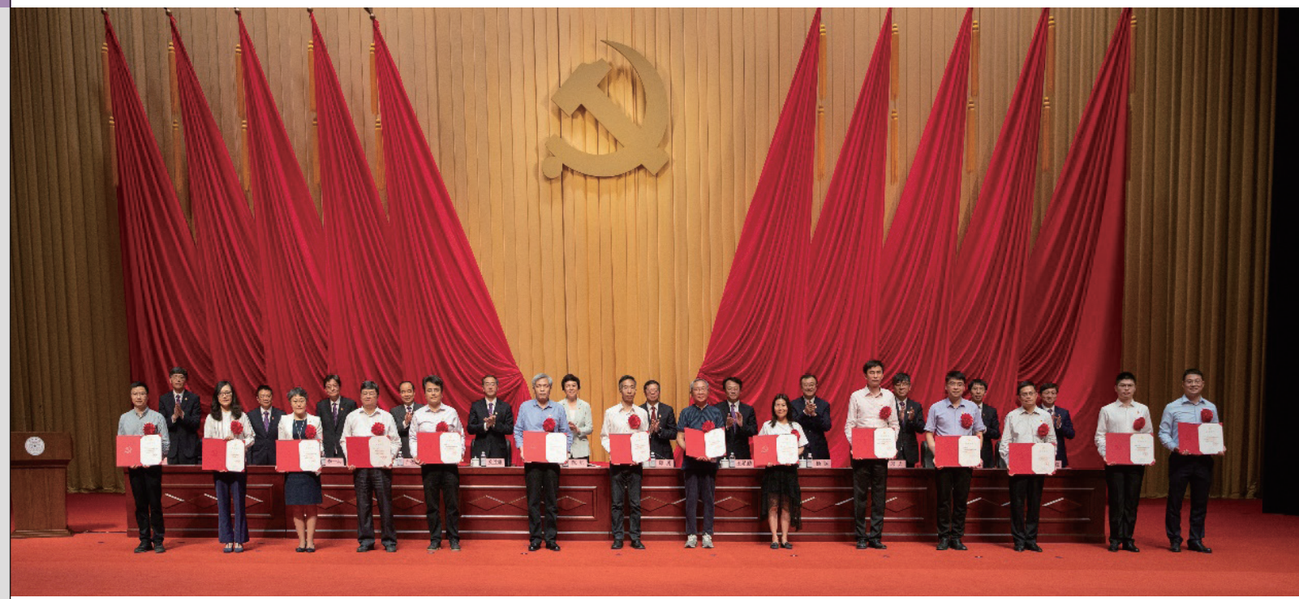
Representatives of outstanding individuals, advanced Party branches, and new Party members made speeches at the meeting.

Chen said that the event was held to celebrate the 100th anniversary of the founding of the CPC and the 95th anniversary of the establishment of the CPC Tsinghua University Committee, and to commend advanced party branches and outstanding individuals.

Chen reviewed the 100-year history of the CPC and the 95-year history of the CPC Tsinghua University Committee. She pointed out that all the achievements made by the CPC Tsinghua University Committee in the past 95 years are attributable to the hard work of all Party members, teachers and students.

“This year saw the first award of the "50 Years of Glory in the Party" commemorative medals. A total of 1,495 veteran Party members of Tsinghua University received the medal,” said Chen.

Recently, four individuals of Tsinghua were commended by the CPC Central Committee and Beijing Municipal Government. One of them, Academician Wu Liangyong, won the title of National Excellent Member of the CPC. The advanced Party branches and outstanding individuals commended by the university today are also outstanding



representatives fighting on all fronts of the university, Chen said.

Chen said that on April 19, Xi Jinping, general secretary of the CPC Central Committee, visited Tsinghua and delivered an important speech, which pointed out the direction for the future development of the university. We must adhere to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, study the speech made by the General Secretary, and stick to the goal of building a world-class university with Chinese characteristics.

She added that we must take moral education and personnel training as the fundamental task, "serving the country" as the supreme goal, discipline construction as the foundation for development, "deepening reform" as a strong driving force, and "strengthening Party building" as a strong guarantee, and strive to cultivate talents, make achievements, provide experience, and set examples, so as to serve the country's prosperity, rejuvenation and people's happiness.

Qiu said that this year marks the 100th anniversary of the founding of the CPC, the 110th anniversary of the founding of Tsinghua University, and the 95th anniversary of the founding of the CPC Tsinghua University Committee. Generations of Tsinghua CPC members have devoted themselves to the Party and the educational development of the country, promoting the continuous progress of the university.

The meeting ended with the singing of the "Internationale".

9th World Peace Forum opens at Tsinghua

The 9th World Peace Forum (WPF) opened at Tsinghua University on July 3, with the theme "International Security Cooperation in the Post-Pandemic Era—Upholding and Practicing Multilateralism."

Chinese State Councilor and Foreign Minister Wang Yi attended the forum and delivered a keynote speech.

Fukuda Yasuo, former Prime Minister of Japan, Goh Chok Tong, former Prime Minister of Singapore, Hamid Karzai, former President of Afghanistan, Kevin Michael Rudd, former Prime Minister of Australia, Herman Van Rompuy, former President of the European Council, Ban Ki-moon, former Secretary-General of the UN, and Surakiart Sathirathai, former Deputy Prime Minister of Thailand, attended the forum, which 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.

Upholding and practicing true multilateralism is the only way to solve the complex problems in today's world to achieve lasting peace and common security, said Chinese State Councilor and Foreign Minister Wang Yi in his speech.

Recalling Chinese President Xi Jinping's remarks at a gathering marking the centenary of the Communist Party of China in Beijing on July 1, Wang said that China has always stayed committed to the path of peaceful development, opposed hegemony and power politics, and will use its achievements in development to provide the world with new opportunities.

Tsinghua University President Qiu Yong, who is also Chairman of the forum, delivered the welcoming remarks at the opening ceremony of the forum.

He stated that since its founding, the forum is committed to cooperation, openness, inclusiveness, and innovation to uphold international security dialogue, to promote mutual understanding and innovative thinking, and to contribute to the world's peace and stability.

President Qiu expressed his hope that all participants will speak their mind freely on the theme of the forum and contribute their wisdom to international security cooperation, multilateralism, and world peace in the post-COVID-19 era.

Wang Chao, President of the Chinese People's Institute of Foreign Affairs, Chen Xu, Chairperson of Tsinghua University Council, Li Huilai, Vice President of the Chinese People's Institute of Foreign Affairs, Fu Ying, former Vice Minister of Foreign Affairs and the current President of the Institute of International Relations at Tsinghua, and Yan Xuetong, Secretary-General of the World Peace Forum, attended the Forum. Tsinghua University Vice President and Provost Yang Bin moderated the forum's opening ceremony.

The opening ceremony was followed by a plenary session held under the theme "Reassessing the International Order." Fukuda Yasuo, former Prime Minister of Japan, Ban Ki-moon, former Secretary-General of the UN, and Kevin Michael Rudd, former Prime Minister of Australia, delivered their remarks.

Former Japanese Prime Minister Fukuda Yasuo said that China, the United States and Japan must work together to address common challenges faced by humanity. He also highlighted the importance of exchanges between young people between China and Japan to better understand the importance of the relationship between the two countries.

Stating that the COVID-19 pandemic and climate change are two most serious challenges facing humanity, former Secretary-General of the UN Ban Ki-moon called on all nations and stakeholders to redouble their efforts in elevating cooperation and partnership in pursuit of vaccinating the world, achieving the UN Sustainable Development Goals, and taking climate action.

Former Australian Prime Minister Kevin Michael Rudd shared his views on the international order and U.S-China relations in his speech.

The forum included online meetings, hybrid meetings and offline meetings. Four plenary sessions and 21 panel discussions were held on three types of security issues: global, regional and thematic. Topics such as geopolitics in the digital age, Asia-Pacific Security Cooperation, Sino-US relations in the new era, and artificial intelligence and its influence on international security, were covered.

Tsinghua student and Chinese shooter Yang Qian wins first gold of Tokyo 2020 in women's 10m air rifle

Yang Qian (C) of China competes during the Tokyo 2020 women's 10m air rifle final in Tokyo, Japan, July 24, 2021. (Xinhua/Ju Huanzong)

Chinese shooter Yang Qian, who is an undergraduate student from Tsinghua University, claimed the first gold medal of the Tokyo 2020 Olympic Games with a victory in women's 10m air rifle in Tokyo on July 24. Russian markswoman Anastasiia Galashina took the silver and Nina Christen of Switzerland bagged the bronze.

Tsinghua University inaugurates institute to promote carbon neutrality

The Tsinghua University Institute for Carbon Neutrality (ICON, Tsinghua University) was formally established on September 22.

As a strategic institutional initiative taken by Tsinghua University following its 110th founding anniversary, the establishment of ICON represents a momentous step. ICON demonstrates the University's realization of its responsibility to achieve alignment with national development needs; act on major national strategies and plans for peaking carbon dioxide emissions by 2030 and achieving carbon neutrality by 2060; fully leverage its role as a leading university in coping with global climate change; and, pioneer research of fundamental theories and key technologies connected with carbon neutrality, contributing wisdom and strength to the community with a shared future for mankind and global sustainable development.

Chairperson of Tsinghua University Council Chen Xu announced the formation of ICON. She called on ICON to center on the country's goal of peaking its carbon dioxide emissions by 2030 and achieving carbon neutrality by 2060, to keep updated with the frontiers of international academic research, and play a leading role in the battle against global climate change. She also advised it to take the lead in the realization of carbon neutrality and the breakthrough in core technologies, and mobilize the strengths and features of relevant disciplines in a drive to promote cross-discipline integration, achieve innovation with the joint efforts of multiple schools and disciplines, and make breakthroughs in research into major fundamental theories.

In addition, ICON was urged to engage in disruptive core technologies related to low-carbon and zero-carbon emissions targets and "carbon negative" business patterns, accelerate academic building and personnel training in carbon neutrality-related disciplines, and eventually become an international research institute with the characteristics of Tsinghua University that serves national goals for carbon dioxide emissions and has global influence in the sector of carbon neutrality.

Tsinghua University President Qiu Yong said that it was on this very day in 2020 that President Xi Jinping formally proposed the country's goals for peaking carbon dioxide emissions by 2030 and achieving carbon neutrality by 2060. On this day of special significance, Tsinghua University formally establishes ICON, which is of great importance.

"ICON is expected to fully leverage its cross-discipline strengths, promote coordinated innovation in enterprises, universities and research institutions, and contribute unique efforts to the country's goals in the reduction of carbon dioxide emissions. The establishment of ICON is a major strategic measure taken by Tsinghua University following the celebration of its 110th anniversary, and demonstrates the commitment of its graduates to align with national development needs," said Qiu.

In his concluding remarks, Qiu urged ICON to usher forward a new phase of innovation-driven technological development by building a high-level platform that harnesses the spirit of both science and education, opening and exchange.

Hua Jianmin, former vice-chairman of the Standing Committee of the National People's Congress and Chairman of Tsinghua University's Committee of Strategic Development, congratulated ICON on its establishment. He said that the national goals for carbon dioxide emissions are an inherent requirement for China to achieve sustainable and high-quality development, and an inevitable choice to promote the building of a community with a shared future for mankind. The establishment of ICON once again demonstrates Tsinghua's national sentiments and mission, as well as the deep concern of Tsinghua's people for the future of Earth, the home of all mankind. He believed that Tsinghua University can play an important supporting role and make positive contributions in implementing the national strategy of actively responding to climate change and promoting China's green and low-carbon development through carrying forward traditions, collaborative innovation, rigor, pragmatism, and hard work.

Zhong Denghua, member of the leading Party group and vice-minister of the Ministry of Education, Lu Ming, member of the leading Party group of the Ministry of Science and Technology, academician of the Chinese Academy of Engineering, Shu Yinbiao, secretary of the leading Party group and chairman of the board of China Huaneng Group, academician of the Chinese Academy of Engineering, and Yu Jianfeng, secretary of the leading Party group and chairman of the board of China National Nuclear Corporation gave speeches in which they sent congratulations to ICON on its opening.

