TSINGHUA NEWSLETTER

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清華大學
Tsinghua University

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Tsinghua celebrates 111th Anniversary

April 24 marked the 111th anniversary of the founding of Tsinghua University. A series of special events and exhibitions were held to commemorate the anniversary.

Banners bearing celebratory messages and slogans were hung in front of campus landmarks for students, faculty members and alumni to take pictures, while the campus was decked with colorful street pole anniversary banners.

Tsinghua alumni returned to the campus to join the Tsinghua community to observe the anniversary. A registration desk was set up on campus for Tsinghua alumni to register and write their anniversary messages and memories to their alma mater.

Similarly, Tsinghua faculty, staff, students, and alumni took part in an anniversary-special 111-lap relay, highlighting the sports tradition at Tsinghua. Likewise, Tsinghua Art Museum held a series of special exhibitions to celebrate the day.

AUA Presidents Forum 2022 held to mark AUA's 5th anniversary

The Asian Universities Alliance (AUA) Presidents Forum 2022 was held on April 22, marking the fifth anniversary of the establishment of the alliance.

The theme of this year's forum was "Embracing Asian Diversity for a Shared Future: Mission of Universities in Fostering a Community of Life for People and Nature."

Huai Jinpeng, China's Minister of Education, and Ban Ki-moon, the 8th Secretary-General of the United Nations and Chairman of the Boao Forum for Asia, delivered remarks as the guests of honor at the forum, attended by leaders and representatives of all the 15 AUA member universities and other distinguished guests.

Minister Huai extended congratulations on behalf of his ministry to AUA on its fifth anniversary and remarked that the establishment of the alliance by distinguished universities from different Asian countries and regions reflected the general trend of common development and win-win cooperation in Asian higher education.

He urged AUA members to promote regional connections of higher education through digitalization, to deepen the pragmatic cooperation between universities by focusing on talent cultivation and scientific research and innovation, and to promote communication between peoples and appreciation to diverse cultures.

He said he was hopeful that AUA would make greater contributions to jointly addressing regional and global challenges, promoting the common welfare of Asian people, and advancing the building of a community with a shared future for mankind.

Ban Ki-moon congratulated AUA on its fifth anniversary, saying, since 2017, AUA has served as a robust platform for regional collaboration, partnership, and dialogue.

He called on AUA to scale up its cooperative regional efforts to help forge tangible progress on the UN's development and climate goals.

"Your role is extremely important, as we need to ensure that the UN Global Goals are local business, throughout Asia and beyond. With your elevated efforts, I am confident that we can construct a more healthy, sustainable, peaceful, and prosperous world for all," he said.

Carrie Lam Cheng Yuet-ngor, Chief Executive of the Hong Kong Special Administrative Region, China, Prof. Dr. Anek Laothamatas, Thailand's Minister of Higher Education, Science, Research, and Innovation, and Dr. Nyunt Phy, Myanmar's Union Minister for Education, sent congratulatory messages on AUA's fifth anniversary, which were read out respectively by Wei Shyy, President of The Hong Kong University of Science and Technology, Bundhit Eua-arporn, President of Chulalongkorn University, and Tin Maung Tun, Rector of the University of Yangon respectively at the forum.

Following that, Chairman of Tsinghua University Council Qiu Yong, who served as the founding president of AUA, addressed the forum.

He said that he was delighted to join AUA members to celebrate the fifth anniversary of AUA and chart a joint future.

"Five years ago, on April 29, 2017, AUA was jointly founded by fifteen universities in Asia with the mission to jointly address regional and global challenges by strengthening collaboration among member institutions. I am glad to see that in the past five years, we have been steadily working towards this mission," he said.

In the five years since its founding, he noted that AUA has grown into a cohesive consortium of Asian higher education with an increasing impact. He thanked AUA members and the greater Asian community for their strong support.

"The diversity we embrace forms the foundation of our alliance. With each of us sharing a unique set of knowledge and experiences, I am confident that we will be able to continue collectively tackling our common challenges and building a brighter future for all," he said.

He mentioned that as the founding president of AUA, he was very proud of AUA's work over the past five years, turning the dream of AUA into a brilliant success.

Qiu also extended his gratitude to AUA members for their trust in Tsinghua University holding the AUA Presidency for two consecutive terms.

"As we move forward, let's come closer together and build a better AUA, for Asia, and for the world," he said, concluding his remarks.

Tsinghua President Wang Xiqin, on behalf of the entire AUA community, presented a token of appreciation to Professor Qiu in recognition of his distinguished leadership during his time as AUA Founding President.

Last month, former President Qiu Yong was named Chairman of Tsinghua University Council, and Professor Wang Xiqin was appointed President of Tsinghua University, making him also AUA President.

President Wang Xiqin, addressing the forum, said that he was honored to serve as the new President of AUA.

"As AUA President, I will continue the endeavors of Professor Qiu Yong, and do my part to strengthen the Alliance," he added.

He said that, in the past five years, under the distinguished leadership of Professor Qiu and the contributions of member universities, AUA has become a close-knit family.

"The voice of Asian universities is increasingly heard through our high-level forums on higher education. In the past two years, AUA organized a number of forums and discussion sessions to share member universities' experiences responding to the impacts of the pandemic. Despite the disruption to international travel, the COVID-19 crisis has made AUA stronger and even more united," he added.

President Wang said that he looked forward to working closely with all the AUA members to enhance AUA's unique contribution to building a shared future for Asia and beyond.

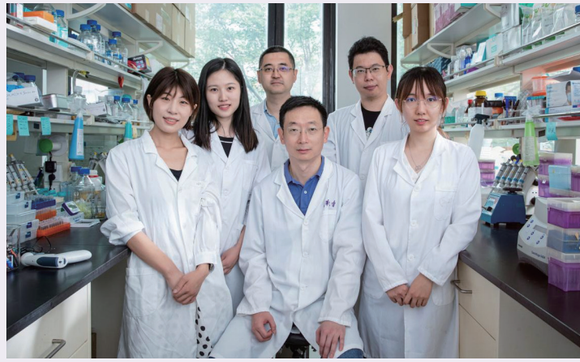
Eight leaders of other AUA member universities — Ghaleb Alhadrami Albreiki, Acting Vice Chancellor of United Arab Emirates University; Subhasis Chaudhuri, Director of the Indian Institute of Technology Bombay; Bundhit Eua-arporn, President of Chulalongkorn University; H. D. Karunaratne, Vice Chancellor of the University of Colombo; Shigeo Katsu, President of Nazarbayev University; OH Se-Jung, President of Seoul National University; Wei Shyy, President of The Hong Kong University of Science and Technology; and Tin Maung Tun, Rector of the University of Yangon — also delivered their remarks at the forum.

They stated that AUA has made great strides in the past five years and that they would continue to deepen their collaborations as AUA members to address regional and global challenges and promote a shared future for humanity.

The forum held online was moderated by Yang Bin, Vice President and Provost of Tsinghua University. Before the AUA Presidents Forum 2022 culminated in the plenary session, four sessions were held earlier on different themes.

Scientists take the first step to master an all-powerful cell type in the beginning of life

—Sheng Ding and his team at Tsinghua University School of Pharmaceutical Sciences publish innovative work in *Nature*



From cloning to regeneration, how to find alternative paths to create or rejuvenate life has been one of the big questions for biologists. It is this question that's behind the work of generations of scientists who went on to win Nobel Prizes. It is also this question that drives the recent research led by Sheng Ding at Tsinghua University, School of Pharmaceutical Sciences, now published in the top scientific journal Nature magazine.

In the current study, Ding and colleagues have identified a drug cocktail that induces an all-powerful stem cell type at will, a cell type that can turn into an entire organism on its own. The researchers are also able to maintain the resulting cells' differentiation potential in the lab, allowing a stable system for later researchers to demystify the creation of life. This alternative path – obtaining a clean slate of life's earliest raw materials from more mature cells, instead of new sperms and eggs -- can have a wide range of implications. "Such an alternate to nature's way of creating the beginning of life is a holy grail of biology", Ding says.

The creation of life starts with one cell. Your blood, brain, and liver cells can all be traced back to this one-cell embryo or zygote.

In nature, a zygote is produced as sperm and egg merge together. And the event kicks off an irreversible process where the zygote divides, forms new cells and the new cells continue to divide and become increasingly specialized.

As specialization is gained, something is lost along the way. Once the one-cell embryo divides and hits the two-cell embryo stage, the later cells will quickly lose the differentiation potential to give rise to all cell types for generating an entire organism and its supportive tissues like the yolk sac and placenta, becoming less potent stem cells.

Scientists call these all-powerful cells in the one-cell and two-cell embryo stages totipotent stem cells. And there are pluripotent and multipotent stem cells further down the continuum. "Normally after totipotent cells, none of the other stem cells have the possibility to turn into a life on its own," Ding says.

To better study and control the totipotent stem cells, Ding and his team established a system that achieves the induction and maintenance of these cells, and confirmed their identity with stringent criteria.

With 20 years of work and understanding of cell fate and stem cell regulation by chemical compounds, the team selected and screened thousands of small molecule combinations. Through multiple rounds of analyses, they identified three small molecules that could coax mouse pluripotent stem cells into cells exhibiting totipotent characteristics. The researchers called the molecules TAW cocktail. Each letter in TAW stands for a molecule known to regulate a specific cell fate decision. But their combined effect was not known till the current discovery, Ding explains.

Then the researchers examined cells receiving the TAW cocktail treatment in detail, both their totipotency and none-pluripotency. These cells passed strict molecular testing criteria, at all transcriptome, epigenome, and metabolome levels. For example, the team found that hundreds of critical genes were turned on in the TAW cells. These genes are typically found in totipotent cells and have been indicated by other researchers in the field as the bar to determine totipotency. At the same time, genes associated with pluripotent cells were silenced in the TAW cells.

To further prove that the resulting cells have a true totipotent state, the team tested their differentiation potential in vitro, and also injected them into a mouse early embryo to see the differentiation potential in vivo. They found that not only did the cells behave like true totipotent ones in a petri dish, but they also differentiated into both embryonic and extraembryonic lineages in vivo. This is a typical characteristic of normal totipotent cells, which have the potential to develop into both fetus and the surrounding yolk sac and placenta, whereas pluripotent cells can only develop into a fetus.

In addition, when the researchers used special culture conditions for the TAW cocktail-induced totipotent cells, the subsequent cells also showed similar totipotency traits. This observation suggests that the totipotency of TAW-induced cells can be maintained in a lab environment, and thus a stable system is established.

Such a system is important, as it will enable many scientific investigations concerning the beginning of life. For example, scientists can use this system to manipulate the totipotent cells to better understand the highly orchestrated process at the beginning of life. "Certain cells will have to appear at the right time and the right location for life to occur," Ding says, and one cannot study this without proper tools.

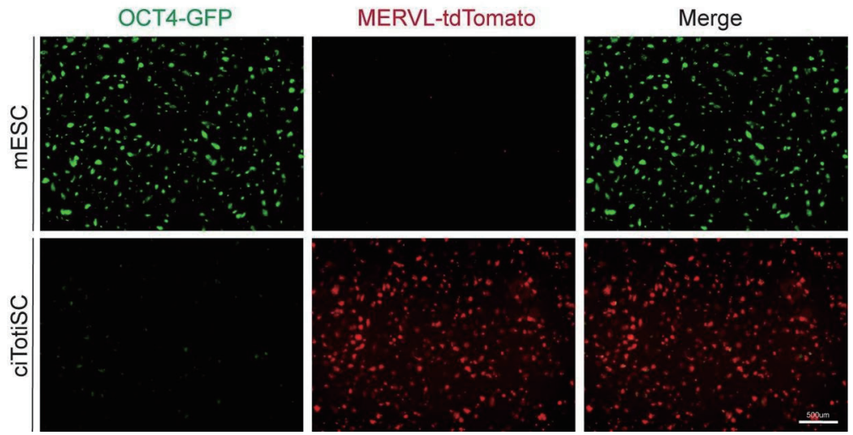
In this sense, "this paper is the first step and opens up tremendous opportunities," he says.

Moreover, having a deeper understanding and thus control over totipotent cells will have a wide range of implications, such as earning a second chance at the creation of individual life and even accelerating the evolution of a species.

Many of the possibilities will spur controversies, Ding acknowledges. It's worth noting that while those possibilities lie in the distant future, he mentions, it's hard to predict what society's ethical concerns will be. After all, the science community hasn't seen any lighter restrictions around human embryo research in the past decade. But last year, people started to seriously consider extending how long a human embryo can be kept in a petri dish from the original 14-days rule.

While the team is highly conscious of ethical considerations, Ding believes that as scientists their main job is to focus on making discoveries in the present, and lay the ground for future generations. Then the latter will have the knowledge and tools to make decisions.

The paper is available at the following URL: https://www.nature.com/articles/s41586-022-04967-9



Chemically induced ciTotiSC from mESC (OCT4-green fluorescence-labeled pluripotent stem cells and MERVL-red fluorescence-labeled totipotent stem cells)

Tsinghua holds Commencement Ceremony for Undergraduate Students

Tsinghua University held its commencement ceremony for the undergraduate class of 2022 on June 25.

During the ceremony, the University awarded bachelor's degrees to 3,541 undergraduates. Likewise, 511 undergraduate students were awarded second bachelor's degrees and 46 undergraduate students were awarded minor bachelor's degrees.

Qiu Yong, Chairperson of the University Council, announced the list of the titles awarded, of which 10 classes were awarded the title of "exemplary classes," 73 undergraduate students were awarded the title of "outstanding undergraduates," and 368 undergraduate students were awarded the title of "excellent undergraduates."

Tsinghua University President Wang Xiqin delivered a speech during the ceremony, extending his warmest congratulations to all the undergraduates.

He urged the students to forge ahead with determination toward the great rejuvenation of the nation and the goal of building a community with a shared future for mankind.

Reminding the students that the journey forward will never be smooth sailing, he said that the Tsinghua people's path in life must be a self-confident and self-believing journey with no fear of storms but constantly forging ahead.

"You have overcome the difficulties, completed all your undergraduate studies, and made personal progress as well. You were the young volunteers in the fight against the pandemic. You were the amiable volunteers for the Winter Olympics, and you were showing the world the sincerity and friendliness of Chinese youth," he said. "You are a generation that moves forward with the new era and also a generation

that looks at the world on an equal footing. I am very pleased to see your confidence on the world stage. This is the embodiment of the national confidence in Chinese youth."

He said he hoped that the undergraduate class of 2022 would uphold the University's motto of self-discipline and social commitment in their journey forward and strive to become a new generation worthy of our great times.

"Fellow graduates, I believe you are ready. I wish you the best in your race and I look forward to your contribution to the brighter future of our nation and the entire mankind. I wish you all a happy graduation," he concluded.

Shapaketi wushouer, a 2002 class alumnus of the Department of Precision Instrument and the deputy commissioner of the Xinjiang Aksu Regional Administration, delivered a video speech as an alumni representative and congratulated the undergraduate class of 2022 for their accomplishments.

He shared his experiences working in Xinjiang after graduating from Tsinghua while encouraging the undergraduates to shoulder social responsibility and contribute to the realization of the great rejuvenation of the nation.

He said he believed that the Tsinghua undergraduates would bring their talents and capacities into full play and live up to the high expectations of the times and the people.

Bai Yuzhuo, who graduated from the Department of Computer Science and Technology, delivered a commencement speech on behalf of the undergraduate students of the class of 2022. She reviewed her time at Tsinghua and said that exploration should be one's life-long pursuit.

"Facing the future, we should find our own rhythm in our exploration and be closely connected with our country and our times," she added.

In concluding her remarks, she urged her fellow undergraduates to forge ahead with boldness and courage. Bai will pursue a doctoral degree after graduation.

Wearing caps and gowns, Tsinghua undergraduate seniors gathered at the main commencement ceremony venue outside the Tsinghua Auditorium, and nine other outdoor viewing points on campus, to watch their commencement ceremony and receive their hard-earned degrees while maintaining physical safety standards.