John P. Holdren, adviser to former US President Barack Obama on science and technology, professor in Kennedy School of Government, Harvard University, fellow of the NAS, NAE, and AAAS in the United States; Erik Solheim, former under-secretary-general of the United Nations, the sixth UN Environment executive director, chairman of Advisory Committee of the BRI (Belt and Road Initiative) International Green Development Coalition; Alex N. Halliday, founding dean of Columbia Climate School and former dean of Science and Engineering, University of Oxford; Usha Rao-Monari, under-secretary-general of the United Nations and associate administrator of United Nations Development Programme, were invited to address the launching ceremony via recorded video speeches. Elon Musk, co-founder and CEO of Tesla and SpaceX, sent a congratulatory letter.

He Kebin, deputy director of the National Experts Committee on Ecological Protection, academician of the Chinese Academy of Engineering and professor with the School of Environment at Tsinghua University, was appointed dean of ICON. He said that in the future, ICON will focus on providing strategic solutions, key technologies and comprehensive demonstration to strongly support realization of carbon neutrality in China and globally.

ICON will strive to become a center of technological innovation and a high-end think tank, a training base for high-level talents and a platform for cooperation and exchange, while focusing on the target of carbon neutrality.

It is expected to engage in research into electricity production and engines with zero-carbon emissions, new electric power systems, zero-carbon transportation, zero-carbon construction, deep reduction of carbon emissions in industries, coordinated development in the reduction of pollution and carbon dioxide emissions, the concept of Carbon Capture, Utilization, and Storage (CCUS) and carbon-sink capacity, and a carbon neutrality strategy, and to play a leading role in the main battlefield of carbon neutrality and the breakthrough of core technologies.

It is further expected to leverage its strengths in fundamental research and cross-discipline research, achieve collaborative innovation between different schools and disciplines, concentrate available resources on making a breakthrough in core and major technologies related to carbon neutrality, deepen cooperation between universities and local governments, incorporate low-carbon development with enterprises' needs in their transformation, and build a number of demonstration firms, cities and city clusters for green and low-carbon development.

Furthermore, it should accelerate the utilization of scientific results, enhance its cooperation and exchange with world-class universities and research institutes, organize and conduct international cooperation and strategic research, and take part in major international scientific plans and projects in the sector of carbon neutrality.

GLOBAL ENGAGEMENT

China-Italy Youth Future Fashion Design Competition announced

The China-Italy Youth Future Fashion Design Competition was officially announced at the Tsinghua Press Salon held on July 8.

Chen Ken, Director of the Global Communication Office of Tsinghua University, delivered the welcoming remarks at the event.

She said that the China-Italy Youth Future Fashion Design Competition was one of the important activities of the "China-Italy of Youth Innovation and Entrepreneurship" program, aiming to promote exchanges between Chinese and Italian youth and cultivating leading talents for innovation-driven development.

Co-organized by Tsinghua University, the Politecnico di Milano, and the People's Government of Keqiao District of Shaoxing city in Zhejiang Province, the competition is open for entries from young practitioners of fashion design under 45 years old in three categories: fashion design; fashion technology; and, fashion lifestyle.

The awarded works will be qualified for free presentation at the special exhibition organized by the China-Italy Design Innovation Hub during the 2022 Milan Design Week. The prize winners will be qualified for free enrollment to the 2022 Tsinghua Global Summer School.

Interested applicants should submit their entries through the competition's official website: http://ciyff.cidih.tsinghua.edu.cn/home/Home.htm

Following the announcement of the competition, four experts from Tsinghua University delivered keynote speeches at the salon from perspectives including "openness," "integration," "confidence," and "innovation" in the global higher education context, and Tsinghua's unique contributions in these areas.

Fu Zhiyong, Deputy Director of the China-Italy Design Innovation Hub and Associate Professor of the Academy of Arts & Design, elaborated on the intention of the competition. Fu said that the competition will integrate resources in fashion design, innovative education, academic research, industrial incubation, and will deepen the fusion of design innovation and industry-education and tap into the innovative and dynamic talent pool of emerging leading youth designers. It will also probe into the frontier development in sectors of global fashion design, fashion technology and fashion lifestyle, and foster an organic connection of the education chain, talent chain, industry chain and innovation chain. By doing so, the competition will contribute to converting the innovative design into an immense stream of power that will expedite the industrial upgrades of both countries, satisfy people's aspirations for a better life, and converge the sustainable development of design worldwide.

Su Dan, Deputy Director of the Tsinghua University Art Museum and Professor at the Academy of Arts and Design, discussed the integration of Italian design culture and Chinese design culture. He pointed out that the exhibition of "Design Utopia 1880-1980:100 Years of Design History/ The Biagetti-Koenig Collection" at the Tsinghua University Art Museum was a result of the cultural exchanges between China and Italy over the past five decades since the establishment of diplomatic ties. The bilateral cultural exchange is well developed, especially in the field of art design, which has played a significant role in the modernization and contemporary development of Chinese designs. Demonstrating an excellent thread of historical changes, the exhibition has mirrored the integration of the Italian and Chinese design culture.

Chen Nan, Executive Deputy Director of the Research Center of Ancient Chinese Characters Art and Professor of the Academy of Arts & Design of Tsinghua University, delivered a speech entitled "Traditional Chinese Culture and its Innovation." He talked about the interaction between the thinking and methods of traditional eastern and western designs, emphasizing that tradition is not an isolated historical memory, but a source of inspiration for fashion design. Moreover, he introduced and displayed innovative design works of Chinese characters, such as oracle bone inscriptions and Dongba inscriptions, and talked about the innovation of the combination of traditional Chinese character art and the latest technology.

Li Jinliang, Dean for International Affairs of Tsinghua University and Director of the China-Italy Design Innovation Hub, gave a brief introduction about the construction and development of the hub. He talked about Tsinghua's global strategy and the origin of the China-Italy Design Innovation Hub and its development principles, construction objectives and pathways, as well as its scientific achievements. Li also mentioned the newly established mirror site of the hub in the Tianfu New Area, Sichuan Province, and the China-Italy Future Fashion & Innovation Center constructed with the support of the People's Government of Keqiao District.

The Tsinghua Press Salon was attended by journalists from various Chinese and Italian media, including CGTN, Xinhua News Agency, China Daily, People's Daily and Corriere della Sera.

The Global Alliance of Universities on Climate [GAUC] holds its 3rd Academic Conference

From June 29th to 30th, the Global Alliance of Universities on Climate (GAUC) held its 3rd Academic Conference online.

With the theme of Pathways to Net Zero Emissions and Carbon/Climate Neutrality, the conference was attended by global influential policymakers, including Xie Zhenhua, Special Envoy for Climate Change of China, John Kerry, Special Presidential Envoy for Climate of the United States, Emmanuel Guerin, Executive Director for the International Group at the European Climate Foundation (ECF), and Patricia Espinosa, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC).

"All countries in the world have different timeframes to achieve carbon neutrality because there are different natural circumstances, different stages of development, and different capacities. But we are all aligned in the same direction and similar pathways," noted Xie Zhenhua, adding that: "I've been caring and supporting the strong efforts made by GAUC. I feel so encouraged to see that GAUC, since its inception, has played a central role in synergizing forces from all parties to achieve climate change."

"We need common, but differentiated goals. We are asking countries all around the world to do enough. Now the key measurement is that we do what we need to do between 2020 and 2030 so that we can keep 1.5 degrees alive," said John Kerry.

"What we see at the moment is critically important and also a departure from the past. It's not just an exercise in cutting greenhouse gas emissions. It's an exercise in putting all of that at the very center of economic strategies and policymaking, as well as into politics," said Emmanuel Guerin.

Patricia Espinosa joined the conference via pre-recorded video, where she expressed her expectation of the COP26. She stated that "our goal this year is clear, we must achieve success at COP26 for the planet, for those who share it, for those who inherit it."

Unlike previous academic conferences of GAUC, which were mainly organized by its Secretariat, the Institute of Climate Change and Sustainable Development, Tsinghua University (ICCSD), the 3rd Academic Conference was led by the London School of Economics and Political Science (LSE), with close support from the Program Committee, composed of LSE, Cambridge, Oxford, Imperial College and Tsinghua. The success of the conference was also attributed to the dedicated contribution from all GAUC member universities.

Lord Nicholas Stern, Chairman of the Grantham Research Institute on Climate Change and the Environment at LSE, and Chair of GAUC's Academic Committee, stated when he was chairing the policymakers' session that, "Those of us who work in universities get tremendous inspiration from young people. GAUC is a key route to enhance and channel that enthusiasm and collaboration, and indeed expertise, of the next generation."

Following the Policymakers session, four online discussion sessions were held, focused on: Net zero technologies, Net zero and carbon neutrality in the United States and China, Net zero pathways and policies, and Net zero, growth and justice. These sessions attracted over 20 leading climate experts from 15 universities around the world.

At the end of the two-day online discussion, Dr Emily Shuckburgh OBE, the Director of Cambridge Zero, delivered the closing remarks. "Those two days have demonstrated a great appetite amongst researchers at GAUC member institutions to engage with each other about their research across a great breadth of subjects," she stated. "I hope that the last two days have served to demonstrate the commitment of GAUC towards supporting an ambitious outcome at COP26."

The keynotes of the climate experts can be accessed at the website of the GAUC: http://conference.gauc.net/keynotes/.

Tsinghua and MIT Provosts met online to discuss future cooperation

Professor Yang Bin, Vice President and Provost of Tsinghua University, and also the Convenor of the Executive Committee of the Global MOOC Alliance, had an online discussion with Professor Martin A. Schmidt, provost of the Massachusetts Institute of Technology (MIT), on July 8.

During the online meeting, Schmidt shared the latest developments of edX, a MOOC (massive open online courses) platform that was co-sponsored by Harvard University and MIT.

He also stated that edX is hoping to deepen cooperation with global universities like Tsinghua and establish partner relationships on MOOC and online education to promote synergy in higher education innovation.

Yang spoke highly of the important role that edX has played in the field of online education in the last decade and congratulated MIT on its new achievements.

Both sides said that the two universities are looking forward to further intensive cooperation on education and climate change.

Tsinghua University was one of the first Asian universities to join the non-profit online learning program composed of leading global institutions in 2013. It has currently opened access to 69 courses online and established a good cooperative relationship with edX.

Full Text of Tsinghua University Report on Sustainable Development Goals released

The Tsinghua University Report on Sustainable Development Goals comprehensively summarizes the efforts and actions taken by Tsinghua University in implementing the 17 UN Sustainable Development Goals (SDGs). The report proposes a "17*5" SDGs Impact Model, which captures Tsinghua University's endeavors from 2016 to 2020 in localizing SDGs in the following five functional aspects: talent training, scientific research, social contribution, cultural inheritance and innovation, and international exchange and collaboration. Data and vivid cases of key actions, achievements and technical consultation projects completed by Tsinghua University promoting sustainable development in respect of the 17 SDGs were analyzed. The Report was prepared by the Tsinghua Institute for Sustainable Development Goals, commissioned by Tsinghua University.

With the 17 Sustainable Development Goals such as "No Poverty" and "Zero Hunger" as key components, the 2030 Agenda for Sustainable Development (2030 Agenda) was adopted in 2015 at the United Nations Sustainable Development Summit. People have a more comprehensive understanding of sustainable development and the key development issues. To cope with global challenges such as poverty, hunger, inequality in education, and climate change, the world increasingly needs diversified partnerships, especially continuous and arduous efforts made by different agencies.

Universities should actively practice the concept of sustainable development. Tsinghua University shoulders an important responsibility not only for itself, for China, but also for global sustainable development. In the face of global challenges concerning the future of the country and the destiny of mankind, Tsinghua University will look ahead and actively promote the construction of sustainable universities, writing the narratives of micro-level SDGs actions by universities.

This report is not only a summary of the actions taken by Tsinghua University in implementing SDGs in recent years, but also an overview of the goal of promoting SDGs in the future. With the "2030 Agenda", Tsinghua University will work hand in hand with other universities, international organizations and other institutions to progress the realization of national and global sustainable development goals.

Tsinghua holds World Philanthropy Forum

The fifth World Philanthropy Forum (WPF), co-hosted by Tsinghua University, the University of Hong Kong and the Chinese University of Hong Kong, opened recently at Tsinghua University in Beijing with the theme "Developing a Sustainable Philanthropy Ecosystem".

At the opening ceremony, Zhang Chunxian, Vice Chairman of the Standing Committee of the National People's Congress (NPC), delivered a keynote speech.

He noted that philanthropy originates from the universal human virtue of altruism and is a moral force for social justice. The love and goodwill of society and the policy incentives of the government are the two driving forces for the advancement of charity.

According to Zhang, the development of charity should be incorporated into the general pattern of modernizing the national governance system and governance capacity, insisting on a combination of strict control and generous love, and actively supporting, encouraging and promoting the healthy development of charity.

He also hoped that the representatives and distinguished guests would put forward their insights for establishing a vibrant, diversified and symbiotic global philanthropic ecology, unite to overcome difficulties, promote the high-level and high-quality development of world philanthropy, and make greater contributions to the building of a community of a shared future.

After welcoming all the participants on behalf of the university, Chen Xu, Chairperson of Tsinghua University Council and Co-chairman of the WPF, said that under the special context of the international community calling for global collaboration to fight the COVID-19 epidemic, it was of profound significance to hold the philanthropy forum to inject new connotation to the interests, pursuit and values shared by human beings, to promote the development of charity and human civilization, and to help build the community of a shared future.

Chen said that Tsinghua would take the initiative to serve the modernization of the country and definitely make more valuable and meaningful achievements in philanthropy.

She expected that the forum would focus on major social and environmental issues at home and abroad, and continue to explore ways of effective participation and full sharing of social forces including public charity; systematically summarize the experience and practices of Chinese public charity in precise poverty alleviation and epidemic prevention and control; promote organizations and institutions to strengthen cooperation in public charity policies, talents and services; and improve the cooperation

mechanism of all parties, so as to lay a solid foundation for the long-term healthy development of the forum.

Peng Kaiping, Dean of the School of Social Sciences of Tsinghua University, acted as the opening moderator of the forum. In an interview with CCTV, he mentioned that strengthening the self-building of charitable organizations, and especially improving their professional and emergency response capacity, enhancing their mobilization and rescue capacity in major natural disasters and public health events, and vigorously developing charitable undertakings is one of the major inspirations given to humans by the pandemic, as well as an effective measure to face various risk challenges with ease, mobilize social strength, and promote overall social progress.

Peter Megyessy, former prime minister of Hungary, and a consultant to the WPF, made a keynote speech entitled "The Global Economy and World Philanthropy in the Post-pandemic Era".

According to him, the future of philanthropy has to be considered also on the basis of the present global political and economic environment. There will be huge property and income inequalities, as well as big geographical differences between countries, regions and continents. As is known, traditional economic and financial instruments are not efficient enough to balance the situation. That is why there will be a growing need for philanthropy.

Stephen A. Schwarzman, co-founder, Chairman and CEO of Blackstone, delivered a keynote speech entitled "Responsibilities and Duties for the Young".

He said: "First, think about philanthropy being more than just about giving money; your personal skills, connections, time and energy are all equally valuable. Second, find areas that you are passionate about, look for problems that are not already being addressed, and think about how you or your organization can begin solving them. Third, make philanthropy a habit, even starting at an early age."

In his speech entitled "The Era Needs Deep Reflection on Philanthropy", John B Cobb Jr, a member of the American Academy of Arts and Sciences, said that if wealth was concentrated in too few hands, and wealth determines the quality of medical care people receive, real philanthropy might focus on improving the health care of the poor rather than enabling some companies to make more money.

If people in general and especially the poor are consuming more and more of the poisons used in agriculture, philanthropy might support efforts to produce food without poisons and make it available to those who most need it, he added.

Melissa Begg, Dean of the Columbia School of Social Work, delivered a keynote speech entitled "Public Health and Social Work". She said: "A recognition of the power of collective action can lead to profound changes in how we experience our life. Nothing will get better by itself; we have to be intentional and relentless in creating the world we want to live in."

Sept 5 is the "International Day of Charity", which is also the "Charity Day of China" stipulated in the "Charity Law of the People's Republic of China". The introduction and improvement of charity law is an important symbol of China's social progress, so that China's public charity has entered a new era where there are laws to go by.

The forum focused on the topics of science and technology, social services, ecological civilization and international consensus, aiming to create a broad space for public charity and promote the professional development of the world's philanthropy and public welfare industry.

It invited professionals from government, enterprises, public charity organizations and higher education institutions of different countries and regions such as Asia, Europe, America, and Africa, to discuss together, build consensus and promote action.

Launched in 2018, the WPF is co-sponsored by Tsinghua University, together with the Chinese People's Association for Friendship with Foreign Countries and the China Soong Ching Ling Foundation, and co-hosted by the University of Hong Kong and the Chinese University of Hong Kong, and held regularly every year on the UN International Day of Charity and Charity Day of China.

It is dedicated to sharing experience, academic exchange, policy advocacy and practicing the promotion of public charity on a global scale, to enhance people-to-people exchanges and morality, to promote global cooperation in public charity and social work, and to contribute to building a community of a shared future. At present, the forum has become a globally important platform for the exchange and progress of philanthropy and social services.

Tsinghua University to launch Global Open Courses in 2021 Fall

Please click the following link for more details: https://www.xuetangx.com/page/qhqqgkk

In the Fall of 2021, Tsinghua will launch a total of seven Global Open Courses, namely "Carbon Neutrality: Why and How the World is Addressing Climate Change", "China's Approach to Poverty Eradication", "Winter Olympics and Winter Sports", "National Parks and Protected Areas of China", "Future Automobiles", "The Creation and Growth of Technology Enterprises" and "Positive Psychology", taught in English and accessible to the world both online and offline. Learners can attend some or all of the courses and participate in online real-time interaction based on their own interests. At the same time, some of the lectures will be broadcast live to learners around the world through the international version of XuetangX and Tsinghua University's social media accounts.

"Carbon Neutrality: Why and How the World is Addressing Climate Change" will be taught by Professor ZHANG Xiliang, Associate Professor ZHANG Da, and Associate Professor TENG Fei from the Institute of Energy, Environment and Economy, Professor LUO Yong and Associate Professor CAI Wenjia from the Department of Earth System Science, Academician HE Kebin and Professor WANG Can from the School of Environment, as well as Associate Professor CAO Jing from the School of Economics and Management. The course covers the global transition to carbon neutrality, the facts and impact of climate change, key emission reduction technologies for carbon neutrality, climate change and carbon neutral environmental co-benefits, climate change and the effect on health of carbon neutrality, climate change economics, China's carbon market policies and practices, and climate change and carbon neutrality global governance. Through this course, students can understand how the world can deal with the severe challenges of climate change through carbon neutrality.

"China's Approach to Poverty Eradication" will be taught by Professor LI Daokui and Associate Professor YAN Fei from the School of Social Sciences, Professor ZHOU Qing'an from the School of Journalism and Communication, and Associate Professor ZHOU Shaojie and Associate Professor MENG Ke from the School of Public Policy and Management. This lecture series will deal with China's endeavor on poverty reduction by covering several topics, including the market-oriented reforms vital for poverty eradication, the historical phases of poverty reduction, the evolution of instrumental government policy reform, and the application of related governance models and cultural governance, as well as China's social security system as institutional underpinning for poverty reduction.

"Winter Olympics and Winter Sports" will be lectured on by a team of experts dedicated to the preparation and research into the Beijing Winter Olympics, including Professor ZHANG Li (Dean) and Associate Professor SHAO Lei (Vice Dean) from the School of Architecture, Professor WANG Jiadao from the School of Mechanical Engineering, Associate Professor WANG Xueli from the School of Economics and Management, and Assistant Professor HU Xiaoqian of the Division of Sports Science and Physical Education. YANG Yang, Tsinghua University's outstanding alumna, chairman of the Athletes' Commission of the Beijing 2022 Winter Olympics Organizing Committee, and CUI Lequan, Director of the Research Department of the Sports Culture Development Center of the General Administration of Sport of China, will also be invited to teach. This course will present the origin and development of the Winter Olympics, the history and culture of China's winter sports, and the development of China's winter sports industry driven by the Winter Olympics in an all-round, multi-perspective and three-dimensional manner through theories, case studies and Q&A sessions.

"National Parks and Protected Areas of China" will be taught by Professor YANG Rui, Associate Professor ZHUANG Youbo, Assistant Professor ZHAO Zhicong and Assistant Professor CAO Yue from the Department of Landscape Architecture, School of Architecture, and by Professor YANG Jun and Associate Professor YU Le from the Department of Earth System Science, as well as Associate Professor LIU Xuehua from the School of Environment. This course systematically introduces China's national parks, nature reserves, scenic areas, world heritage sites and other types of protected areas through theoretical lectures, interactive seminars, and field trips, and discusses nature conservation issues in all terrestrial areas of China, including wilderness areas, agricultural areas and urban areas.

"Future Automobiles" will be lectured on by Academician OUYANG Minggao, Professor ZHOU Qing, Associate Professor WANG Bo, Associate Professor HAO Han and other professors from the School of Vehicle and Mobility. Through theoretical lectures and interactive seminars, this course systematically introduces new energy, intelligent network connectivity, autopilot, intelligent transportation, automobile safety, automobile design, and automotive industry and carbon neutrality. After taking this course, students will have mastered the basic knowledge, basic concepts and key technologies of smart vehicles.

"The Creation and Growth of Technology Enterprises", led by ZHANG Jiayin, Associate Professor of the School of Economics and Management, will be taught by DENG Feng, founder of Northern Light Venture Capital and the distinguished visiting professor of Tsinghua University, and many other Chinese business leaders. Through case studies into Chinese practice, the course enables novel thinking, discussion and perspectives on the commercialization of new technologies, the key elements of the creation and growth of technology companies, and general regularities. Based on different modules, the course will invite heavyweights in the industry to share and discuss real cases.

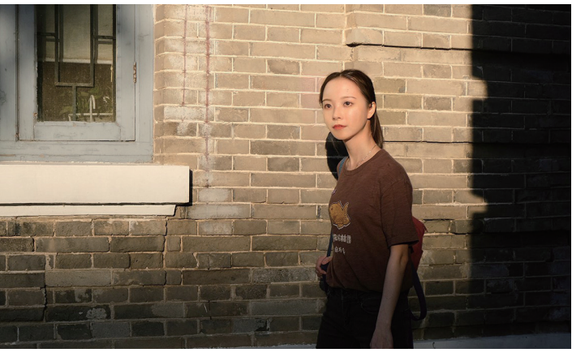
"Positive Psychology" will be taught by Professor PENG Kaiping, Dean of the School of Social Sciences and Dr. ZHAO Yukun, Deputy Director of the Centre for Positive Psychology Research of the School of Social Sciences. Positive psychology is a school of psychology that has emerged in recent years. This course introduces the principles, scientific research and application methods of positive psychology, especially research and methods on the meaning of life. It helps students understand their own positive potential and development path mentally for a better, more prosperous and meaningful life.

Tsinghua University launched the Global Hybrid Classroom in the spring semester of 2021, enabling Tsinghua students and overseas university students to attend "the same class" to build a global localized classroom and seek mutual recognition of credits. As of the fall semester, more than 400 students from Saint Petersburg State University in Russia, Nanyang Technological University in Singapore, Politecnico di Milano in Italy, Universidad de Chile and other universities have joined Tsinghua classrooms, and over 60 Tsinghua students have attended courses provided by Nanyang Technological University, Hong Kong University of Science and Technology, Waseda University, Universidad de Chile, Saint Petersburg State University, and other universities.

The launch of the Global Open Courses aims to build a global environment, promote the multicultural exchange of Chinese and foreign students, spark discussion on common issues and challenges facing the world, foster the "togetherness" mindset, and promote "togetherness" education. In the future, Tsinghua University will continue to make more quality educational resources accessible to all through innovative and integrated teaching methods. As President QIU Yong once said, Tsinghua strives to "develop quality open courses available to the world, tell the stories of Tsinghua and China", and build itself as a more open, integrative and resilient university.

SCIENTIFIC INNOVATION

A big new player in large-scale natural-language AI



Introducing the world's largest natural-language artificial intelligence model – the multi-lingual, multimedia-generating Wu Dao.