The ceremony was also streamed live in both Chinese and English so that graduating students who were unable to return to the University, and their families and friends, as well as Tsinghua alumni, could watch it virtually. The University has offered the graduating students the opportunity to return to the University to participate in a future degree conferment ceremony.

The ceremony adopted a hybrid online and offline format to adhere to health and safety measures in response to Covid-19.

Peng Gang, Vice President of Tsinghua University, presided over the ceremony.

Tsinghua holds Commencement Ceremony for Graduate Students

Tsinghua University hosted its commencement ceremony to honor the graduate class of 2022 on June 26.

Qiu Yong, Chairman of Tsinghua University Council, announced the list of the titles awarded, of which 96 doctoral and 68 master's graduates were awarded the title of "outstanding graduates."

Tsinghua University President Wang Xiqin delivered a speech during the ceremony, extending his warmest congratulations and best wishes to all the graduates.

He encouraged the graduates to remain true to their initial aspirations and pursue the greater good despite the twists and turns of life.

He hoped that the graduates would consolidate the vision of a community with a shared future for mankind, stand on the right side of history and on the side of human progress, overcome self-serving desires and hardships, pursue the greater good, and lead their youth to blossom in service of the country and the people and of humanity at large.

He said that the Tsinghua graduates should shoulder their responsibilities without hesitation and make more contributions to the country's prosperity and rejuvenation, the people's happiness and the progress of human civilization, while dedicating themselves to working hard in a down-to-earth manner.

"Your future is in your hands and let's live up to your expectations and also to the expectations of the people and the nation. I wish you all a happy graduation," he said, concluding his remarks.

Zheng Fang, a Tsinghua alumnus and currently a professor at Beijing Jiaotong University, delivered his remarks as the alumni representative. Zheng completed a master's degree in architecture in 1996 and a doctoral degree in engineering in 2014 from Tsinghua University. He is the chief architect of the National Speed Skating Oval and the curling venue of the National Aquatics Center for the Beijing 2022 Winter Olympics.

In his remarks, Zheng congratulated the graduate class of 2022 for their accomplishments and shared his experiences working as an architect designing sustainable and eco-friendly venues for the Olympics.

"I believe that your life will also contribute to this era and create a truly sustainable and better future. A brilliant future awaits you. Good luck," he said to the graduate class of 2022.

Yue Siyu, a doctoral graduate from the Department of Earth System Science, gave her commencement remarks as the doctoral student representative.

Siyu, who studies the impact of climate change, shared her research experiences in the Qinghai–Tibet Plateau and said that, after graduation, she would continue to work to promote harmony between humans and nature for current and future generations.

She hoped that the graduate class of 2022 would seize the opportunities of the times, bring the best out of themselves, and usher in more successes.

Li Qizhong, a master's graduate from the School of Aerospace Engineering, delivered his remarks as the master's student representative.

Recalling his time participating in Covid-19-related research two years ago, he said he was proud that he was able to commit to serving the community and society.

He said he looked forward to applying his skills to serve the country after graduation.

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The ceremony was also streamed live in both Chinese and English so that graduating students who were unable to return to the University, and their families and friends, as well as Tsinghua alumni, could watch it virtually. The University has offered the graduating students the opportunity to return to the University to participate in a future degree conferment ceremony.

The ceremony adopted a hybrid online and offline format to adhere to health and safety measures in response to Covid-19.

Yang Bin, Provost and Vice President of Tsinghua University, hosted the ceremony.

Tsinghua University held its commencement ceremony for undergraduates on June 25.

GLOBAL ENGAGEMENT

AUA Presidents Forum 2022 explores the future of learning

Why is interdisciplinarity the emerging and desirable trend in higher education? What strategies are Asia's leading universities exploring to promote interdisciplinarity? How can the 'future of learning' meet the new demands of a rapidly evolving society?

These were some of the critical questions examined in the third session of the Asian Universities Alliance Presidents Forum (AUAPF) 2022 "Future of Learning: Interdisciplinary Education and Innovative Pedagogy". The panel included Prof. Lionel Ni, President of The Hong Kong University of Science and Technology (Guangzhou); Prof. Chandrika Wijeyaratne, Vice Chancellor of the University of Colombo; and Dr. Loretta O'Donnell, Vice Provost of Nazarbayev University. Prof. Yong Zulina Zubairi, Associate Vice-Chancellor Universiti Malaya, moderated the session.

In her opening remarks, Prof. Zubairi noted that the complex and multifaceted nature of emerging challenges warrants the need for imaginative solutions. "Universities thus have a vital role to play as we seek effective solutions," she said. "Transcending disciplinary boundaries and incorporating multiple perspectives can take us a long way." The panel discussion that followed assessed the strategies as well as challenges universities face in their quest to promote interdisciplinary education and innovative pedagogy.

Creating Synergy

For universities to strike a balance between "theory and practice" as well as "depth and breadth" is as crucial as it is challenging. Interdisciplinary education needs to be geared towards bridging these gaps through innovative curriculum development and engaging real world problem-solving. According to Dr. O'Donnell, "When we think about interdisciplinarity in terms of education, we essentially think of the word synthesis," so the question that needs to be asked is, "How do we look at a range of different mental models and synthesize them to come up with complex answers to the complex questions?" Consequently, Nazarbayev University (NU) strives to build on the concept of the "T-shaped student", who possesses knowledge spread across a range of disciplines,

but also holds depth in a certain specialization. This approach is meant to equip graduates with the ability to solve problems from a range of different perspectives. NU's compulsory core curriculum that includes ethics, writing and history is designed to achieve exactly this.

Dr O'Donnell also reflected on the dichotomy between successful academic careers, that incentivise scholars to specialise in a very narrow field, and the complex thinking skills required to tackle practical challenges such as climate change, gender equality, public health and issues of well-being. By allocating collaborative research grants, NU is encouraging scholars to pursue multi-disciplinary studies. As a national university, NU's mandate also includes cross-institutional collaborations with other universities in Kazakhstan. O'Donnell emphasized that a collaborative culture "is a step forward to many things, from solving a particular research problem, towards creating more harmony and more understanding across cultures."

Pushing Boundaries

On "budgets and boundaries", President Ni of The Hong Kong University of Science and Technology (Guangzhou) (HKUST(GZ)) offered a candid assessment. "Whereas all higher education practitioners know the importance and benefits of collaboration, when you come down to budget allocation and performance assessment, boundaries come into play," he said. He explained that the establishment of HKUST (GZ) creates an exceptional opportunity for new resources, organizational structure and the physical setting needed for the systematic development of cross-disciplinary programs in concert with the disciplinary-oriented efforts at HKUST's Clear Water Bay campus. At HKUST (GZ), cross-disciplinary education and research will be realized through four "hubs", namely, a function hub, an information hub, a systems hub, and a society hub. The university encourages theme-based labs which are accessible to all interested faculty and students. Ni also firmly advocated randomly-allocated and multidisciplinary spaces for faculty members, "I don't say this department or that department. The person next door may be from a different discipline, which allows them to communicate."

Promoting innovation through interdisciplinary work is key to education at HKUST (GZ). Ni noted: "We encourage students to learn from different disciplines. Graduate students, especially PhD students, need dual advisors from different disciplines." Commenting on the impact of COVID-19 on education, he asserted that by forcing universities out of their comfort zones, the pandemic has offered a unique opportunity. "We had no choice; we struck on to further improve, to a point where I think we're effective now," he remarked, while describing the speed with which online teaching was eventually embraced. Despite initial reluctance and scepticism from faculty and students, "today our evaluation of online classes is better than the traditional classroom," he noted. Ni also stressed that ultimately a mindset change is very important for "making a change, and making an impact."

Towards Problem-Solving

While assessing the system of exam-based learning in many Asian societies, Vice Chancellor Wijeyaratne noted that this culture needs to change. To shift away from traditional learning methods and encourage "out of the box" thinking, the University of Colombo (UoC) has established staff development centres and young academic mentoring initiatives. "We reviewed this situation because we had a little more time during this pandemic," she discussed, further elaborating that a "new reality" has opened the eyes of young professionals to new opportunities, with more focus on real-world challenges. UoC has responded by expediting education in more practical sectors, increasing the emphasis on emerging fields such as entrepreneurship, and establishing better connections between job providers and the university.

According to Wijeyaratne, "The goal for universities should move beyond 'simply teaching or learning' and instead include practical applications, and to equip students with enough flexibility to change their course over time in order to achieve richer career outcomes." UoC has encouraged different competitions and created new avenues to inspire students and faculty members to connect with the real world and evolving trends in the job market.

All panellists agreed that today, universities find themselves on a fast track to think about academia differently and more holistically. In this light, Asian universities have a unique opportunity to transcend disciplinary boundaries and incorporate multiple perspectives in finding viable and imaginative solutions for a better world.

Tsinghua hosts APRU Provosts' Forum 2022 to discuss the futures of higher education

Tsinghua University on April 20 hosted the Association of Pacific Rim Universities (APRU) Provosts' Forum 2022, under the theme "Futures of Higher Education."

The virtual meeting was attended by provosts and academic officers from the APRU members, as well as UNESCO specialists.

In his welcome remarks, Tsinghua University President Wang Xiqin said that the forum was being held in the spirit of collaboration and experience-sharing as the drivers of higher education and academic policy in high education institutions' respective and connected communities.

He stressed the need for collective, concerted effort and attention to address the challenges faced in higher education.

"We meet online as a result of the ongoing disruption caused by the pandemic. This reminds us that we live in a world where vastly different versions of the future are entirely possible. But we also have enduring hope to inspire through our shared commitment to education, research, and community service," President Wang explained.

In concluding his remarks, President Wang said that the forum was an opportunity for provosts and academic officers to reach a better understanding of the futures of higher education, and to contribute to the dialogue in the context of their roles and responsibilities.

Christopher Tremewan, Secretary General of APRU, thanked Tsinghua for hosting the forum in his opening remarks and said that, as a foundation APRU member, Tsinghua University has been strongly engaged for 25 years with APRU initiatives and has offered valuable global leadership through its commitment to the Asia-Pacific region. He urged universities to work together to transform higher education, emphasizing the common good.

APRU provides a neutral international platform for scaling up universities' responses to global challenges, including educational reform, and for shaping a new generation of international leadership. Our understanding of diverse contexts as well as expertise in technological innovation are critical to creating the political will required for solutions to be implemented, he said.

Stefania Giannini, Assistant Director-General for Education of UNESCO, said in her opening remarks that higher education could and must help forge a new social contract for education, one that can shape more just and sustainable times for all.

"We need a new culture of collaboration which can only be fostered through strengthened partnerships and networks," she added. She encouraged higher education institutions to develop the great opportunity not only to address the challenges of current times but to think beyond the horizon of the future and shape more just sustainable societies.

Sobhi Tawil, Director, Future of Learning and Innovation Team of UNESCO, delivered a keynote address, shedding light on the proposals advanced by the "Reimagining our futures together – A new social contract for education" report, published by the International Commission on the Futures of Education of UNESCO.

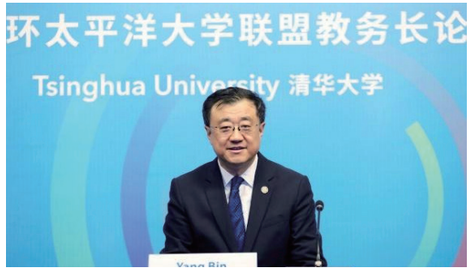
"At the current crossroads that we find ourselves, we need an education that can help transform and shape the world. But to shape and transform and define this future, education itself must be transformed," he said, adding that forging a new social contract for education was a critical step towards reimagining our futures together.

The forum featured two roundtable sessions, followed by break-out group discussions. At the first roundtable, Michael Bruno, Provost of the University of Hawai□i at Mānoa, and Ling San, Provost of Nanyang Technological University, delivered presentations on "The future of instruction, in-person vs. online, and why this matters," and "Nurturing Future-Ready Lifelong Learners," respectively.

At the second roundtable, Toshiya Ueki, Executive Vice President of Tohoku University, presented on the topic of "How can universities enhance preparedness and resilience in higher education?" and Alan Chan, Provost of the Chinese University of Hong Kong, presented on the topic of "Renewing Education: Transformational Change or Back to Basics?"

Annamarie Jagose, Provost and Deputy Vice Chancellor of the University of Sydney, summed up the key points that came out of the roundtable discussions.

The forum came to a close with closing remarks from Dr. Christopher Tremewan, Secretary General of APRU, and Yang Bin, Vice President and Provost of Tsinghua University.



Yang said that future challenges could only be solved by working together, adding that Tsinghua looked forward to continuing to work with APRU and its partners worldwide to enhance shared academic development, mutual understanding, and levels of cooperation.

The forum was moderated by Gao Hong, Vice Provost of Tsinghua University.

For more information on APRU, please visit www.apru.org

Collaborating to advance global health——Tsinghua Vanke School of Public Health and Harvard T.H. Chan School of Public Health jointly initiated the Global Coalition of Deans of Schools of Public Health (GCDSPH)

On the eve of the 111th anniversary of Tsinghua University, the Global Coalition of Deans of Schools of Public Health 2022 Meeting was hosted by Tsinghua Vanke School of Public Health (VSPH) on 19 April. Over 400 scholars, faculty members and students in the field of public health attended the meeting online.

Wang Xiqin addresses the GCDSPH

Margaret Chan addresses the GCDSPH

Professor Wang Xiqin, President of Tsinghua University, representing the host institution, delivered welcome remarks during the opening session. President Wang said, human health can never be perceived separately, especially as deforestation, biodiversity loss, the growing impact of climate change and the rapidly growing economic inequalities between and within nations are posing imminent and evolving threats to global health and wellbeing. The world calls for collaborative and immediate actions to build a shared future of good health, equity and sustainability, which is in line with the ambition of the SDG 2030 Agenda. The future generations should be enabled with holistic thinking, integrated solutions across disciplines and rigorous evidence-based policies. To build a healthier world with balanced biodiversity and harmonious relations among human, animals and environment, we need to equip our next generation with holistic thinking, and the ability of working across disciplines. He conveyed the hope that the coalition can establish more tangible and diverse channels of exchange and cooperation, cultivate future leaders in public health, and foster closer partnerships across sectors

Dr. Margaret Chan, the Co-Chair of GCDSPH, and the Founding Dean of VSPH and the Emeritus Director-General of WHO, emphasized in her opening remarks that the coalition is to work together as schools of public health in universities to build a better, healthier and sustainable world for the future, particularly for younger generations. “We hope to inspire our faculties and students in diverse geography to collaborate in education and training, research and innovation; and to foster long term close working relationships in sharing knowledge, experience and building capacity”, she said, “with the strong support of member deans, this coalition can become an indispensable force for good in public health in the years to come”.

Michelle Williams addresses the GCDSPH

"Countries that are rich, countries that are poor and countries that are in the middle-income range are all called on to act to promote prosperity while also protecting the health of humans and the planet," said Prof. Michelle Williams, the Co-Chair of GCDSPH and the Dean of Harvard T.H. Chan School of Public Health. She reinforced that deans of schools of public health must find a way to work with each other, with their colleagues in international affairs, management, law and economics, to play a role to protect, promote, and preserve global health.

Other founding members, including Antoine Flahault, Director of Institute of Global Health in the University of Geneva; Landon Myer, Director and Head of School of Public Health and Family Medicine in the University of Cape Town; Joel Negin, Head of School of Public Health in University of Sydney; Pan An, Dean of School of Public Health in Huazhong University of Science of Technology; Eduardo César Lazcano Ponce, Director General of the National Institute of Public Health in Mexico; Claudia Bambs S., Head of Public Health Department of the Pontificia Universidad Catolica de Chile; Sarawut Thepanondh, Dean of the Faculty of Public Health, Mahidol University; and, Teo Yik Ying, Dean of Saw Swee Hock School of Public Health, National University of Singapore, also shared their views on the development of GCDSPH.