China's first super-scale natural-language AI was unveiled in early 2021, and an even larger version of 1.75 trillion parameters was released in June. It's currently the world's largest natural-language artificial intelligence (AI) model, able to understand and generate coherent text and images based on content and images in Chinese, as well as English and other mainstream languages.

Development of the AI, called Wu Dao, was led by Jie Tang, a professor in Tsinghua's Department of Computer Science and Technology and vice director of academics at the Beijing Academy of Artificial Intelligence (BAAI).

In essence, Wu Dao is an algorithm that studies datasets of images, video and natural-language text to reproduce statistical patterns that can generate coherent and relevant words and visuals, explains Tang.

It's thought that Wu Dao and similar tools could eventually help streamline paperwork, and generate video captioning and press releases, among other things. Tang and his team have created start-up Zhipu.AI to further develop these uses.

Wu Dao 2.0's creators point out that its number of parameters is ten times that of its most high-profile rival GPT-3, which was launched for beta testing in 2020 by San Francisco-based research laboratory OpenAI.

When GPT-3 was released, pundits were quick to explore its ability to come up with linguistically sound poems, memes and songs, although the meaning created by the AI was often nonsensical. Today, GPT-3's source code is licensed exclusively by Microsoft.

While Wu Dao 2.0 will undoubtedly improve upon this output, the ultimate hope, explains Tang, is that "the next generation of these tools will incorporate pretrained language models, large-scale knowledge graphs, and logical reasoning to produce meaningful content as well as, if not better, than humans".

In fact, at the same time that Wu Dao 2.0 was released, the Tang's team also introduced China's first virtual student, who joined the Department of Computer Science and Technology at Tsinghua. Named Hua Zhibing, she is a personification of the Wu Dao model, able to learn from all kinds of data to improve her cognition over time. Using Wu Dao, Zhibing is already able to compose music, reason, react to emotions, answer questions and even code, among other things. Zhibing was co-developed by the Beijing Academy of Artificial Intelligence, Tsinghua AI spin-off Zhipu AI and Microsoft-owned Asian chat bot pioneers, Xiaoice.

Making international AI

This isn't Tang's first attempt at counteracting the English-language bias of AI. In 2013, he and his team at Tsinghua created XLORE, the first large-scale cross-lingual knowledge graph to provide advanced knowledge linkages between Chinese and English text. The group used machine learning on Wikipedia in Chinese and English, as well as two Chinese-language encyclopedias to balance a discrepancy in language inputs due to the size of Wikipedia in English.

"XLORE was built to address the scarcity of non-English knowledge, the noise in the semantic relations, and the limited coverage of equivalent cross-lingual entities," explains Tang. XLORE, he says, has also been used to help train Wu Dao.

Before that, Tang's Tsinghua team had already created a researcher database using a multi-lingual data-mining tool. The database, AMiner, was launched in 2006. The mining algorithm collates academic profile and collaboration information in multiple languages, helps to resolve name ambiguity, offers social influence analysis and recommends research partners. So far, it has indexed more than 133 million researchers. The work was first presented in 2008 at annual international data-mining conference KDD'08. In 2020, it won the Association for Computing Machinery's SIGKDD Test-of-Time Award.

Four subsets of Wu Dao

Tang's Wu Dao team includes more than one hundred researchers, not only from Tsinghua, but also Peking University, Renmin University of China and the Chinese Academy of Sciences. In March 2021, BAAI unveiled four distinct branches of the AI.

Professor Jie Tang from Tsinghua's Department of Computer Science and Technology is also Vice Director of Academics at the Beijing Academy of Artificial Intelligence (BAAI). He spoke about key eras in AI innovation at the launch of Wu Dao 1.0 in March 2021.

The first is Wen Hui, a model designed to explore cognitive ability of pretraining models. It can create poems, videos, and images with captions. Its potential uses include simplifying work for e-commerce retailers by creating product descriptions and facilitating product shots. BAAI says Turing tests show the model achieves near-human performance in poetry. Wen Hui was partly trained on the largest pretraining model to-date, featuring 1.75 trillion machine-learning parameters, and features complex reasoning, and text and image search functions.

Wen Hui showcases a series of core technical innovations: FastMoE is the first Mixture-of-Expert (MoE) framework that supports PyTorch and native GPU acceleration, which is the foundation for the realization of a trillion-parameter model. It is easy-to-use, highly flexible, and runs 47 times faster than a naive PyTorch implementation.

GLM (General Language Model) is a general pretraining framework based on autoregressive blank filling, that unifies different pretraining models including BERT and GPT, and achieves state-of-the-art performance on natural language understanding, unconditional generation, and conditional generation at the same time.

The P-tuning 2.0 algorithm closes the performance gap between few-shot learning and fully-supervised learning.

CogView is a novel framework that achieves text-to-image generation via large-scale Transformers pretrained on aligned pairs of texts and images. It significantly outperforms OpenAI's DALL•E model on the MS COCO benchmark.

The Wen Lan model was trained on a Chinese-language dataset consisting of 650 million image-text pairs. It maps sentences and images into the same space and can be used for pure cross-modality searches between images and text. It will eventually be able to create images or videos given text, and caption videos, says Tang. Three applets have already been developed using Wen Lan: MatchSoul, which matches images with humorous, literary, and philosophical text; Soul-Music, which matches images with relevant song lyrics; and AI's Imaginary World, which matches sentences with relevant high-quality images.

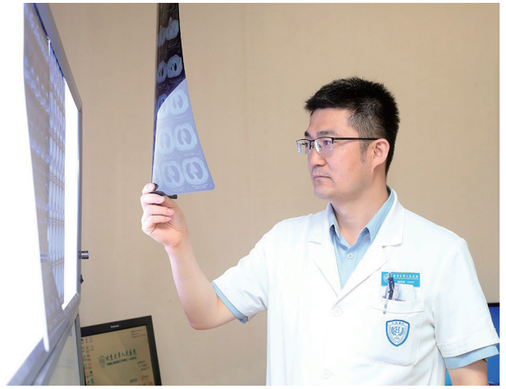
The aim is to keep developing Wu Dao with more cognitive AI functions to instill it with powerful reasoning and sense-making abilities.

Wen Yuan is the world's largest Chinese-language AI model and harnesses a suite of efficient, cost-effective and environmentally friendly techniques. Using Wen Yuan's framework, for example, one model with 198 billion parameters only required the processing power of 320 GPUs to run, while GPT-3, which has 175 billion parameters, uses 10,000 GPUs. The team working on Wen Yuan released several Cost-effective Pre-trained Models (CPM-2), which achieve excellent performance in eight tasks in Chinese, including reading comprehension, summarization, and numerical reasoning.

Finally, a tool called Wen Su has been built to predict ultra-long protein structures, and has already been trained on a variety of datasets.

Talks are underway about deploying these tools for e-commerce giant Alibaba, search engine Sogou, and Xinhua News Agency, among others.

A new rapid lung-cancer drug sensitivity test



An organoid-based test to predict drug effectiveness returns individualized results within a week for the world's deadliest cancer.

Hundreds of miniature organs, or 'organoids', grown in a nanoliter-scale microwell array system designed by Tsinghua researchers and their collaborators could soon be used to speed up decisions about personalized lung cancer drug treatment.

In Nature Communications in May 2021, Tsinghua's Peng Liu and his collaborators showcased how their new drug sensitivity testing system could produce results on lung cancer tumor tissue samples within a week.1

A long wait for personalized prediction
Patient-derived organoids (PDO) are useful for personalized drug testing because they reflect the basic structural and functional characteristics of the original cancer tissue. The three-dimensional cellular structures are grown from a patient's biopsy or from surgically removed tissue samples.

In the May paper, the researchers were able to create a tiny and fast PDO production, isolation and drug reaction testing system by processing lung cancer tumor tissues in a special integrated superhydrophobic microwell array called the 'InSMAR-Chip'.

Culturing enough PDOs to run a test to determine which drugs will be most effective usually takes weeks or even months. "The initial number of PDOs generated from lung cancer tissue ranges from several to thousands, but the number of PDOs required to complete drug screening in a typical well plate is in the order of millions," explains Liu, a professor in Tsinghua's Department of Biomedical Engineering.

For lung cancer this is particularly problematic as diagnosis is often late. The world's deadliest cancer has broad symptoms, such as coughing and wheezing, and as a result, in the United States, more than two-thirds lung and bronchial cancers cases between 2010 and 2016 were found at a late stage. "Patients are reluctant to wait until they receive drug sensitivity test results," says Liu. "So shortened testing times will be significant to lung cancer patients in particular."

Previous clinical studies on colorectal and gastroesophageal cancer suggest that tests with PDOs could be highly successful in predicting whether a given drug will be effective for certain patients.

Reactions at the nanoscale

In creating a sample processing method that increased the number of organoids derived from patients, a key component was to culture the organoids at the nanoliter scale on the InSMAR-Chip, which contains 108 miniature-sized wells for measuring drug reactions.

Conventional cell culture techniques at microliter-scale volumes require prolonged in vitro expansion to generate enough quantities of PDOs to take meaningful measures in that sized well. The nanoliter-scale wells on InSMAR-Chip makes it possible to evaluate responses to anticancer drugs from just hundreds of organoids.

The InSMAR-Chip builds on Liu's previous development, the SMAR-Chip, and includes enhancements such as the use of new, water-repellent materials that help create uniform droplets in each of the wells.

Tests with the InSMAR-Chip can also flag acquired drug resistance; the team verified that lung cancer organoids derived from a patient with resistance to tyrosine kinase inhibitor therapy also showed greater resistance to the drug in the InSMAR-Chip test. "The drug responses reported using our method correlated strongly with genetic mutations and clinical outcomes," concludes Liu.

Towards universal use

While the team conducted the current study on lung cancer, they have since applied the technology to colorectal, ovarian, liver cancer, and pancreatic cancer.

But a challenge remains with the number of PDOs that can be generated from middle- and advanced-stage patients. "Many such samples are obtained through punctures and the number of PDOs generated from these samples is very limited. The success rate of establishing organoids is low," says Liu. "We will continue to optimize the sample processing method and organoid culture conditions, with the aim of making this technology more universal."

Realization of non-Markov chain in a 2D mineral-based RRAM device

Researchers from Tsinghua Shenzhen International Graduate School have realized a non-Markov chain algorithm in a two-dimensional (2D) mineral-based resistive random access memory (RRAM) device. The breakthrough was recently published in the journal Science Bulletin.

Non-Markov algorism plays a significant role in predicting future states of a system. Compared with Markov chains, non-Markov chains are closer to reality and more conducive to running complex algorithms such as data prediction. However, their applications are limited, as devices with non-Markov functions traditionally have a complex structure and high power consumption. 2D RRAM devices have been gaining attention for their potential in next-generation computing systems due to their high operation speed, integration density, and application potentials in algorithms. Currently, more research is needed to realize non-Markov functions in 2D RRAM devices in order to achieve more complex algorithms.

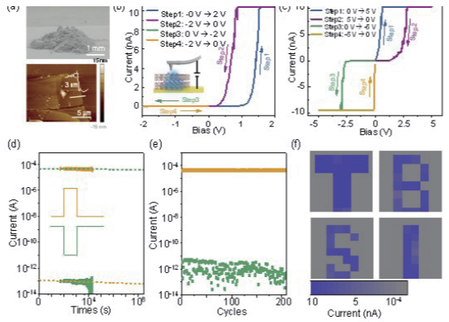
For the first time, the team led by Prof. Hui-Ming Cheng and Associate Prof. Bilu Liu has successfully achieved the non-Markov chain algorithm in a single 2D mica-based RRAM with three states. The team found that 2D mica had excellent ionic conductivity and revealed the characteristics of inner ion (K+) migration within the material. The migration of the inner K+ contributes to a high on/off ratio of 103, long retention time of more than 108 s, as well as the high stability and reliability of the 2D mica-based RAAM device.

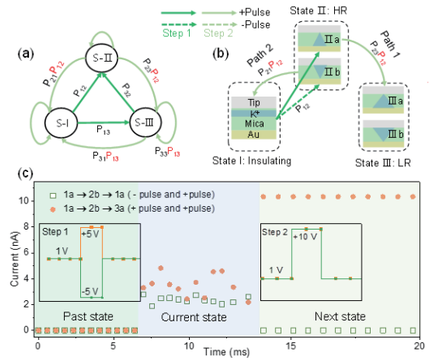
This study demonstrated the resistance characteristics of 2D mineral-based RRAM devices under electric field control, revealed its resistance change principle, and proposed feasible methods for implementing non-Markov chains in such devices, which may have applications in areas of artificial intelligence and big data algorithms. The study also highlighted the great potential of 2D mineral materials for electronics.

This work was supported by the National Natural Science Foundation of China, Guangdong Innovative and Entrepreneurial Research Team Program, and the Bureau of Industry and Information Technology of Shenzhen.

Figure 1. Electrical characteristics of RRAM based on 2D mineral mica.

Figure 2. The realization of a non-Markov chain in a single 2D mineral RRAM.





A new study elucidates an important mechanism of bipolar disorder involving the disruption of spontaneous neurotransmitter release in PLOS Biology

In a paper published online in PLOS Biology on July 6, 2021, Jun Yao and co-authors of Tsinghua University reported their findings in the mechanism involving the deficits of Synaptotagmin-7-mediated activation of spontaneous NMDAR currents in bipolar disorder (BD), which is a complex neuropsychiatric disorder characterized by intermittent episodes of mania and depression.

Figure 1. Syt7-triggered spontaneous glutamate release in the peripheral active zone efficiently activates postsynaptic GluN2B-containing NMDARs.

Neurotransmitter release usually has two subtypes, including the action potential (AP)-evoked release and AP-independent spontaneous release, which is still triggered by Ca2+ signals. While the AP-evoked neurotransmitter release plays a crucial role in the transduction of neuronal signals to the downstream cells, spontaneous release has been found to play important roles in a variety of neural functions such as neurodevelopment, brain homeostasis and neurological disorders. In the past twenty years, two candidate proteins have been found to act as Ca2+ sensors to trigger spontaneous release.

Previously, Yao and co-authors have reported that glutamate release specifically triggered by Synaptotagmin-7 (Syt7) plays an important role in the induction of bipolar-like behavioral abnormalities in mice. In this study, the authors first utilized the CRISPR interference gene knockdown technique to silence the two candidate Ca2+ sensors for spontaneous glutamate release, and still observed a large amount of spontaneous release events. Based on this, the authors further inactivated Syt7 and observed that the frequency of spontaneous release was largely diminished. This result indicated that Syt7 likely functioned in spontaneous release. As Syt7 has a very unique characteristic in that it can respond to not only Ca2+ but also Sr2+ to induce membrane fusion, the authors analyzed in the brain slices the changes in spontaneous release induced by rapidly substituting extracellular Ca2+ with Sr2+. They found that following the Ca2+/Sr2+ switch, the spontaneous release was enhanced in wild-type neurons but it was attenuated in the Syt7-deficient neurons. The authors further tested the performances of Syt7 mutants with Ca2+ binding activity abolished and Ca2+ dose response to spontaneous release. All the results supported the theory that Syt7 acted as a third Ca2+ sensor to drive spontaneous glutamate release.

Next, the authors investigated how the physiological function of Syt7-triggered spontaneous glutamate release. Based on their findings in 2020 that Syt7 deficiency induces GluN2B-NMDAR deficits that contribute to the induction of BD-like behaviors, the authors soon discovered that, compared to non-Syt7-triggered spontaneous release events, the Syt7-dependent events that occurred in the peripheral synaptic region could efficiently activate the juxtaposed postsynaptic GluN2B-NMDARs. Moreover, modifying the localization of Syt7 within the release site still allowed Syt7 to trigger spontaneous release, but positional non-correspondence abolished the activation of the GluN2B-NMDARs. Hence, Syt7-triggered spontaneous glutamate release was involved in bipolar disorder through activating the GluN2B-NMDARs.

The involvement of Syt7 deficits in BD was initially discovered by the authors using induced pluripotent stem cell (iPSC) technology, and later they identified several Syt7 mutations in BD patients. Thus the authors investigated the performance of these mutations using the iPSC model of BD, and found that they could no longer activate GluN2B-NMDARs through spontaneous release in BD patient iPSC-derived neurons. The authors therefore concluded that Syt7 acts as a Ca2+ sensor for a subpopulation of spontaneous release events with a unique physiological role in bipolar disorder.

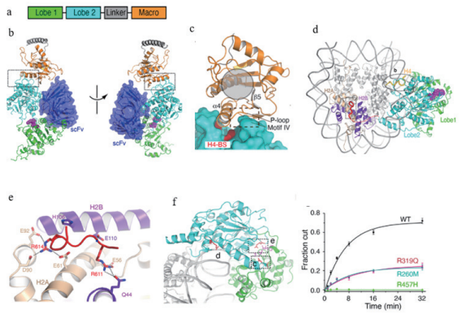
Dr. Jun Yao, from the State Key Laboratory of Membrane Biology, School of Life Sciences, Tsinghua-Peking Joint Center for Life Sciences, McGovern Institute for Brain Research, Tsinghua University, is the corresponding author of the paper. Dr. Qiu-Wen Wang is the first author of the paper. All other co-authors made significant contributions to this study.

Zhucheng Chen's group at Tsinghua University reveals the structure and regulation mechanisms of chromatin remodeler ALC1

Recently, Professor Zhucheng Chen's group at the School of Life Science reported the crystal structure of human ALC1 (amplification in liver cancer 1, also known as CHD1L: chromodomain helicase/ATPase DNA binding protein 1-like) and the cryo-EM structure bound to the nucleosome. In combination with biochemical analyses, their findings shed light on the regulation mechanisms of the enzyme, paving the way for drug discovery targeting ALC1 for the treatment of cancer.

In eukaryotes, the genomic DNA is wrapped around histones to form nucleosomes, which are further assembled into chromatin. Packages of the chromatin within the nucleus block access to the DNA. Chromatin remodelers alter the positions and compositions of nucleosomes, regulating the chromatin structure and various nuclear transactions. Tight control of the activity of remodeling enzymes ensures the proper chromatin landscape and cellular functions. ALC1, a member of the Snf2 superfamily ATPases, contains two RecA-like ATPase domains (lobe 1 and lobe 2) and a C-terminal macro domain (Fig a). ALC1 relaxes chromatin and plays an important role in the poly (ADP-ribose) polymerase 1 (PARP1)-mediated DNA repair pathway. With DNA damage, PARP1 is activated and catalyzes the synthesis of poly (ADP-ribose) (PAR) chains on itself and on many other proteins. The PAR chains are bound to the macro domain of ALC1, releasing the autoinhibition of ALC1 and targeting the remodeler to the sites of DNA damage, where ALC1 slides the nucleosome and opens the chromatin.

ALC1 is amplified in over 50% of the cases of hepatocellular carcinoma (HCC). The oncogenic functions of ALC1 are widely demonstrated both in vitro and in vivo. A high level of ALC1 expression significantly reduces the postoperative survival rate of HCC patients. All of these indicate that ALC1 is an attractive target for cancer treatments. Despite its importance in DNA repair and clinical implication, the structure of ALC1 and its regulation mechanisms remain unclear.



It is a challenge to determine the structure of ALC1, as it is notoriously flexible. In 2017, two studies reported the possible structure models of ALC1, using the methods of hydrogen-deuterium exchange (HDX), mutagenesis, small-angle x-ray scattering (SAXS) and cross-linking mass-spectrometry (XL-MS). In order to stabilize the conformation of ALC1, Chen's group screened a yeast-display library and obtained single chain antibodies (scFvs: single-chain antibody fragments/ single-chain variable fragments) directed against ALC1, which finally led to crystals diffracting to 3.5 Å (Fig b).

The crystal and the cryo-EM structures of ALC1
a. Domain architecture of ALC1
b. Two different views of the crystal structure of ALC1 in the autoinhibited state
c. The view of the macro-lobe 2 interaction
d. Top view of the cryoEM structure of the ALC1-nucleosome complex
e. Structure of the linker region of ALC1 bound to the acidic patch of the nucleosome
f. Dysregulation of ALC1 by mutations found in cancer patients

The structure shows that lobes 1 and 2 of ALC1 have little direct interaction, suggesting a large degree of conformational plasticity and explaining the difficulty of crystallizing ALC1 in the absence of the antibody. The macro-domain interacts with lobe 2 and sequesters two elements important for nucleosome recognition (Fig c), which provides the structural basis of ALC1 autoinhibition. To gain insights into ALC1 activation by the nucleosome, they determined the cryo-EM structure of ALC1 bound to the nucleosome (Fig d). Notably, in addition to the interactions with DNA and the H4 tail of the nucleosome, ALC1 is bound to the H2A-H2B acidic patch of the nucleosome (Fig e). The cancer-related mutations were found to dysregulate ALC1 by diverse mechanisms (Fig f). The structures and regulation mechanisms of ALC1 revealed in this study pave the way for the future discovery of drugs that target ALC1 in cancer treatments.

This work was published in "Nature Communications", with the title of "Structural basis of ALC1/CHD1L autoinhibition and the mechanism of activation by the nucleosome". It is an important part of the work by Chen's group on chromatin remodeling. Li Wang and Kangjing Chen, 2017 PhD students in the School of Life Science, Tsinghua University, are co-first authors of the paper and Professor Zhucheng Chen is the corresponding author. This work was supported by the National Natural Science Foundation of China, National Key Research and Development Program, Advanced Innovation Center for Structural Biology and Tsinghua-Peking Joint Center for Life Sciences. The Tsinghua University Branch of the China National Center for Protein Sciences Beijing provided facilities and the staff at beamline BL17U of Shanghai Synchrotron Radiation Facility helped with diffraction data collection.

Tsinghua and BAAI to cooperate on improving public health with AI

The Institute for AI Industry Research,Tsinghua University (AIR) and the Beijing Academy of Artificial Intelligence (BAAI) announced on 20 August that they would be building a research center on the coordinated development of all sectors in the health industry with the help of artificial intelligence.

The move aims to create a new pattern featuring early prediction, active prevention, personalization and active participation, and to offer more intelligent personal health management and more effective public health governance.

The new research center will create a personalized health management system for individuals, connect software with intelligent hardware through a healthy diet and lifestyle, and build an "AI + health" management ecosystem that covers scientific research, technical breakthroughs, platform construction, product development and business incubation.

Through a multimodal neural symbol AI, combined with correlation, attention mechanisms and causality, the center will enable different expressions and models to be trained and learned from each other.

Meanwhile, it will combine cutting-edge AI technology, such as in confrontation, collaboration, multi-modality, multi-tasking, migration learning and federal learning, to maximize the huge potential of personal health data, give full play to the collaborative ability of health data, and build a platform for active, personalized and intelligent health applications.

The center is cooperating with the research teams of life sciences, medicine and public health of Tsinghua University to carry out more research.

New therapeutic strategy for spinal cord injury developed by Beijing Tsinghua Changgung Hospital and School of Materials Science and Engineering from Tsinghua University

A new implantable functional hydrogel for spinal cord injury rehabilitation has been developed by intercollegiate collaborative teams from Tsinghua University, led by Prof. Guihuai Wang of Neurosurgery at Beijing Tsinghua Changgung Hospital and Prof. Xiumei Wang at the School of Materials Science and Engineering of Tsinghua University. Animal studies have shown that the hydrogel promoted structural remodeling and function recovery for spinal cord injury, and implied a new strategy for spinal cord injury treatment.

Spinal cord injury can be caused by trauma, infections or tumors, and is always accompanied by a series of complications with high morbidity or mortality, which is a major challenge for neurosurgery practitioners. In recent years, the development of tissue engineering-based therapies has provided new strategies for spinal cord injury treatment.

Prof. Guihuai Wang's team and Prof. Xiumei Wang's team have collaborated intimately through multidisciplinary methods to develop a novel multifunctional nanofiber composite hydrogel with hierarchically aligned fibrin hydrogel/functionalized self-assembling peptides (AFG/fSAP). The hydrogel was made of non-toxic and absorbable fibrin and peptide. The nanofibrin as well as the self-assembled peptide which could promote axonal regrowth and angiogenesis were fabricated through liquid reception electrospinning technique to form the interpenetrating network structure.