Two parallel panels were held following the opening session. The ten founding member deans participated in the discussion, together with Professor Rebecca Katz, Director of the Center for Global Health Science and Security in Georgetown University, Professor Liang Wannian, Executive Vice Dean of Tsinghua Vanke School of Public Health, and Professor Xue Lan, Distinguished Professor and Dean of the Tsinghua Schwarzman College. The two panels featured thematic discussion on “Building a Resilient Health System during the Pandemic and beyond” and “Global Health Diplomacy” moderated by Dean Teo Yik Ying and Dean Michelle A. Williams respectively.

GCDSPH is jointly initiated by the Vanke School of Public Health of Tsinghua University and the Harvard T.H. Chan School of Public Health. It has ten founding member deans at present. Strengthening the relationship between Schools of Public Health, GCDSPH aims to cultivate future leaders in public health, foster close partnerships between member institutions and government and industry stakeholders, and inspire geographically diverse collaborations to advance research and innovation.

RICH Public Health Cloud Forum held

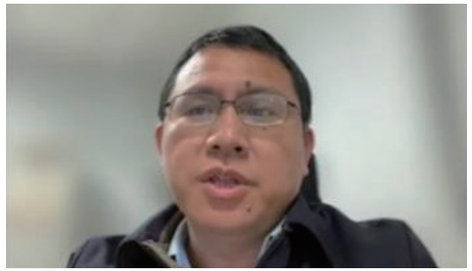
On 12 April 2022, the RICH Public Health Cloud Forum, co-organized by the Tsinghua Southeast Asia Center and the Tsinghua Vanke School of Public Health, was held online at Tsinghua University with two parallel Deep Dive Discussions with the themes of "The COVID-19 Pandemic: the Opportunity to Strengthen Public Health System" and "New Era Bali Kerthi Roadmap: Healthcare and Digital Investments".

Prof. Wang Xiqin, President of Tsinghua University, delivered opening remarks. He pointed out that the COVID-19 pandemic brings challenges to social and economic development, but opportunities for countries to take action for stronger and more resilient public health systems. Recent global health challenges have highlighted the need to further promote integrative and resilient platforms for international cooperation. Tsinghua University remains steadfast in our commitment to our common health and sustainable future. He hoped that the Forum would serve as a platform to explore the extensive cooperation and exchange in the field of public health between China and Indonesia. Prof. Wang further advocated making joint efforts to embrace the challenging opportunities today to build a better, stronger and healthier future.

H.E. Luhut Binsar Pandjaitan, Coordinating Minister of Maritime Affairs and Investment of Indonesia, said that Tsinghua University has momentously chosen Bali as the location for its Southeast Asia center, while President Joko Widodo officially launched the "New Era Bali Kerthi Roadmap" at Kura Kura Bali, which signals symbolically a New Era Bali. He further emphasized that close cooperation between China and Indonesia will offer opportunity for both countries to promote new economic growth, deepen exchanges, and encourage the formation of quality investments in projects as well as talents for our happy and healthy common future.

H.E. Budi Sadikin, Minister of Health of Indonesia, said that the Ministry of Health of Indonesia is committed to three priorities in strengthening global health architecture, including encouraging countries to build a global health system of resilience, harmonizing global health protocol standards, and expanding global manufacturing and research hubs for pandemic prevention, preparedness and response, in order to create a healthier and safer world.

H.E. Ren Hongbin, Chairman of the China Council for the Promotion of International Trade (CCPIT) said that CCPIT will leverage its own advantages to serve as an important tie between the Chinese government and the industry. Taking this forum as an opportunity, it will further deepen cooperation with Indonesia, build more platforms for dialogues and exchanges, and provide better business and legal services, so as to help the enterprises of the two countries to explore cooperation in health care, digital economy, and investment, for win-win development, thus making a greater contribution to the building of a community of a shared future for China and Indonesia.



Mr. Tang Yonglin, Director of the Office of Big Data, Department of Planning and Information, National Health Commission of the People's Republic of China, highlighted the important development opportunity for digital health as China sets "Healthy China" and "Digital China" as the national strategies in the 14th Five-year Plan period. He said that China would work together with Indonesia to grasp the new opportunity brought about by digital transformation, strengthen the digital health foundation, develop a digital health service, deepen digital health governance, secure digital health safety, and jointly promote the building of a global community of health for all.

Dr. Margaret Chan, Founding Dean of the Tsinghua Vanke School of Public Health, and Emeritus Director General of World Health Organization, said that the current pandemic has exposed the weaknesses of the global health system, and the fragility of international cooperation. To build a healthier future, she suggested that the world must learn from the painful lessons and take actions together in solidarity, including establishing a new relationship between the countries of the world to tackle common health challenges, building a resilient public health system with better governance to improve population health, moving towards universal coverage based on primary health care to leave no one behind, and investing in systems beyond health to achieve sustainable development and harmony.

The opening ceremony was followed by two paralleled Deep Dive Discussions. Prof. Cheng Feng, Vice Dean of the Institute of Healthy China and Professor of the Vanke School of Public Health moderated the discussion entitled "The COVID-19 Pandemic: the Opportunity to Strengthen the Public Health System". Prof. Liang Wannian, Executive Vice Dean of Vanke School of Public Health, delivered a keynote speech sharing his insights on how to strengthen the public health system.

Prof. Mondastri Korib Sudaryo, Dean of the Faculty of Public Health of the University of Indonesia, Dr. Imran Agus Nurali, Director of Health Promotion of Ministry of Health of Indonesia, and Dr. Dong Xiaoping, Chief Expert of Virology of the China Center for Disease Control and Prevention, had profound discussions as panelists.

Sir Gordon Duff, President of the United in Diversity Foundation and Pro Vice Chancellor Oxford University Emeritus, and Prof. Wong Tien Yin, Founding Head of Tsinghua Medicine, co-moderated the discussion on “New Era Bali Kerthi Roadmap: Healthcare and Digital Investments”.

Prof. Li Daokui, Director of the Academic Center for Chinese Economic Practice and Thinking (ACCEPT) and Co-president of Society for the Analysis of Government and Economics (SAGE), Jona Widhagdo Putri, Special Assistant to the Coordinating Minister of Maritime Affairs and Investment of Indonesia, Dr. Wita Nursanti Nasution, Head of the Working Group of Health Service Partnership of Ministry of Health of Indonesia, and Li Ning, Vice President of BGI Group, shared their insightful views as panelists of this session.

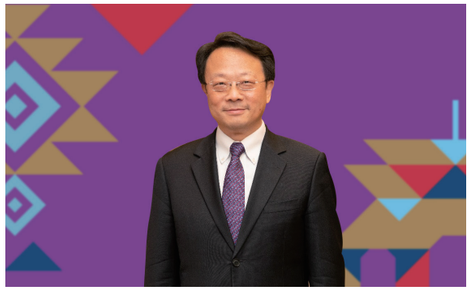
H.E. Luhut Binsar Pandjaitan and Prof. Yang Bin, Vice President and Provost of Tsinghua University, also attended this session and offered their reflections during the roundtable discussion.

In his closing remarks, Yang Bin said that Tsinghua University has been dedicated to contributing to the UN SDGs through education and research, especially to the development of innovative solutions to pressing challenges like public health. The in-depth and fruitful discussion in the forum will be of great significance to the strengthening of the public health system and the promotion of financing and investment in the field of public health. Tsinghua Southeast Asia Center will have its official opening in Kura Kura Bali in 2022 during the G20 Summit. He hoped that Tsinghua Southeast Asia Center, as a platform for innovation and cooperation between China and Southeast Asian countries and beyond, would make further contributions to the UN SDGs and to the common health of mankind.

The forum was moderated by Professor Wang Kaibo, the Vice Dean of the Tsinghua Vanke School of Public Health. Around 200 people attended the forum online, including senior policy-makers, experts, and scholars in the field of public health, executives from financial institutions, pharmaceutical and biotech companies, leaders from the Tsinghua Southeast Asia Center, the Vanke School of Public Health, the School of Continuing Education, and similar bodies.

Cloud dialogue held between Tsinghua University and Latin American and Caribbean ambassadors

On April 29, 2022, Digital China and Online Education Cooperation—Cloud Dialogue between Tsinghua University and Latin American and Caribbean Ambassadors was held successfully. More than 30 Latin American and Caribbean ambassadors and representatives attended the online event. Wang Xiqin, President of Tsinghua University, and Fernando Lugris, Uruguayan Ambassador to China and Dean of the Latin American and Caribbean Group delivered opening speeches. Yang Bin, Vice President and Provost of Tsinghua University, made the closing remark. Li Jinliang, Dean of International Affairs, Tsinghua University, served as the moderator of the event.



Wang Xiqin delivers his speech

In his speech, Wang Xiqin recalled last October's meeting in Tsinghua University with representatives from the Latin American and Caribbean countries and regions to China, when the topic of jointly building the Belt and Road and sharing the new economy and prosperity was actively discussed. Wang pointed out that realizing digital transformation and seeking more opportunities in the 21st century has become a global concern with the rapid development of digital technology. China and Latin American and Caribbean countries also attach great importance to the issue. He said that Tsinghua University highly values research on the digital economy and talent cultivation, and has made active efforts to promote global cooperation in online education. Tsinghua University and Latin American universities have carried out extensive and in-depth cooperation in this field, which has achieved great results. Tsinghua University expects to cooperate more with Latin American and Caribbean partners in scientific research, student education, cultural and personnel exchanges, and to share ideas and experiences on important global issues such as artificial intelligence, climate change, public health, and global governance, Wang said, extending his hope to pursue mutual achievements with the Latin American and Caribbean partners in building a community with a shared future for mankind.

Fernando Lugris delivers his speech

In his speech, Fernando Lugris thanked Tsinghua University for organizing the cloud dialogue, which enhanced the relationship between the university and LAC. He pointed out that Uruguay's digital development and online education have been improving with the attention and efforts of its central government, achieving good results. It has relieved the negative impact of the epidemic and ensured education's continuity, he said. He believes that the development of digital technology can bring great benefits and help China and LAC to overcome the challenges during the epidemic and in the post-epidemic era. "Tsinghua University is promoting online education. I hope there will be more cooperation between the university and Latin American and Caribbean countries and regions in the future," Fernando said.

Li Jinliang chairs the event; Chen Yubo, Chen Taotao, Wang Xiaoxiao and Wang Shuaiguo deliver keynote speeches (from top to bottom and left to right)

Chen Yubo, Senior Associate Dean of School of Economics and Management, Tsinghua University, Wang Xiaoxiao, Secretary-General of Global MOOC and Online Education Alliance, Wang Shuaiguo, CEO of XuetangX, and Chen Taotao, Director of the Latin America Center, Tsinghua University, delivered keynote speeches respectively on the development of China's digital economy, the practice and prospect of online education at Tsinghua University, facilitating global sharing of advanced education technologies and quality resources, and the construction of joint courses between Chinese and LAC professors.

Feedback from the Ambassadors' Panel

During the discussion, Luis Quesada, Ambassador of Peru to China, Hallam Henry, Ambassador of Barbados to China, Aldo Álvarez, Ambassador of Salvador to China, and Jesus Seade Kuri, Ambassador of Mexico to China, delivered speeches. According to the ambassadors, developing the digital economy and promoting digital transformation is very important for Latin American and Caribbean countries and regions. They introduced the efforts made by Latin American and Caribbean countries and regions in promoting digital transformation. They also pointed out challenges and put forward suggestions on how to cope with them. The ambassadors believe that digital development has driven the revolution of online education, providing more people with educational opportunities and promoting positive changes in educational concepts and models. The ambassadors praised the event was very meaningful. Saying that Tsinghua University is leading the world in online education, they look forward to more in-depth cooperation with the university in the future.

Yang Bin delivers his speech

Yang Bin, Vice President and Provost of Tsinghua University, delivered the closing speech. He pointed out that there is a good foundation for the cooperation between Tsinghua University and Latin American and Caribbean countries in areas such as joint response to the epidemic, and handling global climate change and public health, which will be further extended to online education. Thanks to the efforts of the Global MOOC and Online Education Alliance and Tsinghua Latin America Center, the university has conducted dialogue and cooperation with countries such as Chile and Argentina. Yang said he hopes Tsinghua University could cooperate with more universities in Latin American and Caribbean countries and regions in the future, provide more high-quality educational resources for learners, and jointly build a bright future for education in China and Latin American and Caribbean countries and regions.

Fernando Lugris, Uruguayan Ambassador to China, Hallam Henry, Ambassador of Barbados to China,

Group photo

Carlos Humberto Larrea Davila, Ambassador of Ecuador to China, Abbie S. David, Ambassador of Grenada to China, Anyin Choo, Ambassador of Guyana to China, Jesus Seade Kuri, Ambassador of Mexico to China, Leonardo Kam, Ambassador of Panama to China, Luis Quesada, Ambassador of Peru to China, Aldo Alvarez, Ambassador of El Salvador to China, Analisa Low, Ambassador of Trinidad and Tobago to China, Misty Bain, Charge d'Affaires of the Embassy of Bahamas, Jerrel Moriah, Charge d'Affaires ad interim of the Embassy of Suriname, Jimena Jaén, Charge d'Affaires ad interim of the Embassy of Costa Rica, Melisa Pryce, Charge d'Affaires of the Embassy of Jamaica, Yamila Fersobe, Minister-Counselor of the Dominican Embassy in China, Alberto Bastardo and Maria Teresa Dos Ramos, Minister-Counselors of the Venezuelan Embassy in China, Fabiano Bastos Moraes, Consul of the Brazilian Embassy in China, and representatives from other countries and regions such as Chile, Colombia, Cuba and Haiti also attended the event.

Under the support and guidance of the Office of International Affairs, the cloud dialogue was co-hosted by the Tsinghua Latin America Center, the Global MOOC and Online Education Alliance and the Institute for Industry Innovation and Finance, and was organized online by XuetangX. In addition, the event was live broadcast through the online platform of XuetangX, attracting about 70,000 people who are interested in the development of China's digital economy and online education cooperation between China and Latin America.

Tsinghua, Cambridge discuss Climate Change and Research Fund Concerns

Tsinghua University and the University of Cambridge recently organized an online workshop focusing on climate change.

The workshop, with the theme of "Tackling Climate Change: Initiatives, Research and Collaborations" and "Showcasing Projects Funded by Tsinghua-Cambridge Joint Research Initiative Fund", brought together more than 80 experts and scholars from both universities.

Zeng Rong, Vice-President of Tsinghua University, and Anne Ferguson-Smith, current Pro-Vice-Chancellor for Research and International Partnerships at the University of Cambridge, attended the virtual meeting and delivered opening remarks.

The workshop was chaired by Henning Sirringhaus, a professor of physics at the University of Cambridge.

Vice President Zeng said that in 2019, Tsinghua and Cambridge had launched a joint research fund to support researchers to carry out research cooperation and academic exchanges in the fields of sustainable development and future emerging technologies. It reflected the commitment of the two sides to work together on addressing global challenges.

"Although the COVID-19 pandemic is affecting international exchanges, the research teams of the two universities have overcome various difficulties to strengthen their research cooperation and have made good progress", said Zeng.

He expressed his expectations that the two sides would continue to work together to create a more integrated, resilient and sustainable future.

In her speech, Anne Ferguson-Smith said that the joint research fund aims to pool together the research strength of the two universities.

She also noted that the University of Cambridge and Tsinghua University will further deepen cooperation and work together to create a better future.

During the thematic session "Tackling Climate Change: Initiatives, Research and Collaborations", Professor Li Zheng, Executive Vice-President of the Tsinghua University Institute of Climate Change and Sustainable Development, and Professor Emily Shuckburgh, Director of Cambridge Zero, introduced the work of their institutions in coping with climate change and realizing the zero-carbon future from the perspectives of research, education, dialogue and exchange.

Wang Zhe, Deputy Dean of the Tsinghua University Institute for Carbon Neutrality, Professor Shaun Fitzgerald from Cambridge University, Associate Professor Yu Le from the Department of Earth System Science and Associate Professor Wang Xiaonan from the Department of Chemical Engineering of Tsinghua University, gave keynote speeches.

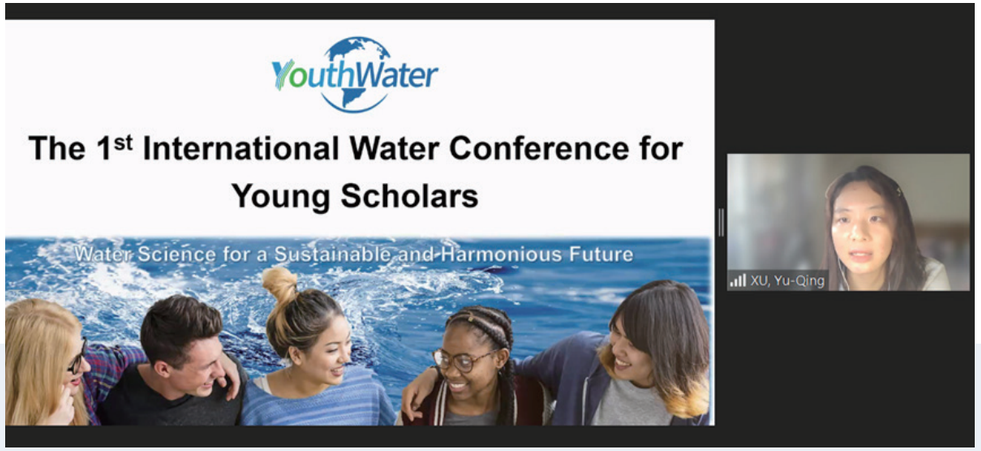
In 2019, the two universities signed a strategic scientific research cooperation agreement, and jointly established the joint research initiative fund. To date, 23 cooperation projects have received funding, covering key areas such as sustainable development and emerging technologies.

The First International Water Conference for Young Scholars held

On June 1st and 2nd, the first International Water Conference for Young Scholars (YouthWater) was successfully held online. This conference was hosted by the Committee of Water Treatment and Reuse, the Chinese Society for Environmental Sciences, and was co-organized by the School of Environment, Tsinghua University; the Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences; the College of Environmental Science and Engineering, Tongji University; and the School of Ecology and Environment, Beijing Technology and Business University. The theme of this conference was "Water Science for a Sustainable and Harmonious Future". More than 4500 young scholars and experts from China, the United States, the United Kingdom, South Korea, Singapore, Belgium, Cyprus and other countries attended this conference through zoom and multiple live broadcast platforms. The participants exchanged views on cutting-edge scientific issues and advanced technological research and development in the field of water science and technology.

The opening ceremony of the conference was presided over by Dr. Nan Huang, Secretary General of the Youth Working Group, the Committee of Water Treatment and Reuse. On behalf of the conference organizing committee, Dr. Nan Huang expressed her welcome and thanks to the students and experts

who were participating in the conference. She said that a safe and stable water system is an important foundation for economic and social development. The field of water science and technology is facing many emerging issues, and more and wider research and exploration are needed. The International Water Conference for Young Scholars will provide a platform for young scholars in this field to exchange research ideas and display research results, which can effectively strengthen the communication and cooperation between young scholars worldwide.



The academic report sessions were co-chaired by Yu-Qing Xu, PhD student at Tsinghua University, Siyu Wang, PhD student at Nanyang Technological University, Zhou-Yan Li, PhD student at Tongji University, and Feipeng Wang, PhD student at the Chinese Academy of Sciences. Wonderful academic reports were delivered by ten young scholars, including Vatsal Shah, PhD student at Imperial College London; Vasiliki Beretsou, PhD student at the University of Cyprus; Sangki Choi, PhD student at the Gwangju Institute of Science and Technology; Xuetong Yang, PhD student at Ghent University; Luqman Hakim Mohd Azmi, PhD student at Imperial College London; Peter Leonard, PhD student at the National University of Ireland, Galway; Yang Li, PhD student at Tongji University; Jessica MacDonald, PhD student at Stanford University; Feipeng Wang, PhD student at the Chinese Academy of Sciences; and Siyu Wang, PhD student at Nanyang Technological University. The content covered water quality analysis and characterization, efficient treatment of emerging contaminants, wastewater recycling and energy utilization, design and fabrication of advanced water treatment membrane modules, and comprehensive optimization and real-time control of water treatment reactors.

Young scholars from the University of Florida, the Chinese Academy of Sciences, Renmin University of China, Tongji University, Sun Yat-sen University, Tianjin University, Beijing Jiaotong University, Beijing University of Science and Technology, and Shandong Jianzhu University participated in the discussion sessions. Through equal and relaxed exchanges and discussions, the participating students learned about the frontiers of the field, broadened their scientific research ideas, and improved their innovation capabilities.

On behalf of the organizing committee of YouthWater, Yu-Qing Xu, PhD student at Tsinghua University, delivered the closing remarks. With the support of the Committee of Water Treatment and Reuse, the Chinese Society of Environmental Sciences, this conference was independently organized and participated by graduate students, attracting young scholars from many countries. “Wish every young scholar a bright future discovering the sciences and improving the technologies of water”, she said.

The International Water Conference for Young Scholars (YouthWater) is planned to be held once a year. The conference aims to provide a platform for graduate students to present their unique work and innovative research ideas, and discuss with worldwide peer young scholars devoting their research interests to any aspect of water science and engineering.

SCIENTIFIC INNOVATION

Liang Ge's group at the School of Life Sciences discovered a novel aggrephagy receptor CCT2 which mediates the clearance of solid protein aggregates.

On April 1, 2022, Liang Ge's research group at the School of Life Sciences, Tsinghua University published a research article online in the journal "Cell" entitled “CCT2 is an aggrephagy receptor for clearance of solid protein aggregates”, about the discovery of a novel aggrephagy receptor CCT2 and its important role in the clearance of solid protein aggregates.

Aggrephagy is an important way to clear intracellular toxic protein aggregates and a potential therapeutic target for many aggregate-related human diseases such as neurodegenerative disorders. How autophagosomes selectively recognize protein aggregates during aggrephagy has been an important issue, and the mechanism remains to be further studied. Traditional aggrephagy receptors (P62, NBR1, and TAX1BP1, etc.) mediate aggrephagy by binding ubiquitin chains on aggregates and the LC3 on autophagosome membranes. However, because of the nature of these receptors to bind ubiquitin chains, they are also involved in other types of ubiquitin-related selective autophagy. More importantly, these aggrephagy receptors prefer to degrade aggregates with liquidity, but are helpless in clearing pathogenic solid aggregates. Therefore, it is important to find new types of autophagy receptors specifically targeting solid aggregates.

In this study, researchers discovered a new type of aggrephagy receptor CCT2 which promotes the autophagic clearance of multiple toxic protein aggregates associated with neurodegenerative diseases. Like traditional aggrephagy receptors, CCT2 can bind both LC3 and protein aggregates.

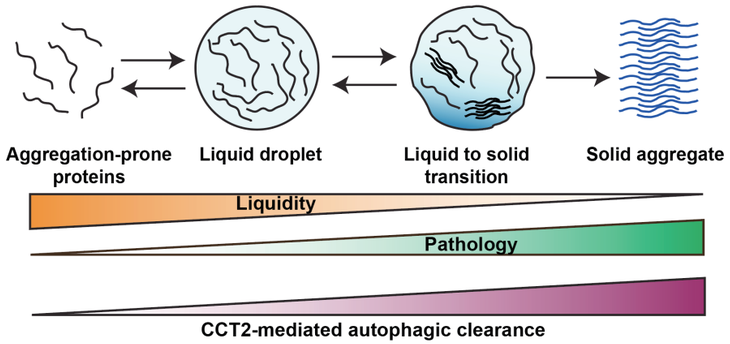


Figure 1. Aggregates phase transition and CCT2-mediated clearance of solid aggregates

The difference is that CCT2 binds protein aggregates through its apical domain in a ubiquitin-independent manner, which provides the basis for its specificity. Importantly, CCT2 and traditional aggrephagy receptors have a great difference in the choice of aggregate state: traditional aggrephagy receptors prefer to degrade aggregates with liquidity, whereas CCT2 prefers to select solid aggregates. Therefore,compared to known receptors, CCT2 is more likely to function in pathological conditions and become a therapeutic target (Figure 1). CCT2 is a subunit of the chaperonin complex that acts as a chaperone to help misfolded proteins correctly fold. Researchers found that CCT2 mediates aggrephagy in a monomeric form because only the CCT2 monomer can expose the VLIR motif for LC3 binding. Interestingly, the presence of protein aggregates hinders the formation of the chaperonin complex, thereby releasing more CCT2 monomers to mediate aggrephagy. The conformational change of CCT2 from a complex to a monomer results in its functional switch from a chaperone to an aggrephagy receptor, which both prevents misfolded proteins aggregation in early stage and accelerates later protein aggregates degradation, providing an efficient way to maintain intracellular protein homeostasis (Figure 2).

Dr. Liang Ge (School of Life Sciences, Tsinghua University), Dr. Min Zhang (School of Pharmaceutical Sciences, Tsinghua University), and Dr. Cong Yi (Zhejiang University School of Medicine) are the co-corresponding authors and Ph.D. student Xinyu Ma is the first author of this article. Ph.D. student Caijing Lu made important contributions to this research. Ph.D. student Yuting Chen(Zhejiang University School of Medicine), Shulin Li, Ningjia Ma and Tao Xuan participated in the experiments. Dr. Pilong Li, Dr. Haiteng Dengand Dr. Yong-Bin Yan also provided important help to this work.

The work was supported by the State Key Laboratory of Membrane Biology, Ministry of Science and Technology of the People's Republic of China, the National Natural Science Foundation of China, the Beijing Natural Science Foundation. Tsinghua Independent Research Program, Tsinghua University COVID-19 Emergency Aid Fund, the Zhejiang Provincial Natural Science Foundation of China, and the Tsinghua-Peking Center for Life Sciences.

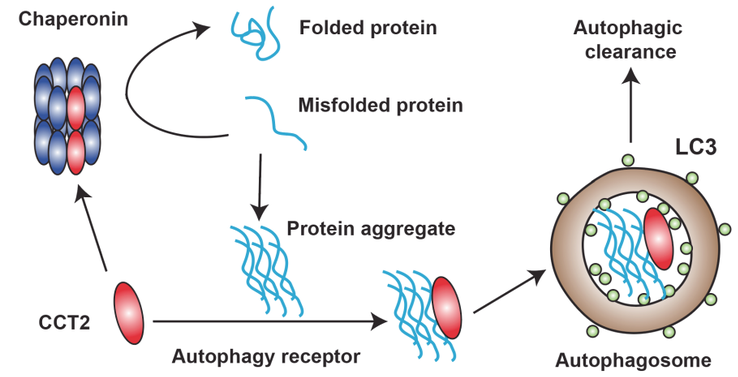
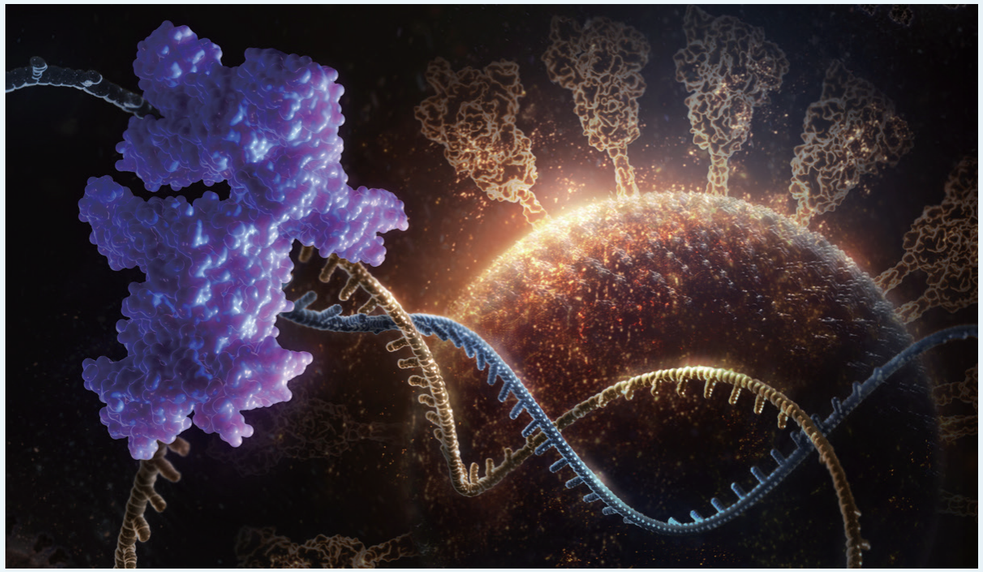


Figure 2. Functional switch of CCT2 from a chaperonin subunit to an autophagy receptor

Pioneering study points to novel COVID-19 drug target



Insights into the transcription and replication mechanisms of SARS-CoV-2 offer a new way to fight it.

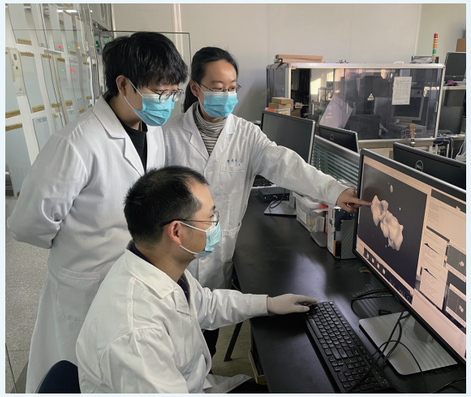
New insights into viral replication and transcription, led by researchers at Tsinghua University1,2, may help pinpoint fresh targets for drugs and vaccines against emerging SARS-CoV-2 variants.

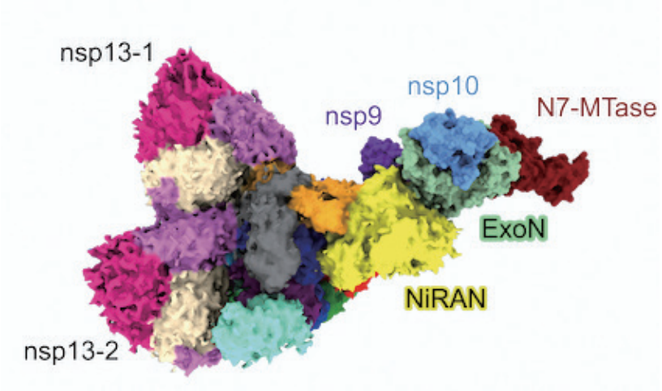
Researchers led by Zihe Rao and Zhiyong Lou have used a cryo-electron microscope to image the complex of proteins that comes together inside infected cells of COVID-19 patients, enabling the virus to transcribe RNA copies of the virus gene sequence and replicate. What they have discovered may offer insights into thwarting the virus.

The pandemic has been prolonged by the emergence of many new SARS-CoV-2 variants, often with mutations in the 'spike' protein the virus uses to enter cells. As many COVID-19 vaccines are targeted at the spike protein, these mutations have helped some variants evade the immunity conferred by vaccines.

Much less prone to mutation, however, is the Replication-Transcription Complex – the set of viral proteins that come together during replication to allow SARS-CoV-2 to proliferate.

"The catalytic residues of Replication-Transcription Complex proteins are almost identical, or at least very similar, among different SARS-CoV-2 variants," says Lou. "Which suggests the potential to develop broad-spectrum antiviral drugs that target the replication process."





RNA cap of SARS-CoV-2

Tsinghua researchers have a long track record of studying the internal mechanisms of coronaviruses. Co-leader of the study, Zihe Rao, has worked in the field since the emergence of SARS-CoV (the virus that causes the disease SARS) in 2003. "SARS-CoV-2 shares high similarity with SARS-CoV," says Lou, meaning they could bring their expertise to bear on studying the newly-emerged virus.

One key feature of SARS-CoV-2 RNAs, as synthesized by the Replication-Transcription Complex during replication, is a protective 'cap' affixed to one end of the RNA strand. "This structure is important to the stability of viral RNA and can help it escape the host's innate immune response," says Lou.