AFG/fSAP can simultaneously provide physical support, directional guidance, neurotrophic and angiogenic regulatory signals to the injured neural tissue. It can also promote tissue regeneration and motor function recovery through regulating the behavior of neurons, glial cells, vascular endothelial cells and other cells within the injury site after implantation into the injury site of a rat's spinal cord.

This work entitled "A multi-modal delivery strategy for spinal cord regeneration using a composite hydrogel presenting biophysical and biochemical cues synergistically" was published in Biomaterials, a leading international journal in the field of biomaterials. Dr. Wei-Tao Man, a neurosurgery resident at Beijing Tsinghua Changgung Hospital, is the first author, and Ms Shuhui Yang, a PhD student at the School of Materials and Engineering is the second author of this work. Profs. Guihuai Wang and Xiumei Wang are co-corresponding authors.

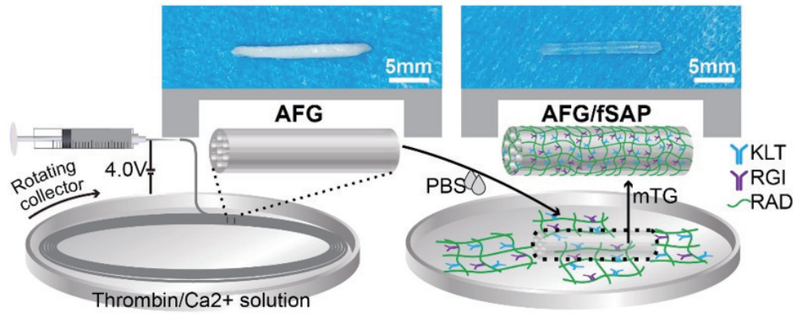


Diagram of AFG/fSAP synthesis process

TSINGHUA COMMUNITY

Happy International Youth Day!

Editor's Note

Coming to Tsinghua at a young age, many students have the opportunity to pursue their interests with passion. In celebration of International Youth Day on August 12, four students share their experience at Tsinghua. Not only has Tsinghua shaped their career paths and personal growth, but the four young people have contributed to the community in their own ways.

Find out how the four youngsters from all corners of the globe came together, being inspired by the motto of "self-discipline and social commitment" during their years at Tsinghua.

"Being able to understand human dignity and value through the Chinese lens is an opportunity that cannot be matched. My ability to explore this perspective has been in large part due to being a part of Tsinghua."

——Albert Mhangami

Albert Mhangami is a Zimbabwean graduate student studying Chinese politics, foreign policy, and international relations (CPFP). During his studies, he had the chance to witness the concrete achievements of China's contributions to poverty relief.

While studying poverty alleviation, Albert was highly impressed by the trillions of yuan invested in infrastructure, and hundreds of provincial and municipal experiments. These numbers seemed intangible, so Albert started engaging in field research and went to Chongqing and Anhui with Tsinghua's teams to see for himself.

He talked with local people, observed infrastructure construction and got to know how creative ideas resulted in more income and more jobs. After this experience in rural areas, he found "a sense of confidence in a government that prioritized the people in the global battle against poverty."

"I have experienced countless joys, laughter, achievements and academic challenges. Every day at Tsinghua has made me grow as a person, but I owe it mostly to Tsinghua's great diversity."

——Andres Ospina

Andres Ospina is a Colombian student from the School of Journalism and Communication and the President of the Latin American Student Organization (LASO) at Tsinghua.

Having discovered his goal to represent his culture as a Colombian and a Latin American in China, Andres views Tsinghua as the best place to start. LASO (Latin American Student Organization), founded in 2017, aims not only to become a "family while abroad" but also to share Latin American culture with others. By leading and managing the organization, Andres learned about leadership and governance.

In the future, Andres would like to research Sino-Colombian relations, research deeper into China, and work with children, particularly from rural areas.

"Gracias, Tsinghua, for everything you have given us. I hope more Latinos are fortunate enough to become a part of this community in the years to come."

"What my father used to say - 'Get out of the mountains to reach for broader views, but ground yourself in contributing to your hometown no matter how far you go' – has always been my guiding light."

——Xie Zongxu

Xie Zongxu is a Chinese Ph.D. student who is a member of the Miao ethnic minority in Guizhou, and now serves as president of the Student Association of the Belt and Road Initiative (SABRI).

Upholding the value of both knowledge and practice, Zongxu is not only a specialist in his major, hydraulic engineering, but also actively engages in cross-cultural activities and is fluent in three foreign languages- English, German, and Spanish. With a passion for deeper understanding of different cultures, he has been on trips to Pakistan, Nepal, South Africa, the Philippines, Egypt, Uganda, Malaysia, and other countries for research, internships, and study visits.

Giving back to both the local and global community has always been the motivation of Zongxu's work. He worked with international youth organizations in countries such as Rwanda to explore China-Africa cooperation in youth poverty alleviation, and conducted in-depth research on shanty towns and the life of women in the Philippines.

"Upon the outbreak of COVID-19, we mobilized more than 70 young volunteers from nearly 30 countries to participate in the translation campaign of public service materials into 17 languages."

"Thank you, all the international relations professors at Tsinghua, for challenging us and preparing us for a career in this field."

——Sophia Elizabeth Rosales

"My experience here has greatly influenced my career path," says Sophia Elizabeth Rosales (USA), an alumnae from the School of Social Sciences, who will work for a nonprofit focused on nonproliferation in Washington D.C. after graduation.

Originally enrolled in a dual degree program with Johns Hopkins University SAIS, Sophia was supposed to spend one year in China, but she eventually transferred into a two-year master's program at Tsinghua to stay longer. "My experience in China has shown me all sides of culture, language, and community," she describes.

During her days at Tsinghua, Sophia received opportunities to travel to Malaysia and Indonesia to conduct a comparative study on China's Belt and Road Initiative, for which her team won the Bronze Prize for Social Practice. She also convinced a small group of classmates to start the first academic journal for Tsinghua's Department of International Relations.

Tsinghua marks the coming-of-age of many students, and their years at Tsinghua represent only the beginning of a promising future. At the same time, as TsinghuaRen move forward in their lives, the precious memories of their youth spent on campus linger in their mind forever.

May you stay forever young at heart.

Happy Teachers' Day!

Editor's Note

Today is Teachers' Day in China, students are sharing their heartfelt wishes to their teachers for their tireless guidance, mentorship and the key role they play in their lives and futures.

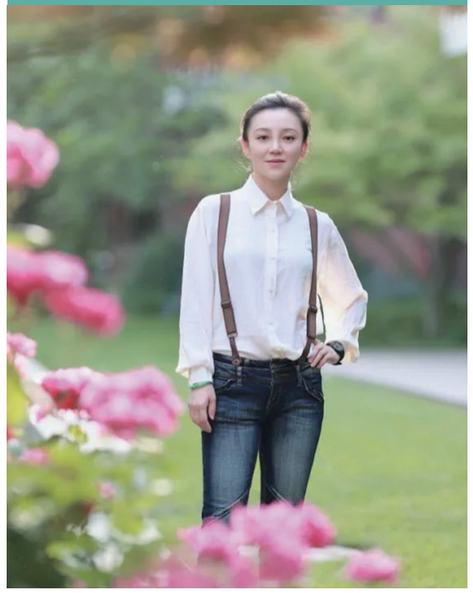
Qian Yi: Devoted to education and environmental protection

"I have been devoted to two things in my life, education and environmental protection. I find these two things are both good for the world so I am gratified," said revered octogenarian academician Qian Yi in a series of lectures named Humanitas Tsinghua.

Despite being the daughter of Qian Mu, one of the greatest historians and philosophers of 20th-century China, Qian Yi, also an academician of the Chinese Academy of Engineering, believes that every student should apply the concept of sustainable development to his or her major and future work. Thus, she has been teaching a course on "Introduction to Sustainable Development" since 1998. Apart from education, Prof. Qian devotes her life to environmental issues such as clean industrial production.

In the documentary The Great Learning, she visited her 101-year-old teacher Xu Baojiu on Lunar New Year's Eve, symbolizing the never-ending teaching spirit, "For me, there is always room for improvement and of course the future depends on youth."

Xiao Wei: Living up to our mission



Xiao Wei received her bachelor's degree from the Beijing Film Academy and her master's degree from the Central Academy of Drama. During her doctoral studies, she taught acting and directing classes at the Beijing Dance Academy. Such study experience has long been entangled with her art creation and art education. In 2013, by chance, she embarked on a wonderful journey to meet the theater of "New Tsinghua Xuetang". She said it was "love at first sight" and that she would "never regret it". And just like that, she remained there until now.

When faced with some tempting job opportunities, she hesitated, but in the end she stayed. "At first I was influenced by my parents and family. But then I realized that I really loved working on campus. I feel quite comfortable with teaching. More importantly, I have a natural respect and awe for teaching".

Busy with teaching, preparing lessons, creating, rehearsing, writing academic monographs, reading English materials and attending workshops, she tried her best to keep exercising and keep fit despite the intensive work. She has been like this day after day and never allowed herself to rest. "The excellence of students in Tsinghua poses the greatest challenge to teachers. I feel like I'm wasting their time if I'm not teaching them well enough. We must live up to their youth and live up to our mission".

Compared with professional art colleges and universities, art education in comprehensive universities is quite different, which requires her to adjust her teaching concepts and teaching methods accordingly. After getting to know the artistic atmosphere at Tsinghua, Xiao Wei found that the students were much more active than she had expected. The positive communication atmosphere gave her great confidence. She felt that perhaps some interdisciplinary, distinctive, high-end and innovative art courses could be developed at Tsinghua University in the future.

In the past, Xiao Wei loved to create and hoped to bring power to people through her work. Now, she still loves it, but in a different way: "As a teacher, my best work is my students." "My responsibility to each one of them is greater than my expectation of a piece of work," she said.

Cai Zheng: Pushing a world-leading telescope in Tsinghua

Cai Zheng is a young astrophysicist at Tsinghua University. He was a NASA Hubble Fellow and could continue his career in the U.S., but he chose to come back as a faculty member in the Department of Astronomy, a new department in Tsinghua. He joined Tsinghua just before the establishment of the Department of Astronomy, where he became a junior faculty member.

After more than ten years in the U.S., he has made several discoveries in the field of galaxy and cosmology in early Universe. Moreover, he always cherishes one dream: to build a world-leading optical telescope for China, presenting people the image of the boundary of the deep Universe. He hopes that in a Chinese University, people can also conduct the cutting-edge science using our own telescope.

Of course, building such a large facility is not easy. Cai Zheng and the team has to deal with many challenges in technology, human resources, management, and so on. He insisted: "It is not easy to achieve something, but I'd like to devote myself into this, because someone has to do this." As President Qiu has said, "Out of ten attempts for true innovation, nine may fail and only one may be successful." It takes at least seven years to build a telescope, and Cai Zheng is willing to spend his life forging this telescope that carries his dream. This is not only a longing like looking up at the stars, but also a pursuit that requires down-to-earth effort.

Students' messages

I appreciate every opportunity given by Prof. Xiao. Since she knew I love to take pictures and edit videos on my phone, she gave me multiple chances to take pictures for her new play 'Art' and made me become the director of the trailer. As she is one of my favorite professors at Tsinghua, I wish her well in everything she does.

Jennifer Zhang
School of Journalism and Communication

As an undergraduate, I am glad to know Prof. Cai more in the documentary "Great Learning". I am deeply touched by his passion for astronomy and the determination to contribute to the country. I hope that he become a shining beacon in the field of astronomy.

Liu Xujia
School of Journalism and Communication

In my freshman year, I took a seminar given by Professor Qian called "Environment and Development". Before the course started, considering that she was in her eighties by then, I thought she would let the teaching assistant lead the course. But she was the first person to arrive in the classroom every time, and stood on the podium to teach us the content of the day. During the group discussion, she would participate in each group discussion, and guided and encouraged us. All this moved me deeply.

Yang Haiqi
School of Environment

The love and care you have given us will encourage us to go through a long journey. We are truly grateful to you for all that you have done. Happy Teachers' Day!

Yang Chen Ning: The most influential physicist of our time

Editor's Note

Throughout Tsinghua University's history of 110 years, great masters in many fields have made great contributions to the world. We bring you a new series of feature stories, "Tsinghua Master," to share their inspiring stories.