The complex constructs the cap in a four-step process. The role of the protein that catalyzes the second step of the capping process, called nucleotidyl transferase domain (NiRAN), was a mystery until this study1. "We showed that the NiRAN domain in the replication enzyme, viral polymerase nsp12, is indeed the enzyme that catalyzes the second capping action," Lou explains.

In a subsequent study, the group also revealed the mechanism underlying the third capping action and the proofreading process (to ensure the SARS-CoV-2 sequence is accurate) are found in the Replication-Transcription Complex2.

Assembling a Replication-Transcription Complex in the lab, in order to take the cryo-electron microscope image with the molecule in position, was a great challenge, Lou says. "We had to test many different conditions to catch these temporary complexes," he says.

"These studies were highly dependent on the close coordination of more than 10 researchers," says Lou. For example, for one cryo-electron microscope data set, his team worked intensively for more than three days and nights to simultaneously freshly prepare the proteins required.

Understanding that the nsp12-NiRAN region plays a key role in stable virus RNA cap formation offers new, highly stable targets for researchers seeking drugs to inhibit SARS-CoV-2 replication. Importantly, they are also expected to work against new variants. "We are now collaborating with researchers, including medicinal chemists, and hope to identify leading compounds for drug development soon," says Lou.

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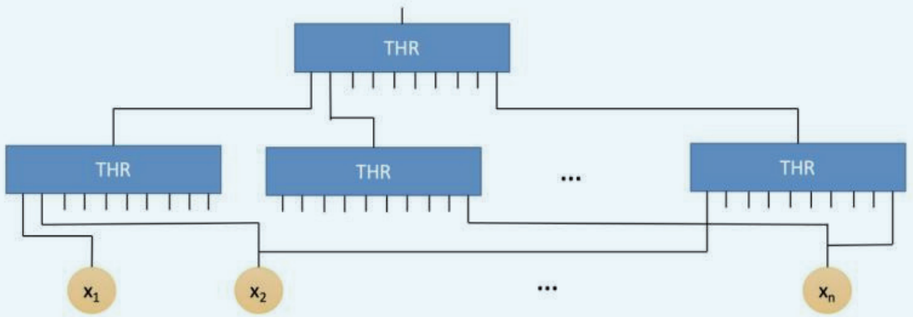
2. Yan, L., Yang., Y, Li, M., Zhang, Y., Zheng, L. et al Coupling of N7-methyltransferase and 3'-5' exoribonuclease with SARS-CoV-2 polymerase reveals mechanisms for capping and proofreading. Cell 184 (13), 3474-3485 (2021)
doi: 10.1016/j.cell.2021.05.033

Yao Class students win Best Student Paper Award at STOC 2022

Zhiyuan Fan, Jiatu Li, and Tianqi Yang from the Yao Class, Tsinghua University, received a Best Student Paper Award at the 54th Annual ACM Symposium on Theory of Computing (STOC 2022) for the paper, "The Exact Complexity of Pseudorandom Functions and the Black-Box Natural Proof Barrier for Bootstrapping Results in Computational Complexity".

Pseudorandom function (PRF), capturing the indistinguishability of a set of functions from a random function, is a cornerstone of cryptography. The amount of computational resource we need for cryptography is an important question of both theoretical and practical interest. In their paper, they studied the problem of pseudorandom functions (PRFs) in the context of circuit complexity, and surprisingly, proved extremely tight upper and lower bounds in various circuit models. As a byproduct, they also proved unconditional tight upper and lower bounds for "almost" universal hashing, which is of independent interest. Their results made progress in realizing the limitations of the "bootstrapping results" in computational complexity.

The ACM Symposium on Theory of Computing (STOC) is a prestigious CS theory conference and will take place in Rome, Italy in 2022. This year, 135 papers were selected from 457 submissions for the conference with a paper acceptance rate of 29%. In addition, 7 other papers by IIIS faculty, students and alumni have been also accepted for STOC 2022.



A depth-2 linear threshold circuit

Guangshuo Ou's group discovered that phase separation between protein and nucleic acid regulates the trade-off between reproduction and lifespan

How does aging evolve? George C. Williams proposed antagonistic pleiotropy as an evolutionary explanation for aging in 1957. Pleiotropy is a phenomenon in which a single gene controls many traits. Antagonistic pleiotropy means that some traits regulated by a gene are beneficial to early life adaptation, while others are detrimental to later life. Life is forced to accept late harm as the necessary cause of early advantage, that is, life cannot achieve perfection through natural selection. Although the theory of antagonistic pleiotropy has gained some supporting evidence at the physiological level, the direct molecular evidence remains limited.

On April 28, 2022, Guangshuo Ou's research group at the School of Life Sciences, Tsinghua University, published a research article online in the journal "Proc Natl Acad Sci U S A" entitled "An antagonistic

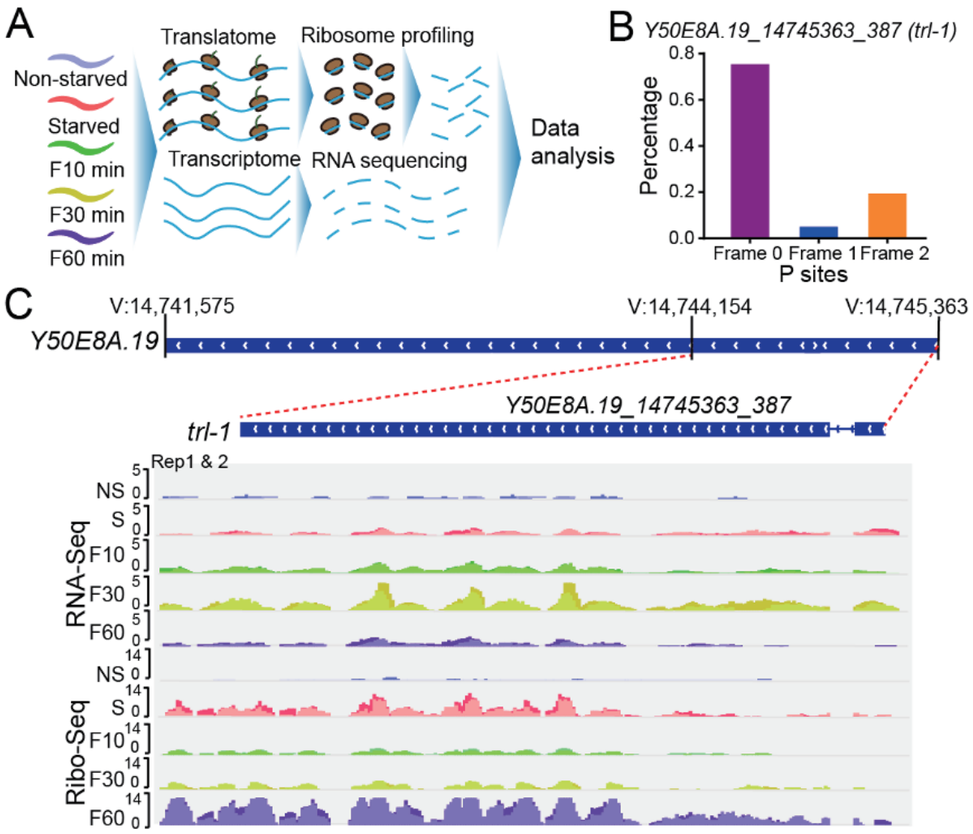


Figure 1. The novel open reading frame TRL-1 is significantly translated after starvation refeeding

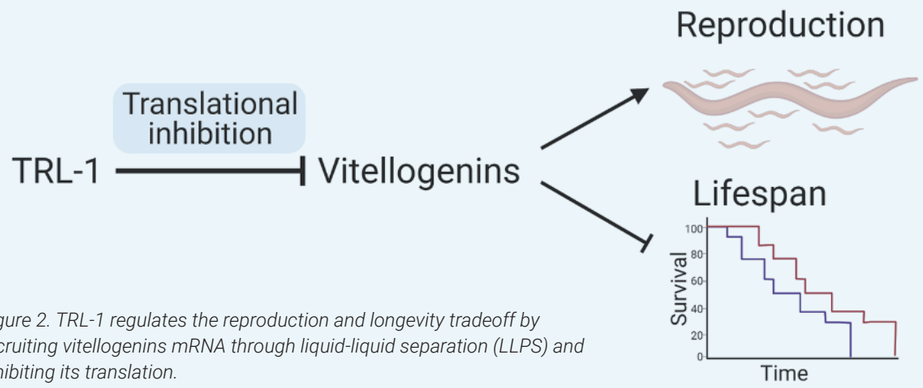


Figure 2. TRL-1 regulates the reproduction and longevity tradeoff by recruiting vitellogenins mRNA through liquid-liquid separation (LLPS) and inhibiting its translation.

pleiotropic gene regulates the reproduction and longevity tradeoff", and which reported that the antagonistic pleiotropic gene trl-1 regulates the trade-off between reproduction and longevity.

Using ribosome profiling, Guangshuo Ou's group analyzed proteomic changes in C. elegans during recovery from starvation and found that an open reading frame trl-1 "hidden" in an annotated pseudogene was significantly translated during post-starvation re-feeding (Figure 1). trl-1 mutants, while increasing the number of offspring, shorten lifespan and impair the longevity induced by reproductive defects. The absence of TRL-1 abnormally upregulates the translation of vitellogenin, which provides essential nutrients for embryonic development, and thus increases the number of offspring, whereas the overexpression of vitellogenin reduces lifespan. At the biochemical level, TRL-1 protein recruits vitellogenin mRNA through liquid-liquid phase separation and inhibits its translation. These results suggest that TRL-1, as an antagonistic pleiotropic gene, regulates the tradeoff between reproduction and longevity by optimizing the nutritional yield of the next generation (Figure 2).

Dr. Guangshuo Ou of the School of Life Sciences, Tsinghua University, is the corresponding author, and former Ph.D. student Dr. Dou Wu is the first author of this article. Dr. Di Chen at Nanjing University provided longevity data for this study. This research was supported by the Tsinghua-Peking Center for Life Sciences, the Ministry of Science and Technology, the National Natural Science Foundation of China and other related institutions.

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Protection | Virus-in-Aerosol Detector for Winter Olympics is coming to Tsinghua

You may have noticed that some mysterious devices have been placed in canteens and libraries recently. These ordinary-looking small boxes play an extraordinary role in protecting the campus – detecting airborne COVID-19 virus in public spaces.

Integrated and ultra-sensitive COVID-19 virus detector with excellent quantitative performance

This "magical" set of devices – capable of sampling indoor air and detecting Coronavirus-in- aerosol – is officially called the Bioaerosol Coronavirus Nucleic Acid Detection System for Public Spaces, first developed for the Beijing 2022 Olympic Winter Games by a team led by Liu Peng, an associate professor of the School of Medicine, Tsinghua University. This system was well received throughout the closed-loop of venues of the 2022 Olympic and Paralympic Winter Games.

Now, Professor Liu and Professor Jiang Jingkun from the School of Environment have teamed up to upgrade the Detection System and launched its 2.0 version in the Tsinghua campus, providing a strong technological support for the combat against COVID-19 on campus.

All-round improvements of sampling and detection

Just as in normal COVID-19 nucleic acid tests, sampling, transferring samples, and identifying the virus are the rigorous must-dos in airborne COVID-19 virus testing. The Detection System consists of a portable aerosol sampler, developed by Professor Jiang's team, and an integrated, highly sensitive COVID-19 nucleic acid detector, developed by Professor Liu's team, playing a vital role in sampling and detection, respectively. As a result, the 2.0 System has an enhanced performance in both sampling and detection compared to the system applied in the Olympic Winter Games.

"We have overcome two big challenges in sampling: improving the sampling efficiency with a higher sampling flow rate, and maintaining the viability

The upgraded Bioaerosol Coronavirus Nucleic Acid Detection System for Public Spaces

of the virus more effectively when needed," said Professor Jiang.

For collecting airborne virus aerosols air, low concentrations of aerosols have always been a challenge. The new-generation portable aerosol sampler not only greatly increases the flow rate, but also ensures the sampling efficiency, making air sampling easier than ever.

Meanwhile, Professor Jiang has drawn on his experience of Wuhan's fight against COVID-19 in 2020, to make the sampler play a bigger role in future virus research. By combining the methods of droplet generation and cyclone separating, the sampler is able to maintain the viability of the virus to the greatest extent during collection, providing reliable conditions for subsequent virus incubation and identification.

As for the part of detection, Liu's team launched a "Pro version" of their detector after the trials in the Olympic Winter Games.

"We used the method of isothermal amplification for detection during the Games, a method with rapid detection but lacking quantitative results. So now we have developed a PCR-based testing method using thermal cycling amplification that has high quantitative performance," Professor Liu told the reporter.

If the air tests positive for COVID-19, which level of control measures should be taken becomes a key question. Quantitative results now come in handy as this question should be answered on the basis of such results. The detector indicates the Ct values to observe viral load quantitatively, offering a more scientific basis for subsequent decision-making as different levels of prevention and control measures are linked to different scopes of Ct values.

Well-selected sampling sites

In three libraries, six popular canteens such as Taoli Yuan and Zijing Yuan, and the Inflatable Sports Dome, 20 samples are collected from these sites and transferred every evening according to strict protocols to a testing laboratory in Changping District. Digital test reports usually come back to Tsinghua two hours later, assuring another day of safety to everyone breathing there with an entire column of negatives.

A sampling point in a canteen

Then how should one select sampling sites on such an enormous campus to most accurately reflect the sanitary conditions?

"Closed or semi-closed areas with people gathering, and places where aerosols are generated through the respiratory system when people take off masks are two major considerations in selecting sampling points," answered Professor Jiang. In the crowded public places including the libraries, the canteens and the sports dome, every sampling site is selected based on rigorous consideration.

"Many sampling points are set in restrooms," said Professor Liu, "because during the Olympic Winter Games, we found restrooms to be a place extremely prone to aerosol pollution. For one thing, people usually take off masks to clean their nose and mouth in the restroom, and for another, the virus also finds its way from the human digestive system to the toilet, which can easily generate aerosols when flushed. That's why we are paying special attention to restrooms now."

A staff member is operating the sampler

Taking samples in a library restroom

Samples from every sampling point are collected and transferred by specified, well-trained staff. The safety of the sampling staff is well guaranteed as the samples are processed with disinfectant and members wear N95 masks and gloves throughout the process.

This was another night when Professor Liu and Professor Jiang threw themselves back into research after checking the negative results from each sampling point.

The COVID-19 virus is "cunning and fickle" and has never stopped evolving. The two professors and their teams, just like other scientists and researchers in Tsinghua, have always held a belief in science in the face of the unknown.

A full-scale, near real-time multi-regional input-output model for the global emerging economies (EMERGING)

Emerging economies are playing an increasingly important role in the global supply chain in the context of globalization. At the same time, these economies face multiple challenges, including increasing greenhouse gas emissions, poverty and climate change, which can be amplified in the supply chain. However, the existing multi-regional input-output (MRIO) databases do not reflect the connection with enough regional and sector details, due to limited data availability, which impedes the analysis of historical supply chains and international trade patterns, and the forecast of future trends.

To fill this gap, Prof. Dabo Guan's research group from the Department of Earth System Science of Tsinghua University, in cooperation with scholars from University College London, the Norwegian University of Science and Technology, and the University of Gröningen, have proposed a new, modular compilation framework method for MRIO (EMERGING), with completely independent intellectual property rights. Compared with existing database, the EMERGING database has the following five characteristics: (1) a global scale and including emerging economics to the largest extent; (2) containing enough detail on sectors to capture structural changes in supply chains and economic developments; (3) covering changes over time; (4) up-to-date representation of changes to allow for timely policy implications; and (5) using modular compilation for timely updates.

Based on this model framework, the EMERGING MRIO database now covers 135 sectors in 245 economies over the period 2015-2019. It will be an essential tool to conduct supply-chain and environmental impact analysis, especially for global emerging economies. The methodology paper on EMERGING MRIO construction is published in the Journal of Industrial Ecology recently with the title "Full-scale, near real-time multi-regional input-output table for the global emerging economies (EMERGING)". The full database is open access: https://ceads.net/.

Jingwen Huo, PhD student of the Department of Earth System Science of Tsinghua University, and Peipei Chen, PhD student of UCL, are the co-first authors of the paper. Prof. Dabo Guan of Tsinghua University and Associate Prof. Jing Meng of UCL are the co-corresponding authors of the paper. Collaborators include Dr. Heran Zheng from the Norwegian University of Science and Technology and Prof. Klaus Hubacek from the University of Groningen.

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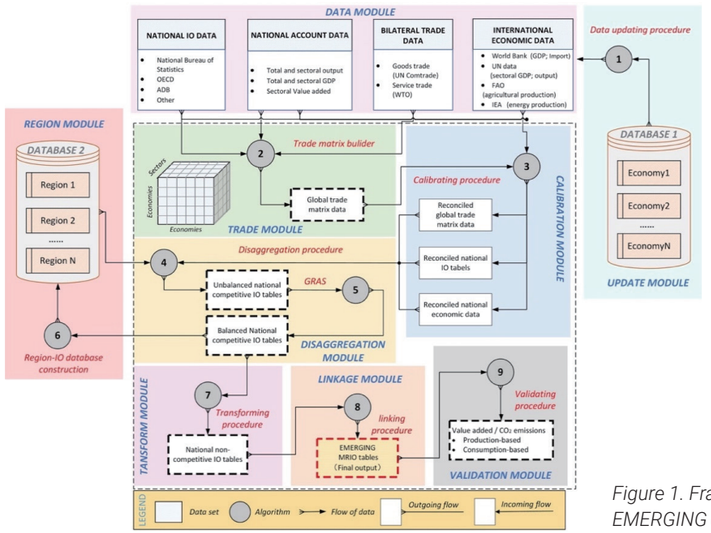


Figure 1. Framework of EMERGING database

Tsinghua's research project among Top 10 scientific and technological achievements in ecology and environment field

A Tsinghua University research project on the driving forces of temporal and spatial variations in air pollution has been selected as one of the "Top Ten Chinese Scientific and Technological Achievements in the Ecology and Environment Field in 2021", which was released to the public on June 5 to mark World Environment Day.

The annual selection, nominated by academicians of the Chinese Academy of Sciences (CAS) and the Chinese Academy of Engineering (CAE), members of the Industry-University Alliance on Ecology and Environment affiliated with the China Association for Science and Technology (CAST), universities and research institutes nationwide, and voted by academicians of CAS and CAE, is designed to showcase the latest development made by China in frontier technologies of the ecology and environment field. The selection provides the country with technological support in the protection of ecological environment and the building of ecological civilization.

The research project of Tsinghua University was jointly conducted by researchers from the Department of Earth System Science and the School of Environment. It was supported by the National Natural Science Foundation of China (NSFC).

Its major contributors included Zhang Qiang, a professor from the Department of Earth System Science; Geng Guannan, an assistant researcher from the School of Environment; Tong Dan, an assistant professor from the Department of Earth System Science; Xiao Qingyang, an assistant researcher from the School of Environment; Zheng Yixuan, a graduate with a doctorate degree from the Department of Earth System Science; and He Kebin, an academician from the School of Environment.

The project developed a near real-time high-resolution air pollution data set to track the dynamic changes of air pollution in China. It also built a decoupling technology and analyzed the long-term trend and key driving factors of PM2.5 pollution changes in China. As a result, impacts of 8 factors in 4 aspects, including social and economic development, energy and environmental policies, meteorological condition changes and population vulnerability, were quantified. It was revealed that air pollution control and energy structure adjustment measures have played essential roles in promoting the reduction of PM2.5 concentrations in recent years.

The findings of their research project were published in several internationally renowned journals such as Nature Geoscience and Nature Climate Change in 2021. Notably, a research paper was selected as the cover paper of Nature Geoscience in commemoration of its outstanding achievements.

Their high-resolution and near real-time data set of air pollution can be reachable by researchers from home and abroad via http://tapdata.org.cn. So far, over 800 users from more than 300 domestic and foreign research institutes have downloaded the data to facilitate their research. In addition, the data set has been applied in the assessment of clean air actions in China led by the CAE and in the air pollution control initiative during the Beijing 2022 Winter Olympics and Paralympics.

TSINGHUA COMMUNITY

Niu Weina: Never too old to start something new in life

"The Great River eastward flows. / With its waves are gone all those / Gallant heroes of bygone years...", a senior citizen stood in front of the Auditorium, reciting this lyric poetry spontaneously from the bottom of her heart. She had a turbulent life story, while in her twilight years, she rekindled her passions in Song Ci classes and became a 90-year-old internet celebrity in the retirement community.

Niu Weina's Song Ci lectures have become the most popular activities in the retirement community. It is surprising to many people that, as a 93-year-old woman, Niu Weina, has a new starting point in life.

Niu Weina was born in 1928 and has gone through the wars and storms of her times. She was admitted to Tsinghua University in 1946, originally to the Department of Electrical Engineering. At that time, Tsinghua did not have a Department of Architecture, and Liang Sicheng wrote to Mei Yiqi, then President of Tsinghua University, advising him to establish the Department of Architecture. Mr. Liang was subsequently appointed as the head of the Department after its establishment. It was through Mr. Liang that Niu Weina transferred to the Department of Architecture.

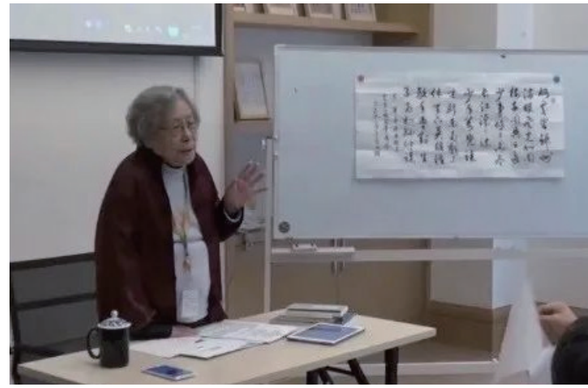
Niu Weina said that "my method of studying Song Ci was inspired by architecture". She employed the coordinate system in engineering architecture, taught by Mr. Liang in her college years, in her study of Song Ci. Niu Weina still vividly remembered that Mr. Liang's class was "in a small classroom on the second floor of the Hydraulic Engineering Building, packed with people ..."

At the end of 1950 (as Class of 1951), Niu Weina graduated from Tsinghua. In the 1970s, to support national policies, the Beijing Petroleum Institute (predecessor of the China University of Petroleum) moved from Beijing to the Shengli oil field. As her husband taught at the Institute, Niu Weina moved with him to Dongying. In Dongying, the couple participated in the construction of the new campus of the Beijing Petroleum Institute.

Niu Weina helped design two of the most important buildings, the auditorium and the library. She said, "what I am most satisfied in the design is that many buildings were designed by non-professional architects and had a staircase in the middle, occupying space, but I avoided this. I put a lobby at the entrance, and allowed people to make use of the best rooms on top of it on the upper floors, turning them into reading rooms, conference rooms, etc."

However, as she kept burning the candle at both ends, her health suffered from the overwork. Before the project was completed, she had to be transferred back to Beijing to continue her treatment, and she only saw the completed project in photos many years afterward.

In 2020, the city of Dongying, Shandong Province, identified the auditorium and the library as the first batch of historical buildings in Dongying. The news made her overjoyed. In her later years, Niu Weina's greatest wish was to return to Dongying again to see and touch firsthand the buildings she had the honor to design.



In the twilight of her life, Niu Weina found profound knowledge in poetry. In old age, the days flew by so fast and Niu Weina increasingly cherished each day. In 2018, she started to voluntarily give Song Ci lectures in the retirement community.

During the epidemic, she turned into an internet live-streamer and gradually became a well-known "lecturer" among the residents of the community. The thick piles of "construction drawings" on the table, consisting of almost 100,000 words, were the lecture notes she wrote. "I just feel that I always have to learn, and this is what Tsinghua taught me," she said; "it is never too old to learn or to dedicate yourself. Do not praise me now. Wait until I create new achievements!"

After seventy years, as she saw the university students through the classroom window and touched the statue of Liang Sicheng, feelings welled up in her mind. It was on this campus that she spent four years, which laid the foundation for her outlook on life all these years. Although not everyone can achieve extraordinary deeds, an ordinary person can also, in an unyielding, unremitting and constant striving for self-improvement, contribute to the extraordinariness of an era.

Through ups and downs, Niu Weina exemplifies what is meant by "cease to struggle and you cease to live." Her story is a vivid interpretation of the spirit of Tsinghua.

Tribute paid to teacher who brought music to the mountains

From China Daily

Deng Xiaolan, 79, prepared children to sing at opening of Beijing Winter Olympics

During Qingming Festival, children in a village deep in the Taihang Mountains in northern China paid tribute to their "grandmother", who taught them music and fine arts, bringing them to the stage for this year's Winter Olympics opening ceremony in Beijing.

For the past 18 years, Deng Xiaolan, 79, who died on March 21 from a stroke, worked as a volunteer teacher in Malan village, Fuping county, Hebei province.

Born in 1943, Deng was raised by local farmers until she was 3. In 1970, she graduated as an engineer from Tsinghua University in Beijing.

She told villagers her work as a volunteer teacher was to repay them for raising her during the toughest stage of the War of Resistance Against Japanese Aggression (1931-45).

Liu Kai, headmaster of Xiaxue Center School in Fuping and leader of the Winter Olympics chorus, said: "After they heard that Deng had died, all the children burst into tears. It didn't seem real."

In the afternoon on March 19, Deng fainted as she watched a performance stage being constructed in the village. She was taken to hospital in Beijing, 280 kilometers away, but never regained consciousness.

In Beijing on Feb 4, some six weeks before her death, 40 children from Malan, aged 5 to 11, sang the Olympic Anthem in Greek at the opening ceremony of the Winter Games in the National Stadium, also known as the Bird's Nest.

Deng's family members wrote in her obituary, "It is the greatest comfort to us that she left at this 'highlight moment' of her life."

Colleagues said that Deng told the media she had to some extent realized her dream in bringing the children to a world stage.

Her father Deng Tuo, 52, who died in 1966, was editor-in-chief of Shanxi-Chahar-Hebei Daily, which was published from December 1937 to July 1948 and was the predecessor of People's Daily. Her mother Ding Yilan was a correspondent for the newspaper and later became one of the two radio anchors for the broadcast of the founding ceremony of the People's Republic of China on Oct 1, 1949.She also became a director of China Radio International.

In autumn 1943, 19 villagers died helping reporters and editors from Shanxi-Chahar-Hebei Daily withdraw to the mountains during a raid by the Japanese army. Ding Yilan gave birth to her daughter in a cave at this time, entrusting her to the care of local villagers.

After Deng Xiaolan's parents took her back three years later, they often reminded her never to forget the farmers in Malan who gave her a "second life".

Deng Xiaolan teaches a girl to play violin in Malan village, Fuping county, Hebei province, last year. [Photo by LI XIUQIN/FOR CHINA DAILY]

Deeply touched

Deng Xiaolan always kept two seals with her□one was a gift from her father that bore the inscription "a native of Malan village", while the other was from her mother and bore the words "a descendant of Malan village". She regarded the village as her home where her life began.

A visit to Malan with her mother in 1997 for research on the history of the newspaper her father headed touched Deng Xiaolan deeply, as she saw just how backward the village was.

However, Malan's inaccessibility shielded the newspaper during the Japanese occupation and also isolated the village from the outside world. After her visit, Deng Xiaolan began thinking about ways to help Malan.

During Qingming Festival in 2003, she and other offspring of staff members at the newspaper paid their respects at the martyrs' tombs in Malan, when more than 20 primary school students were organized to sing the national anthem during the ceremony.

To her dismay, Deng Xiaolan found that only one or two of them could sing the anthem□but out of tune. As a result, she decided to bring music to the mountains in the hope that it could help inspire children.

She told the media that children living in the mountains are like "wild ponies, with their purity and clear eyes". She also told villagers that she wanted to teach the children music and fine arts in the hope that they could leave the mountains and discover the outside world.

When the villagers told her the children were not gifted, Deng Xiaolan said they simply lacked opportunities. According to Chen Yetian, headmaster of Malan Primary School, she often told him that a childhood cannot lack music.

After retiring in 2004, Deng Xiaolan, who learned music as a child, went to the village to teach the subject. When she founded the Malan Band in 2006, friends in Beijing donated instruments to the village, including drums, keyboard, piano, flute, clarinet, accordion and violin. Deng Xiaolan and her family donated 40,000 yuan ($6,284) to renovate the village primary school.

Sun Jianzhi, one of two teachers at the school, who worked with Deng Xiaolan for 18 years, said she was always busy performing a wide range of tasks. "She was a woman of action, not empty talk," Sun added.

Thanks to the donations, children in Malan had musical instruments they had never seen before. They were initially cautious about playing them, marveling at the sounds they produced.

Deng Xiaolan encouraged the children to embrace music, teaching them to play the instruments in the hope that their "melodious sounds" could resonate in their hearts and the mountains.

The villagers said she told them that life without music was boring and that she wanted children in the mountains to have a better existence.

She taught them to sing and to play the violin and piano. When the Malan Band was founded, the children had no musical background and were unfamiliar with the instruments.

The children played the instruments and sang beside the Yanzhi River in Malan. Their fingers blackened with mud, they mastered songs known worldwide, which echoed deep into the mountains.

In 2006, the band was renamed Malan Flower Children's Chorus, and two years later Deng Xiaolan brought the lineup to perform in Beijing's Zhongshan Park—the first time the children had left the mountains.

In August 2013, supported by the Fuping county government, she launched the Malan Children's Music Festival. More than 20 bands and singing troupes from Beijing were invited to perform on a stage built in a valley near the village, attracting audiences of more than 3,000.

In 2015, Deng Xiaolan raised funding for the design and construction of a three-story building on a mountain slope overlooking the village, naming it "Music Castle".

Xi Qingru, an 11-year-old primary school pupil and a member of the chorus for the Winter Olympics, said she will never forget performing on stage in Beijing.

Deng talks to children while attending an event in Fuping in July. [Photo by LI XIUQIN/FOR CHINA DAILY]

"In our isolated village, Grandma Deng was like a beam of light, inspiring and encouraging us to pursue a better and more meaningful life," she added. "After I grow up, I want to follow in her footsteps and teach children in the mountains to sing."

Instruments donated

Over 18 years, Deng Xiaolan taught more than 200 children in Malan and nearby villages, with many of them going on to attend college. She donated nearly 500 musical instruments and some 1,000 books to Malan.

Many of her former students who are now studying at college expressed their grief online over her death.

Niu Yanhua, a neighbor and good friend who cleaned up Deng Xiaolan's room after her death, said the teacher never cared about good food and beautiful clothes. Her room was full of plans for stage construction and Malan's tourism development, along with music scores, books and documents.

"Collecting her belongings together was a heartbreaking experience. They are proof of her commitment to the village and her noble personality," Niu said, tears in her eyes.

Sun Zhisheng, Party chief of Malan, said: "After the Winter Olympics, Deng focused on preparing for the next children's music festival. Her death was so unexpected. She left all her care and love to Malan. She was our closest relative ever."

Some years ago, when businesspeople sought to open a mine in mountains near the village, Deng Xiaolan stepped in to stop them, taking a lead in building roads, planting trees and repairing drainage ditches, Sun said. She also encouraged villagers to develop ecotourism by using the natural beauty of the river and mountains.

Liu Niansheng, Deng Xiaolan's nephew, said his aunt was warmhearted and loved children. "When she worked, she served the country, repaying her own benefactors after she retired," he said.

Inspired by her spirit, some of her friends will continue to help the village in the future, Liu added.

Zhang Guangdou: A hydraulic engineer for the people

2022 marks the 70th anniversary of the Department of Hydraulic Engineering, Tsinghua University, and the 110th birth anniversary of Professor Zhang Guangdou.