Professor Yang Chen Ning, a Nobel Laureate in physics, an academician of the Chinese Academy of Sciences, and honorary president of the Tsinghua University Institute for Advanced Study, turned 100 years old on September 22.

President Xi Jinping extended his best wishes to Professor Yang on his birthday. He also asked officials from the Ministry of Education to visit Yang at Tsinghua University, who presented a flower basket to him on Xi's behalf and wished him a healthy and long life.

Let's read this feature story about the most influential physicist of our time.

Passing through the Old Gate, you can see the early buildings of Tsinghua University. Visitors from all over the country and all over the world come here to take in the atmosphere of Tsinghua University as a century-old institution. In the northwest corner of these buildings stands the Science Building, the location of the Institute for Advanced Study where Yang Chen Ning serves as honorary director.

In order to advance the study of basic science in China, Tsinghua University established the Institute for Advanced Study in 1997, with Yang Chen Ning as the honorary director. Five years later, Yang decided to return to China and to his roots on the campus of the University – "Tsinghua Garden", as it had been known to him.

Recalling his experience studying abroad and anticipating the future of his educational dream after returning to China, Yang composed a poem called Guigen (Back to My Roots), in which he wrote:

China transforms and Tsinghua shoulders heavy responsibilities, students chase their dreams while I guide their path.

1 Fruitful Achievements –World-Renowned Physicist

On the four sides of a small marble cube that sits in the office of the Science Building, 13 major contributions that Yang has made to physics are inscribed. It was a present from Tsinghua University for Yang's 90th birthday.

Yang is best known as a member of the Chinese Academy of Sciences and a Nobel laureate. Some have described him as the third all-round physicist of the 20th century after Einstein and Fermi – a man possessed of a vast range of knowledge and talents. Others see him as a respected and humble elder – a man with whom one could argue about anything. In the field of physics, Yang's name is always associated with the two theories: Parity Non-Conservation in Weak Interaction, and Yang-Mills Non-Abelian Gauge Theory.

In the 1950s, particle physics was gaining momentum in the United States. At the time, scientists believed that parity was "conserved", meaning that a particle's mirror image had exactly the same properties as itself. But the Theta-Tau puzzle has made scientists wonder whether this was just an exception to Parity Conservation or a breakthrough to overturn it. The work of Yang Chen Ning and Tsung-Dao Lee solved the conundrum. Together in June 1956 they published an article in Physical Review, which proved that previous Beta decay experiments were not complex enough to confirm parity conservation. By putting forward several new experiments that could be used to verify parity non-conservation, Yang and Lee blazed a trail for further research into this theory.

Many physicists recall October 1957 as a time of excitement and legend. In that year, at the age of 35, Yang won the Nobel Prize in Physics. Yang and Lee thereby became the first Chinese laureates. The significance of the award lay not only in the academic achievement, but also in the boost it provided to the self-belief of a nation. Before that, the scientific talent of the Chinese had been questioned. Ching-Wu Chu, a distinguished physicist specialized in superconductivity and a member of the US National Academy of Sciences, was in high school at the time. He spent his spare time reading every news report he could find about Yang, and talked earnestly to his classmates about "parity non-conservation" – a subject on which they could understand nothing.

Tsu-Teh Chou, a professor of physics at the University of Georgia, was dining at a tiny Chinese restaurant in Liverpool, England, 12 years later, and overheard both the chef and the owner talking proudly about Yang's achievements.

In fact, the Yang-Mills Non-Abelian Gauge Theory has a much bigger academic influence than Parity Non-Conservation in Weak Interaction, earning him a reputation as a master in physics. According to Nie Huatong, former dean of the Institute for Advanced Study of Tsinghua University, "When Mr. Yang and Mr. Mills wrote their paper in 1954, 'Yang-Mills' was not recognized as a theory of physics, but only as a mathematical structure that might be useful for physics. By 1972, however, this very simple and beautiful mathematical structure was formally recognized as a fundamental structure of physics, and eventually laid the foundation for the weak interaction." The Yang-Mills theory is seen as a work that has reshaped the development of physics and modern geometry since the second half of the 20th century. The Franklin Institute presented the 1994 Bower Award and Prize for Achievement in Science to Yang, its citation saying, "This theoretical model, already ranked alongside the works of Newton, Maxwell, and Einstein, will surely have a comparable influence on future generations."

His groundbreaking contribution to theoretical physics made Yang a world-renowned physicist. Freeman Dyson, one of the founders of quantum electrodynamics and an internationally respected physicist, believed Yang was the preeminent architect of 20th-century physics after Albert Einstein and Paul A. M. Dirac. At Yang's 70th birthday party, Samuel C. C. Ting, another Nobel laureate, said,"When we think of the major milestones in physics during the 20th century, three things come to mind... the first one is relativity (Albert Einstein), the second is quantum mechanics (Paul A. M. Dirac), and the third is gauge theory (Yang Chen Ning)."

2 Fallen Leaves Return to Their Roots –An Unbreakable Bond with Tsinghua

Chen Fong Ching, former director of the Institute of Chinese Studies at the Chinese University of Hong Kong, once summed up Yang's life as follows: "His great achievements in physics represent only half of Mr. Yang's life – the other is his attachment to China. The two are inseparable." The blossoming of his patriotic sentiment would not have been possible without the nurturing of Tsinghua.

To Yang, Tsinghua was a childhood paradise. In 1929, he moved to Tsinghua with his parents because his father, Yang Ko Chuen, was recruited as a professor of mathematics at Tsinghua University.

As a child, Yang was full of enthusiasm. Despite the upheaval and turmoil in the world outside Tsinghua, both at home and abroad, Yang lived a peaceful and fulfilling life inside the school: He watched movies in the auditorium with his parents; he formed a cheerleading squad in the stadium with friends, cheering for the athletes of Tsinghua; he went skating on the frozen lotus pond during the cold winters... Yang later joked that he was not a well-behaved child when he was young. He climbed every tree in Tsinghua, but his father never corrected him too much for his unruly behaviors.

When the full-scale war against Japanese aggression broke out in 1937, Yang Chen Ning's family left Tsinghua. By March 1938, they found themselves in Kunming. That same year, Yang was admitted to the Department of Physics of National Southwest Associated University after completing one semester of his 11th grade. After graduation, he transferred to the Graduate School to pursue his master's degree. During his postgraduate studies, Yang developed a strong interest in symmetry principle, statistical mechanics, and many-body problem. According to him, it was the two papers he wrote in National Southwest Associated University that really solidified his academic interest. One was his bachelor's thesis, "Molecular Spectroscopy and the Principle of Symmetry", under the guidance of Mr. Wu Ta-You, and the other was the "Transformation of Order-Disorder" under the guidance of Mr. Wang Zhuxi.

After establishing his academic direction, Yang took the examination for the 6th Tsinghua University government-funded program for studying in the United States. In the spring of 1944, the examination results were announced, and Yang was the only student admitted to the physics major, which allowed him to study for his doctorate at the University of Chicago. After receiving his doctoral degree, Yang continued to devote himself to theoretical physics. He achieved notable success, but due to the precarious Sino-US relationship at that time, Yang could not return to his motherland.

In 1971, under the influence of Ping-pong Diplomacy, Sino-US relations eased to some extent. As a result, Yang set out from the United States through Canada and made his way back to China. He was the first Chinese scientist to return to China after the relationship between the two countries eased. By actively promoting cultural exchanges and mutual understanding between the two peoples, Yang opened the door to personnel exchanges and scientific and technological cooperation between the two countries. Yang also had a chance to make a return visit to his alma mater.

Since then, Yang has visited Tsinghua University many times, always concerned with strengthening science in his motherland, especially in the field of basic science research. His efforts eventually led to breakthroughs in the field at Tsinghua University. In May 1993, Tsinghua University recognized a significant challenge to be faced – to establish a truly world-class university, it must have first-class science majors. This required both funds and staff to support basic theoretical research in a relaxed but structured environment. Wang Dazhong, then Tsinghua's president, laid great emphasis on the system and research model of the Institute for Advanced Study at Princeton University in a report by the Faculty of Science. It was imperative to establish an institute for advanced studies. The development of the discipline needed leaders and builders who were well-known in scientific research worldwide, and there was no more suitable candidate than Yang Chen Ning. Therefore Tsinghua University offered a sincere invitation to Yang, hoping that he would steer the building of the Institute of Natural Sciences at Tsinghua University and give a strong boost to science majors in the University.

Yang had long been waiting for this moment. Despite having spent so many years abroad, his pulse continued to beat to the future of China. Recalling his ambitious dream winning a Nobel Prize he had harbored since the age of 12, and the solemn commitment made when he was leaving to study abroad that one day he would return, Yang could not suppress his excitement.

After careful preparation, the Institute for Advanced Studies of Tsinghua University was formally established on June 2, 1997, with Yang Chen Ning as the honorary director. Speaking at the inauguration, Yang anticipated that the institute would make a significant contribution to international science and technology in the coming 10, 20, or 50 years.

3 Stay Loyal to Where I Came from – For the Next Generation of Scientists

After returning to Tsinghua, Yang immediately threw himself into a compressed and busy work schedule, maintaining his vigorous attitude towards scientific research and teaching. In the fall semester of 2004, the 82-year-old Yang still lectured in General Physics to four freshman classes. He had two classes and one office hour session per week, prepared exam questions for the mid-term and final exams, and was present in the examination room. His role was exemplary for the students.

According to students who attended Yang's classes at that time, the classroom was always fully occupied with hundreds, or even close to a thousand students for each lecture. Those who were lucky enough would get a seat, while others huddled in the hallways or on the windowsills of the classroom. Those who could not squeeze into the classroom also gathered around the back door or the windows of the classroom to catch a glimpse of Yang lecturing.

In addition to his teaching, Yang was always ready to promote basic science in China and develop future talent. In 2009, there was a renewed discussion about the concern expressed by the renowned physicist Hsue-Shen Tsien – why Chinese universities could not foster outstanding talent on a par with the masters of the early 20th century. Chen Xi, then vice-minister of education and former secretary of the CPC Committee at Tsinghua University, came to Tsinghua to investigate how to better train basic researchers, and paid a special visit to Yang. Yang put forward many constructive suggestions outlining his expectations for the younger generation. Soon after, Tsinghua University set up a Physics Class, part of the Tsinghua Xuetang Program, aiming at training world-class physicists.

One of Yang's main concerns is to communicate with the next generation of scientists, hoping to inspire more young people with an interest in the discipline to contribute to the development of scientific fields in China. At the International Science Master Forum during the 15th annual meeting of the China Association for Science and Technology, in response to a senior high school student's question about "how to cultivate and maintain innovative spirit and curiosity", Yang answered that research on the frontiers of science generally goes through both painful times and happy times. "I think there are two very important mindsets that you must maintain simultaneously: The first is don't give up no matter what, and the second is if you really feel that you can't go on any more, you need to find yourself a new direction," he said.

Looking back on a relationship with Tsinghua University that has lasted for more than 90 years, Yang felt he had returned to begin a new career. "When I came back to Tsinghua, I started a new journey," he said. "My main goals here are to help Tsinghua train young people. Tsinghua has some of the best young people in China. It is a worthwhile mission to do something to help them and lead them towards the correct path in study and research. Of course, older people are calmer in general, and I have some hopes that when I look back, I have done something meaningful in my new career."

Now in his 90s, Yang strolls around the campus with a walking cane. Memories of the past are evoked as he passes by each scene on campus. Locust trees and ginkgo continue to flourish by the roadsides, while bright young students pass him by. Yang seems to see his own reflection in the students – the bright young man who was full of scientific enthusiasm.

Yang has spent his whole life in the ivory tower of academia, which has allowed him to maintain a certain level of simplicity and innocence. He recalls his youth at Tsinghua, his school years at NSAU, his academic journey in the United States, and his life back in Tsinghua since 2003. "My life has been a circle, where I started out from a point, travelled a long way, and finally returned to where I came from."

At the age of 100, Yang Chen Ning has returned to the starting point of his life journey, completing a voyage of almost a century in what seems like the blink of an eye. In his poem Thoughts in the 90s, Yang wrote, "My life is full of hopes and devotion with goals, principles, and no regrets." He has always been the boy who loved to climb trees, and he has spent his whole life climbing the "tree" that leads to the palace of science. "Being down-to-earth and simple" is Yang Chen Ning's expectation for China's endeavors in science, and also his life creed. It represents a belief that one of the most influential physicists of our time has practiced for his whole life.