Zhang Guangdou (1912-2013), member of both the Chinese Academy of Sciences and the Chinese Academy of Engineering, Professor of Tsinghua University, was a leading expert in hydraulic engineering and engineering education.

Zhang Guangdou in Berkeley Library

Early Life

In the summer of 1934, the list of Tsinghua University's students selected for studying in the U.S. at public expense was announced, with Zhang high on it. After several months of internship, with the aim of learning engineering knowledge to help build his motherland, Zhang set out for the University of California, where he got his master's degree in merely a year. That was when he decided to work in the area of hydraulic engineering and dam design, and had the opportunity to intern at the U.S. Bureau of Reclamation.

That was how he met John Lucian Savage, the Chief Designing Engineer of the Bureau of Reclamation. "He is always my lifelong mentor and great friend," Zhang said. The American engineer was friendly to China and the Chinese people, and came to China twice, in 1944 and 1946, for the feasibility study for the construction of the Three Gorges Project in China's Hubei Province.

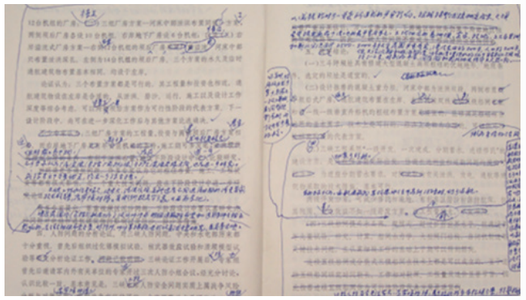
Zhang Guangdou finished his master's degree at Harvard University in 1937, the year a full-scale resistance war against Japanese aggression broke out in China. His supervisor, Prof. Westgate, recognized Zhang's talent and wanted him to complete his doctoral studies before heading to China. He even assured Zhang that he could finish his doctoral degree in a year. However, Zhang was determined to return home. Moved by Zhang's determination, Westgate wrote a letter to Zhang, expressing his respect for Zhang's patriotism and telling him that Harvard was always open to him.

Several days after his graduation, Zhang embarked on a journey to China to start his life as a hydraulic engineer.

Leading a life of an engineer: always being down-to-earth

Zhang devoted almost 60 years of his life to the Three Gorges Hydroelectric Power Station Project. In 2000, several years after his retirement, the 88-year-old engineer insisted on going to the project construction sites for an on-the-spot investigation.

Zhang Guangdou at the construction site of the Three Gorges Project



Zhang Guangdou reviews the preliminary design report of the Three Gorges Project

"Engineers should always inspect with their own eyes and feel with their own hands," he would say.

During the initial phase of developing water conservancy and hydropower projects in China, experts like Zhang drew on the best practices of the developed countries.

"The first law is being practical and realistic," Zhang said, meaning that a scientist or engineer should focus on reality, explore a methodology that works best in reality.

An Unbreakable Bond: 64 Years at Tsinghua

Zhang's teaching career began the same year the People's Republic of China was founded. In 1949, he was invited to teach at Tsinghua University, thus beginning his career in academia.

3 years later, a comprehensive educational reform was carried out across China, aiming to cultivate domestic talents in various fields, drawing from the advanced knowledge and best practices of the former Soviet Union. As part of the reform, the Civil Engineering Department of Peking University merged into Tsinghua University.

Subsequently, Tsinghua's Department of Hydraulic Engineering was separated, and Zhang was appointed as its Deputy Dean.

"I worked about 14 hours every day", Zhang recalled.

Zhang Guangdou, during a class for his course, "Introduction to hydraulic engineering."

In 1958, the design and construction of the Miyun Reservoir were carried out by Tsinghua University. To this day, the reservoir is the largest reservoir in northern China and the most important surface drinking water source. The creed of completing the graduation project in the front line met the requirements of development at that time and led teachers and students at Tsinghua to use their wisdom for the development of infrastructure projects like the Miyun Reservoir.

Zhang Guangdou, during a class for his course, "Introduction to hydraulic engineering."

Miyun Reservoir today

In 1973, China gained accession to the International Commission on Large Dams, and Zhang was the head of the delegation.

"It is a milestone in the development of China's hydraulic engineering," Zhang said, "It promotes the communication between China and the world to a large extent." And in 1981, China joined the World Federation of Engineering Organizations, in which Zhang also played a major role. Zhang devoted himself to China's ascent to the global stage.

Zhang Guangdou (third from the right) and five other academicians

Noticing the lack of emphasis on engineering and technology compared with science, Zhang and three other academicians proposed the establishment of the Chinese Academy of Engineering in 1982 for the first time. Ten years later, Zhang and five other academicians once again brought forward the proposal. This time, their proposal was well received.

And in 1994, the Chinese Academy of Engineering was formally established. Zhang was appointed as one of its academicians. "Engineering and technology are as important as science," he said. "Engineers and scientists should be hand in hand."

Since 1990s, Zhang pointed out that "enterprises should act as the main bodies of scientific and technological innovation," notifying the greater role companies played in the society and economy. Meanwhile, he wrote essays about higher engineering education in China, the protection of water resources, and opinions on hydraulic construction, which are more than valuable.

In 2016, Tsinghua University established the Zhang Guangdou Science and Technology Education Foundation to promote the growth of hydraulic engineering talents, passing down Zhang's spirit to new generations.

From the Yellow River to the Yangtze River, in every vast mountain and valley, hydraulic engineers have left and are leaving their footprints towards one and another magnificent causes.

Promoting decent work: Guan Xian's journey from Tsinghua to ILO

Editor's Note

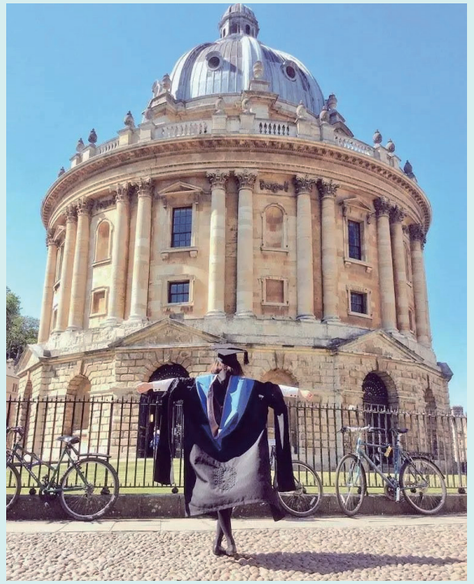
Tsinghua University plays an active role in promoting the 17 UN Sustainable Development Goals (SDGs) by nurturing innovative talents, enhancing research, among many other important ways. This article, written by Tsinghua Alumna Guan Xian, national officer with International Labour Organization (ILO), showcases her story from Tsinghua University to ILO and how she joined global collective efforts striving for decent work.

In front of School of Humanities in Tsinghua

I always remember and love a quote headlined in one of my favorite Chinese Mooks, "One-way Street": Don't make your mind bound in a boundless world. This quote portrays my self-construction as well as my life journey so far. To be a grounded longtermist, to be an idealistic explorer. With such beliefs in mind, I'm motivated to broaden my horizon and explore various possibilities in life. From majoring in philosophy that I love, to becoming a UN national professional officer, my life exploration has been quite a gratifying experience than I could have ever imagined.

Following my passion for philosophy, I started my intellectual journey in humanities at Tsinghua, where I had a fulfilling time absorbing knowledge freely. In the Studies on Western Classics course, I encountered political philosophy and became enchanted by masterpieces that probed questions like "What is an ideal society?" and "What is the best politics?" As my reading went further, my curiosity turned to questions like "What is society like?", "How are politics and policies realized?" and, more importantly, "How can the gap between the ideal and the reality in policies be narrowed?" As it increasingly became clear to me that abstract theory building alone couldn't answer my puzzles, I went to the University of Oxford to study for two master's degrees in politics and social policies respectively, one focusing on China while the other concentrating on the developed world.

I first tried a UN internship during my second master's study in comparative social policy. The decision was motivated by my desire to go beyond books and data, and to get first-hand experience in social policy-making and international cooperation in the real world. From UNESCO to UNDESA to ILO, from field offices to headquarters, from an intern to a consultant, I carried out a variety of tasks ranging from policy-relevant research to project and event coordination to communication support. I felt myself professionally growing as I left my comfort zone and embraced new technical areas in work. I sensed that we don't know where our limits are if we don't push ourselves to them.



After the graduation ceremony at Oxford

Real-life work in the UN — formulating an international standard, designing and implementing a project, establishing a global partnership, publishing a flagship report, and so on — combines grand ideas with specific routines. Progress takes time and solid

Moderating a technical session during a project workshop

After more than a year at the UNESCO headquarters in Paris, I strongly aspired to gain an in-depth understanding of how the UN work is localized and concretely influences member states' national policy-making. In addition to paperwork, I hoped to implement a UN project. Thus, I applied for a national project officer position in International Labour Organization (ILO) Office for China and Mongolia and luckily got the job. As an advocate of John Rawls, one of the most influential moral and political philosophers, I resonate with the ILO's mission of "advancing social justice, promoting decent work" and expect to make my contributions to reducing social inequality. Just before my 28th birthday, when I was informed that I would join the ILO to manage a project on skills development and lifelong learning in China, I wrote down James Joyce's words "To live, to err, to fall, to triumph, to recreate life out of life" as self-motivation.

Taking part in the UN China 'Post your 2045' campaign

In order to implement a UN project at the national level, I needed to be an omnipotent warrior. The project management covered everything: delivering project activities, including research, workshops, and tool adaptation; coordinating with national partners like the government, enterprises, and vocational schools; promoting advocacy and visibility; communicating regularly with ILO colleagues in the Headquarters and Regional Bureau of Asia-Pacific; monitoring project progress and budget; completing various proposals and reports; processing logistical tasks, and so on. Starting a new job and launching a new project amid the COVID-19 pandemic was challenging. The

inception period was filled with my attempts “to err and to fall.” I always alerted myself that every little step needs meticulosity, therefore I learned from my supervisor’s insights and other ILO projects’ previous experiences. Gradually, I established my own system to manage, update and track the project implementation.

Meanwhile, all project activities steadily progressed. The project's local piloting was finally launched in the winter of 2020. In less than ten days, to prepare for the project launch workshop, I created my to-do list to handle multiple tasks. From confirming a venue to designing a workshop manual, from inviting international experts from three continents to developing my own presentations, I pushed the boundary of my competencies. During the project implementation stage, I successfully organized nine project workshops in different pilot cities. At the workshops, experts discussed the adapted ILO tools and exchanged their practical experience. Subsequently, the ILO methodologies were incorporated into the governmental working guide for vocational skills development. After planting a seed with patience and assiduity, I realized something is rooted and growing up.

Project achievements

Luckily, all solid efforts paid off. This first project I managed has been mentioned in the ILO 2020 - 21 Global Programme Implementation Report and the United Nations in China 2021 Annual Country Result Report. Yet, for me, more importantly, implementing such a UN project at the national level resembles constructing a bridge. On the one hand, more global experience can be introduced through the project for the feasible application in the country. Besides completing project activities, I strive to explore how a UN project can contribute to China’s policy-making in skills development to alleviate job-skill mismatch in the labour market. On the other hand, more Chinese wisdom in skills development and lifelong learning can be disseminated on the global platform via the project. In previous ILO tools and guides in skills development, case studies of China seldom appeared. While implementing the project, I paid special attention to good national practices shared by practitioners and summarized them into animated case studies on the ILO media platforms. In the near future, a new international labour standard relevant to skills development will be discussed and set, prescribing training and protection for apprenticeships. I hope that my work can serve as a bridge connecting ideas, policies, and practices, and all my patience and meticulosity can benefit a wide range of workers in the long run.

Project results were highlighted on the ILO Asia-Pacific’s official media platform

Reminiscing on my life journey from study to work, I bear no regret. Majoring in philosophy at Tsinghua has strengthened my rationality and tenacity. Having a career I love in the UN has enhanced my commitment to promoting social well-being with my endeavor and endurance. As my life advances, I’m willing to embrace more possibilities. In a boundless world, I’ll continue my exploration with my mind unbound.

Liu Yang, China's first female astronaut on Shenzhou-14 mission

The Shenzhou-14 crewed spaceship was launched on June 5 from the Jiuquan Satellite Launch Center in northwest China. Three astronauts carried out the spaceship mission.

One of the astronauts was our alumna Liu Yang, China's first female astronaut in space.

Before being recruited as a prospective astronaut in May 2010, she was a veteran pilot with 1,680 hours of flying experience. "When I was a pilot, I flew in the sky. Now that I am an astronaut, I will fly in space. This will be a much higher and farther flight.”

Two year’s tough astronaut training has empowered Liu with strong will and stretched her to the limit. "Space will never favor you just because you are a woman," Liu said. "Thus there's no difference between men and women in the training process."

In 2012, Liu has been selected as a crew member of Shenzhou 9, the first manned mission to the Chinese space station Tiangong 1 and performed experiments in space medicine.

"I have full confidence. Men and women have their own advantages and capabilities in carrying out space missions. They can complement each other and better complete their mission."

Two years after successfully completing the Shenzhou-9 mission, she went to the School of Social Sciences at Tsinghua for further study and obtained a doctorate in 2018. Meanwhile, she never stopped training, "in order to be always ready for the next mission."

Selected for another Chinese space mission, Shenzhou-14, along with taikonauts Chen Dong as the commander and first-timer Cai Xuzhe, Liu began her training for the construction of China's space station in 2019.

"The upcoming mission is far more challenging than the Shenzhou-9, as it features more cabins, experiments and equipment, with a more complex system and longer stay,” said she before the launching.

Shenzhou-14 mission crew entered Tianzhou 4 cargo ship successfully June 6, according to the China Manned Space Agency.

Huge applaud and best wishes for our TsinghuaRen and all astronauts!

Liu Kai wins young scientists award

The International Union of Materials Research Societies (IUMRS) has announced the winners of the 2021-2022 Frontier Materials Young Scientists Award on its official website. Associate Professor Liu Kai of the School of Materials Science and Engineering (SMSE) at Tsinghua University won this honor.

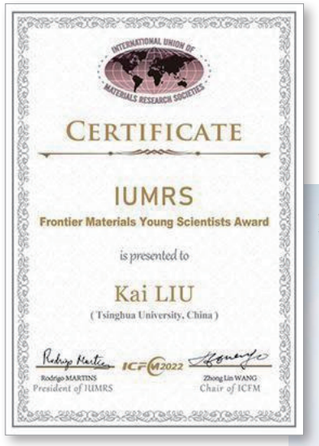
The IUMRS is an international academic organization built by the materials research societies in the United States, China, Europe, Japan and other countries in 1991, aimed at fostering interdisciplinary research and education in materials sciences. At present, there are 14 member societies worldwide.

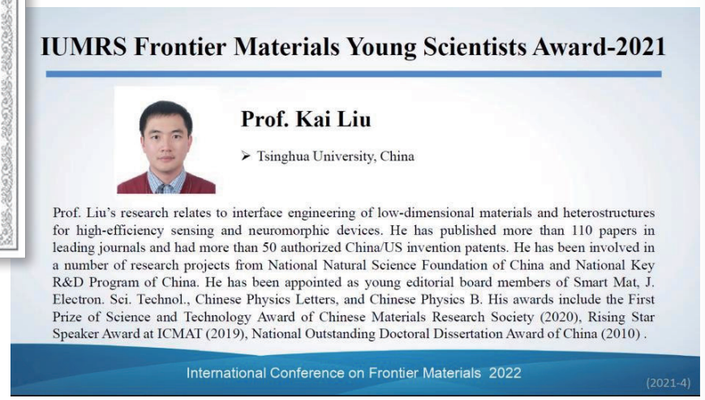
The IUMRS Frontier Materials Young Scientists Award aims to give recognition to young scientists who have made great contributions in the field of materials and applications around the world. Only six people are selected every year. Affected by the epidemic, the winners in 2021 and 2022 were awarded at the International Conference on Frontier Materials (ICFM2022) held from May 27 to 31, 2022.

Since joining the SMSE in 2015 to carry out independent research, Prof. Liu has devoted himself to the research on interface properties, smart devices, and extreme-environment applications of low-dimensional materials including two-dimensional atomic crystals and carbon nanotubes. He obtained the tenured faculty position in 2021.