Fighting Hunger: Jia Bo's two years at FAO

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.

This is the first installment in TsinghuaRen for SDGs series, which showcases efforts made by the Tsinghua people to promote the SDGs and accelerate the transition to a sustainable world.

Jia Bo was pursuing his undergraduate studies when he got accepted for an internship at the United Nations International Children's Emergency Fund (UNICEF) in Geneva, Switzerland. It was a feat in itself for the 23-year-old electronic engineering student, who had dreamed of working at international organizations since his freshmen year.

But it was still not his big moment. That would come months later when the Food and Agriculture Organization (FAO), a specialized agency of the United Nations that leads international efforts to defeat hunger, selected him first for an 11-month internship, followed by a full-time position as Capacity Building Specialist at its headquarters in Rome, Italy.

"I was absolutely thrilled. I couldn't be any happier," says Jia, who joined the FAO in July 2019, right after he graduated with a bachelor's degree from Tsinghua's Department of Electronic Engineering.

Jia worked at the FAO altogether for two years, becoming one of the youngest Tsinghua students to join a UN agency as a full-time consultant, thanks to Tsinghua's strong support, encouraging university students to apply for internships and jobs at the UN and other international organizations.

As Capacity Building Specialist, Jia used his expertise to develop knowledge products on cutting-edge technologies that help countries promote sustainable farming systems, improve agricultural productivity, enhance farmers' access to markets, and reduce food loss and waste—all essential to achieving the UN's second Sustainable Development Goal of creating a Zero Hunger world by 2030.

Current estimates by the UN show that nearly 690 million people are hungry, or 8.9 percent of the world population, and if recent trends persist, the number of people affected by hunger will surpass 840 million by 2030.

Even though the use of digital technologies has improved agricultural production and productivity over the years, the FAO says much more needed to be done to end hunger and malnutrition by 2030. One major factor hindering the digitization in agriculture has been the digital divide—many developing countries have not been able to effectively utilize digital technologies to transform their agricultural sector due to the unequal or lack of access to modern information and communications technology.

At the FAO headquarters, Jia's role was to help bridge the global digital divide. He worked on the development of an internal knowledge product called FAO Digital Portfolio, helping develop digital products based on technologies like mobile data collection, remote sensing satellite imagery, digital advisory, big data, cloud services, digital finance, e-commerce, and machine learning.

Regarded as a "Digital App Store," the portfolio was developed to encourage the re-use of the FAO's existing digital products to achieve greater food security,

profitability, and sustainability by increasing stakeholders' access to vital agricultural information.

Another project Jia took part in was the design of the FAO's Digital Agricultural Strategy Toolkit, a framework for countries to formulate their digital agriculture strategies and implement them for the revitalization of the agriculture sector. He participated in providing feedback and suggestions in an FAO project that supported Armenia in developing its national digital agricultural strategy.

Looking back, Jia says working at the FAO allowed him to have a closer look at the issue of food insecurity in the world unlike before and understand how important it was to bridge the digital gap if the world was to achieve all the 17 UN SDGs, not just ending hunger.

Furthermore, his cross-cultural communication skills and writing skills improved, and his circle of friends expanded.

He says he was equally glad to find the FAO's increasing interest in learning about China's approaches and experiences on digital agriculture.

This year FAO released a report, "Digital agriculture report: Rural e-commerce development experience from China,"

sharing China's business model and innovative experience in developing rural e-commerce for other countries' reference. Likewise, drawing on the successful experience of China's e-commerce, FAO recently proposed an action plan called "One Country One Priority Product", to help member states promote their special agricultural products and contribute to achieving sustainable development.

"Since the election of Qu Dongyu as Director-General of the FAO in 2019, staff at the FAO are more interested in China's experiences in the digitization of agriculture, giving us more opportunities to share China's stories," Jia explains.

He believes that China's strong presence on international bodies like the UN will help tell China's stories well and share China's best practices for the betterment of the world. The latest data showed that Chinese staff accounted for only 1.2% in the UN in 2020.

"This is both an opportunity and a challenge for China," Jia Bo says. "I hope more students can work with international organizations like the UN and become international civil servants."

Earlier this year, Jia returned to China, and started pursuing a Master of Public Policy for Sustainable Development Goals at the School of Public Policy and Management of Tsinghua University.

"I highly recognize the aim of the UN to realize the SDGs by 2030. I want to contribute more," he says.

John Paul Grima: China's development resonates with the world

Editor's Note

John Paul Grima is a senior administrative staff member in the Office of International Affairs of Tsinghua University since 2016. Originating from Melbourne, Australia, he is passionate about contributing to greater levels of global cooperation and understanding through academic exchanges. Having lived and worked across various regions of China, John Paul appreciates the strong sense of community and opportunities for social connectivity and inclusiveness in Chinese society.

As the Communist Party of China (CPC) celebrated its 100th anniversary, John Paul shared his experience of living and working in China and his thoughts on China's development:

My first visit to China was in 2007; I was on a short-term study program facilitated by the China University of Political Science and Law. That was a wonderful opportunity to experience China's rapid development and urbanization. I recall studying with incredibly aspirational local students who were so internationally-minded and ambitious in their academic and professional pursuits.

I also recall amazing scenes of major construction projects: the CCTV tower in Beijing; the Hangzhou Bay Bridge connecting Jiaxing and Ningbo; rural infrastructure; and venues for the 2008 Olympic games, to name a few. As I have spent more time experiencing and understanding the process of development here, my appreciation for China's global connectivity and social inclusiveness has only become stronger. I am thrilled to be working at Tsinghua, to support efforts towards greater levels of global collaboration and academic exchange, and to convey to the world Tsinghua's own development story, as well.

China has a long-term approach to its development, and this is reflected by the scale of national and international development and infrastructure projects. It is also reflected in the level of confidence Chinese people have about the future. China has experienced a long-term period of stability and economic prosperity, led by the CPC. Some key achievements include poverty alleviation, improvements in environmental protection, educational outcomes, and greater connectivity between people.

Greater physical and digital connectivity has bridged the urban and rural divide and facilitates greater access to services and participation in the global economy. Mountainous and rural regions are now connected by high-speed rail and expressways. I have witnessed how remote areas benefit from greater access to health services, for example, and the intangible social and cultural benefits of connectivity with the surrounding region and the world.

China's development story, in particular, its success in poverty alleviation, global connectivity and social inclusiveness is one that resonates with the world.

Tamar Kvlividze: China's development is unique

Editor's Note

As the Communist Party of China (CPC) celebrated the 100th anniversary of its founding on July 1, some Tsinghua faculty members and students shared their views on China's development, and their experience living in China and Tsinghua, and extended warm congratulations and best wishes to the CPC on its centenary in the "CPC in my eyes" series.
Let's hear the story from Tamar Kvlividze.

Tamar Kvlividze from Georgia came to China for the first time in 2015 to study the Chinese language. Fascinated by its development, she decided to pursue her higher studies here and deepen her understanding of China.

Currently, she is a graduate student in the Institute of Education at Tsinghua University.

To learn more about China, Tamar actively participated in several educational, cultural, and sports activities during her first year. One such activity was a cultural tour that took her to Shandong and Hubei Provinces, where she gained first-hand knowledge about China's culture and history.

"In the last few decades, China has been actively advancing, especially in developing its economy, infrastructure, and technology. As a result, China has already become a leading country in the world. However, what has impressed me most about China's development is that it doesn't forget its culture and tradition despite its innovations and growth," she says.

She lauds the Communist Party of China (CPC) for leading China's rapid development. Under the leadership of the CPC and with the amazing power of the Chinese people, the country will reach even more remarkable successes, she says.

Cassie: China's sustainable development offers inspiration

Editor's Note

As the Communist Party of China (CPC) celebrated the 100th anniversary of its founding on July 1, some Tsinghua faculty members and students shared their views on China's development, and their experience living in China and Tsinghua, and extended warm congratulations and best wishes to the CPC on its centenary in the "CPC in my eyes" series.
Let's hear the story from Cassie.

Cassandra Ler (Cassie) from Singapore is a graduate student at the School of Public Policy and Management. Pursuing her degrees in the Tsinghua-Geneva Dual Master's in Public Policy for Sustainable Development Goals (MPP-SDG) program, she has acquired diverse experiences that enriched her personal and professional growth. Parallel to her academic journey, she is interning as an associate expert on climate action at PATH in Geneva, Switzerland.

"China is a walking encyclopaedia encompassing a wealth of history, art, culture, and stories of unparalleled development and overcoming vicissitudes. Tsinghua is emblematic of its grandeur. Its sheer diversity of students and interdisciplinary courses has taught me to think in multidimensional ways, understand social diversity, and enhance empathy," she says.

The exploration of China's myriad possibilities gave a new impetus to advancing her creative boundaries and insights on sustainable development. "As the SDGs are rapidly becoming a shared language across all sectors, policy-making that is grounded in robust evidence and analysis requires strong theoretical foundations and practical know-how to drive change forward. Immersing myself in China's development instilled in me an in-depth understanding of sustainable development in all its dimensions, and I learnt practical skills to engage them in real-world applications," she adds.

Her fond memories include hosting multicultural events on campus and field trips to Chinese companies such as Build Your Dreams (BYD), Minkave, and Tencent that showcased the mass move towards equipping cities with a digital brain and creating social value to better provide for the needs of society. "Sauntering along the streets of Shenzhen, the concrete jungle of staggering, modern skyscrapers and towering buildings reminded me of Singapore. It was a remarkable experience to witness first-hand the tech hub that realised revolutionary innovation, technical capabilities and strategic execution of its digital transformation plans," she remarks.

The Communist Party of China (CPC) celebrated its centenary on July 1. She commends the CPC's commitment to its global responsibilities in climate and sustainability governance. "China's determination to inclusive, equitable and sustainable development is a mark of its ongoing endeavour to build a better world," she believes.

DIVERSE CAMPUS

Tsinghua exhibition memorializes architectural legend

A drawing made by Liang Sicheng in 1925, during his studies at the University of Pennsylvania. [Photo provided to China Daily]

Born to Liang Qichao, one of the preeminent scholars of early-20th-century China, Liang Sicheng carved a niche for himself in architecture. The architect, architectural historian and educator is hailed as the "father of modern Chinese architecture".

Liang: the Overreaching, an exhibition now on at the Tsinghua University Art Museum until Oct 20, commemorates the 120th anniversary of Liang Sicheng's birth by gathering more than 300 photos, videos, drawings, models, letters, manuscripts and installations from several institutions.

The exhibition traces back to Liang's early years, during which he not only was trained to be an architect but also became knowledgeable in Chinese history and studies. Documents related to his architecture studies at the University of Pennsylvania in the 1920s are on show.

The exhibition then moves into his extensive field research of Chinese architecture in the 1930s and '40s, displaying photos and drawings of Yingxian Timber Pagoda, the largest and oldest surviving pagoda constructed entirely of wood in China.

The exhibition also reviews Liang's contributions to the protection of cultural heritage, city planning and the establishment of the architectural education system.

Enrollment Day: Welcome to Tsinghua, Freshmen!

It's that time of the year when all the Tsinghua mascots welcome our new TsinghuaRen to the beautiful Tsinghua campus!

Welcome to Tsinghua, freshmen! Your journey begins here.

Tsinghua University is thrilled to welcome over 3,800 incoming undergraduates this year—a valuable addition to the vibrant Tsinghua community.

Today, the campus is filled with abounding smiles and a collective vibe of cheer, as Tsinghua welcomes the newcomers and celebrates their years of hard work finally coming to fruition.

Amidst the bustle of music being played and stories being shared from all around the world, we gather together to start off this new adventure.

Among friends old and new, we light a spark to illuminate the endless possibilities for the years to come.

We look forward to learning with you in our classes and in life. The stories you will write have just begun—from now on, let's do our best to fill the pages with as many valuable lessons as we can!

With hearts connected, let's welcome the new semester.

Together, we make this new educational journey unforgettable.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性 别: 男/女
类 别: 本科生
学 号: 2021015200
有效期: 2021.09.02—∞
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