Prof. Liu has published more than 110 academic papers and authorized more than 50 invention patents in the United States and China. In the past five years, as a corresponding author, he has published a series of important research papers in Nature Commun., Science Adv., Adv. Mater., Adv. Funct. Mater., Nano Lett., and other journals. He has won the IUMRS Frontier Materials Young Scientists Award, the First Prize of Science and Technology Award of Chinese Materials Research Society, and the National Outstanding Doctoral Dissertation Award of China.

He has served as a member of Youth Committee of Chinese Materials Research Society, young editorial board member of SmartMat, Chin. Phys. Lett., Chin. Phys. B, and executive editorial board member of J. Electron. Sci. Technol. He has made more than 30 invited talks at important academic conferences both at home and abroad.





Class of 2022 share their Tsinghua experiences

Editor's Note

With dazzling sunlight and warm winds, June comes creeping in, and a group of Tsinghua graduates are about to set off for their next challenge in life. As graduates embark on a new chapter, it also matters to them to look back on the time they have spent here at Tsinghua.

Tsinghua has been committed to offering the best possible education for all students, while diverse perspectives from our international students will give you another glance at the multi-dimensional experiences across the campus.

Grace Lim, Bachelor of Arts, School of Journalism and Communication

Years spent at Tsinghua make a fruitful journey

I felt extremely excited but nervous the first time I arrived at Tsinghua since it was my first time studying abroad alone. I once thought Tsinghua students wouldn't enjoy sport since they focus more on studying, but my impression changed after studying here. Tsinghua has a long sporting tradition and really encourages students to regularly participate in sports. The campus is equipped with different sports facilities including gyms, badminton courts, track fields, swimming pools and others. There are always many people running laps on the athletic fields at 5 pm daily; I also took ballet, shooting, and wushu courses to enhance the level of my sport.

In addition, I participated in the summer service and learning program in rural China and it was really a memorable trip for me. I remember the first time I joined the SAEPA (Student Association of Educational Poverty Alleviation) "Teaching on Weekends" program and volunteered to bring my knowledge and love to the students in rural areas. Although I only spent two days with the students, we had a strong connection and I was reluctant to leave. They gave me a handwritten letter as a farewell and I have kept it until now. It motivated me to work harder to give back to society.

If I have to use one word to summarize my life at Tsinghua, it would be "fruitful". Tsinghua has made me a better person, broadened my horizons, and taught me to look at the world with different perspectives. I have learnt to be more open-minded and gained more knowledge regarding journalism and communication. I hope to have the spirit of independent thinking and courage to fulfill my social responsibility in the media in future.

Grace

Active participant and volunteer before, during, and after the pandemic

Tsinghua University has a range of organizations ranging from recreation to cultural exchange, sports, arts, design building, and racing cars, as well as entrepreneurial ones. All of the societies offer a great deal of assistance and education to all Tsinghua students, based on their interests and future plans. I'm also a core member of a few organizations, such as the Red Cross Society, which was the first organization I joined since it provides me with a platform by which I can contribute to our society and find serenity and satisfaction. I was a member of the Graduate Student Union and the Belt and Road Initiative Student Association (SABRI). These societies have broadened my perspectives on the role of youth in making the world a better and more peaceful to live.

My two years at Tsinghua helped me appreciate the school's love, warmth, and care for students who are looking for a home away from home. Participating in the Beijing Olympics 2022 will always be a memorable, joyful, and meaningful experience for me since it allowed me to be a part of enormous sporting events that connect the world together for a shared future.

In the transition from university life to a professional career, I hope each experience and piece of knowledge I learned here can add more value to my professional life. I'm grateful to everyone I met on the lovely Tsinghua campus who helped me develop stronger and gave me memories that I'll cherish long after I graduate. Once a Tsinghuaren, always a Tsinghuaren, and I will always adhere to the Tsinghua principles and slogan.

Wasim

Muhammad Wasim Asim, Master in Mechanical Engineering, School of Vehicle and Mobility

Stefania Jiang, Master of Laws in Political Science, Department of International Relations, School of Social Sciences

An adventure started for curiosity that turned into a passion

One of the most precious experiences during my time at Tsinghua has been working as a writer and social media assistant at the Global Communication Office (GCO) for Tsinghua University. My daily work includes writing social media posts and strategic planning for Facebook, Twitter, Instagram and LinkedIn.

Before joining GCO, I was part of the audience following Tsinghua's social media pages and while preparing my application for Tsinghua, I was captivated by the diversity of stories and profiles among #TsinghuaRen. I originally planned to join the GCO team with a curious and open mind, without many expectations, and the past two years have been extremely rewarding and far exceeded my expectations.

Operating behind the scenes of Tsinghua's official social media pages requires great attention to detail and a huge sense of responsibility. Especially in a fast-paced environment like social media, it is crucial to stay on top of what is happening around the world and report in a timely manner. Overall, I believe that to tell the Tsinghua story to our international audience takes practice. Moreover, I had the opportunity to hone my writing skills, delivering a message in a concise and impactful manner, and reaching out to a global audience.

Some of my fondest memories were covering live international, high-profile conferences like the Ninth World Peace Forum and the World Health Forum.

Also, I have been fortunate to work with a team of purpose-driven and passionate members. We often have talks about how to improve our work on the social media platforms. As most of our work is online, teamwork is crucial, as behind a post there are at least four people involved (e.g., writer, editor, supervisor, and social media assistant).

The work was made even more enjoyable thanks to our friendship, sharing our struggles and joys, while navigating the insecurities and opportunities of our early 20s. Thanks to their encouraging words and unconditional support, I gradually found my voice and my way.

Aside from work, I had the privilege to meet a group of close friends along the way. We are a diverse, multicultural team, coming from different backgrounds and studies. In some ways, we are like-minded people but with our own differences and peculiarities. In other ways, we have been complementing each other with our personal skillsets, pushing each other to do better and better. I also had the luck to meet supportive friends, peers and seniors along the way, who helped me discover my passion for digital storytelling and cross-cultural communication.

As I am setting off from the GCO team and Tsinghua with a bittersweet feeling, I wish all the best to the Graduating Class of 2022 for your future endeavours. Looking forward to what the next generation of Tsinghua has to bring!

Stefania

Tsinghua professors, alumni elected directors and deputy directors of the CAE academic divisions

The 16th Academician Conference of Chinese Academy of Engineering (CAE) was held recently. Tsinghua professors Nie Jianguo, He Kebin, and Dong Jiahong, as well as alumni Tan Tianwei, Lu Chunfang, Ouyang Xiaoping, Hu Chunhong, Hou Li'an and Chen Jian were named directors and deputy directors of the CAE academic divisions.

Nie Jianguo, director of the Academic Committee of Tsinghua University and professor of the School of Civil Engineering, was elected director of the CAE Civil, Hydraulic and Architecture Engineering Academic Division. He Kebin, dean of Tsinghua University Institute for Carbon Neutrality and professor of the School of Environment, was voted director of the CAE Environment & Light and Textile Industries Engineering Academic Division. Dong Jiahong, dean of Tsinghua University School of Clinical Medicine and dean of Beijing Tsinghua Changgung Hospital, was elected deputy director of the CAE Medicine and Health Academic Division.

In addition, Tsinghua alumni Tan Tianwei and Lu Chunfang were elected director of the CAE Chemical, Metallurgical and Materials Engineering Academic Division and Engineering Management Academic Division respectively. Ouyang Xiaoping was voted deputy director of the CAE Energy and Mining Engineering Academic Division, Hu Chunhong was elected deputy director of the CAE Civil, Hydraulic and Architecture Engineering Academic Division, and Hou Li'an and Chen Jian were elected deputy directors of the CAE Environment & Light and Textile Industries Engineering Academic Division.

DIVERSE CAMPUS

"Pocket Lab" enables Tsinghua students to carry out experiments on campus

Although the recent outbreak of Covid-19 cases in Beijing has rendered many Tsinghua faculty members to switch to online teaching from home, Tsinghua University has not let this change hamper Tsinghua students' learning and research.

In fact, it has taken necessary measures to ensure learning continues unimpeded on campus.

Recently, to help its nearly 300 students continue with their experimental workshop effectively for the course "Basic Course of Electronics," Tsinghua's Department of Automation distributed toolkits to the students and developed an online platform so that faculty members could monitor the students' experiments and give them necessary guidance instantly.

The students like to call their toolkit a "pocket lab" as it enables them to carry out experiments anytime and anywhere on campus.

The toolkit is equipped with pocket instruments, smart breadboards, wires, wire strippers, chips, resistors, capacitors, and other components.

"This pocket lab is very convenient to use. It only needs to be connected to the computer and the board. There is no problem in completing the experimental class this semester with high quality and quantity, " said Leng Tingxuan, a student.

As the students sit to conduct their experiments with their "pocket lab," the online platform automatically captures their experimental window data while the teacher's terminal captures the observation waveform in real-time, allowing efficient parallel Q&A between the teacher and the students, automatic batch acceptance, and students' independent problem troubleshooting.

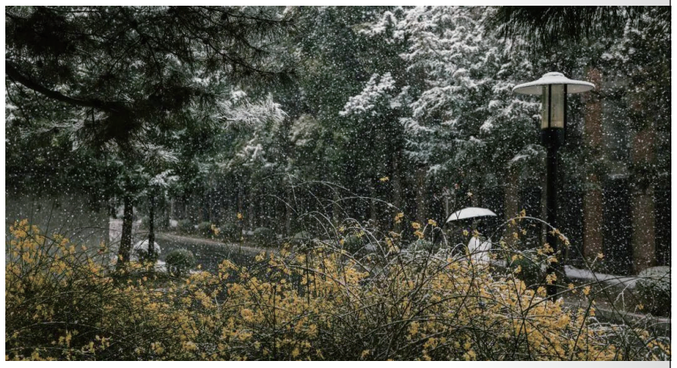
Thanks to hybrid learning, despite the Covid-19 pandemic, teaching and learning continue unimpeded at Tsinghua, and the enthusiasm of the students to do experiments has only grown stronger.

Mapping Tsinghua's biodiversity

Editor's Note

A group of Tsinghua students has been studying the rich biodiversity on campus to help the Tsinghua community better understand and get closer to the natural world that surrounds them.

On World Environment Day, let's take a look at some of their efforts that shine a spotlight on Tsinghua's rich biodiversity.



A biodiversity map of the Tsinghua campus

Do you know how many kinds of animals are there at Tsinghua University?

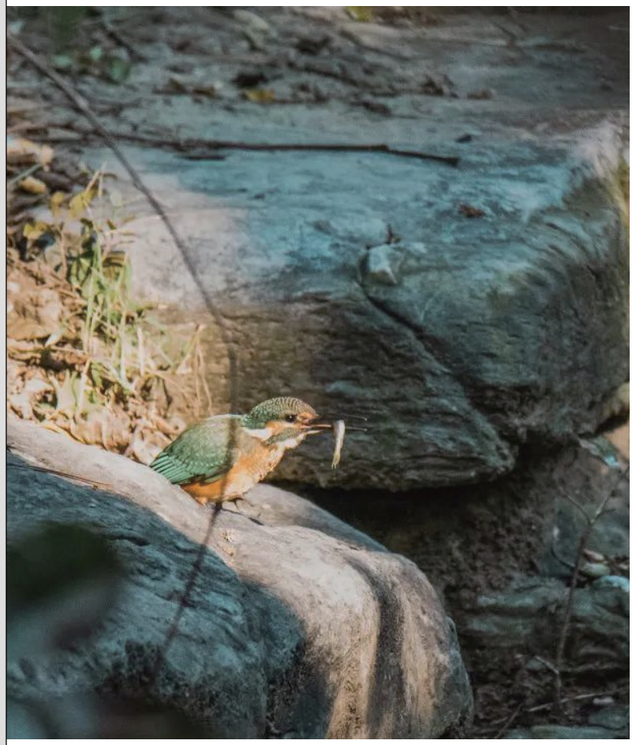
Do you know when the mandarin ducks (Aix galericulata 鸳鸯) arrive at Shuimuqinghua annually?

Have you ever noticed how Egrets (Egretta garzetta 白鹭) walk on the land?

The answers to all these questions are available on a biodiversity map, "The third forest park of Wudaokou (in short WDK 3 PARK)," made by a student team at Tsinghua.

The team was established by chance. In April 2021, Tseng Tz-Hsuan, the team leader, noticed that there was a contest which asked competitors to create a biodiversity map of their campus. When he sent the contest notice to other animal-related student groups, some fellow students showed an interest in the contest and thus began the process of developing a biodiversity map of the campus.

The team members say the university's location inspired the title of their biodiversity map. As the university's lush vegetation offers a forest-like feel to residents of Wudaokou, the team members thought the name "The third forest park of Wudaokou" would be fitting.



From April to July last year, they conducted a long, detailed survey along the Wanquan River that stretches across the campus. Distinct from other competitors, they focused more on showcasing animal diversity, especially the diversity of birds, fishes, and reptiles on campus.

The preparation for the contest was not easy but never dull. For example, Zhang Junduo used a mini net to catch lobsters in the Lotus Pond to study the elusive species on campus. Apart from that, they also noticed hedgehogs chewing bamboo and a Chinese blackbird (Turdus merula 乌鸫) imitating the sound of motorbikes.

After a month of hard work, they recorded 43 species of birds, four species of mammals, two species of amphibians, one species of reptiles, and seven species of fish. Now to show these creatures more vividly on their biodiversity map, they created a database and, based on it, drew exquisite animal drawings and the surroundings in which they inhabited.

Close ties, cordial feelings

The team's work didn't stop after completing the biodiversity map. The project paved the way for more inter-disciplinary collaboration among students to protect biodiversity on campus. Today, the team is bigger, forming a pattern of "6666", which means there are members from 6 faculties consisting of 6 undergraduates, six postgraduates, 6 Ph.D. students, and a member who has graduated. "Since we completed WDK 3 PARK projects, our collaboration with students from different majors to study biodiversity on campus has only deepened," Tseng Tz-Hsuan says.

Student clubs, such as the Tsinghua Association of Animal and the Tsinghua Student Association for Small Animal Protection, have joined forces with the team to nurture the natural world on campus.

Together, they launched a special activity, as part of which they publish a monthly online calendar that features an animal found on campus. For their May month calendar, a high-definition photo of Nycticorax nycticorax (夜鹭) taken by student Wang Ao was featured as wallpaper. At the same time, the team has continued to study the behaviors of different kinds of animals on campus. The appearance of Buteo japonicus (普通鵟) in Tsinghua symbolizes the arrival of spring or autumn. Besides, they have published an online collection of photographs of different animals in different seasons taken by some members, showcasing the beauty of the natural world on campus.

The WDK 3 PARK project members say that their efforts have led them to develop a wonderful connection with the animal world on campus.

One rainy day, Wang Ao picked up a young Oriental Scops Owl (Otus sunia 红角鸮) that had fallen out of its nest on the playground. Then, Tseng Tz-Hsuan, Yang Yuhan, Wang Pei and Ao immediately contacted the Beijing Raptor Rescue Center, where the staff offered medical treatment for the bird. After that, the little bird was sent back to Tsinghua and set free together.

Every year, the rescued Otus scops come to the campus to breed." I can recognize them from their calls," Wang Ao says.

A shared future for us

These Tsinghua students are not just taking stock of biodiversity on campus but also helping the Tsinghua community better understand and get closer to the natural world around them.

Not long ago, they conducted a survey on campus, asking students if they knew how many species existed on campus. But most students surveyed put the number of species in a lower number than the actual number of the species.

"There was such a huge gap, which inspired us to take various measures to publicize the knowledge about creatures living on campus," Yang Yuhan says.

Raising the awareness of biodiversity conservation and sharing the magic of nature are the motivations that have kept them going.

"We expect a shared future, not only for humanity but for all species," Tseng Tz-Hsuan says. "All it asks for is more understanding of the environment we live in. And it's a good beginning to start from the campus."

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