

NTU



HIGHLIGHTS

Leader's Profile:

James Chih-Hsin Yang Searching for Better Cancer Treatments



- New Mindset for Post-COVID Era
- Future Classroom Gives New Look to Higher Education
- Sustainable Development for Marine Resources

Future NTU Pioneers

Contents

Leader's Profile

01 James Chih-Hsin Yang: NTU Cancer Center Strives for Best of the Best

Special Report

04 Future NTU: Pioneering the Future

06 Reset the Mindset for the Post-COVID Era: GIS TAIWAN 2021

International Corner

08 NTU Receives an Unprecedented Number of International Applications

Research Achievements

09 NTU and LANL Develop a New Approach for Producing High-performance and Robust Perovskite Solar Modules

10 NTU Contributes to the Sustainable Development of Marine Resources, Results Published in *Science Advances*

11 Published in *Nature Communications*: Reconstructing Asymmetric Cell Division

12 Unveiling an Alternative Regulation Mechanism of Wnt/ β -catenin Activation in Advanced Prostate Cancer

Teaching and Learning

13 Human Rights, Trauma, and Transitional Justice: A College of Science Seminar

14 NTU Pioneers the Future of Higher Education with Future Classroom

Campus

16 Calligraphy by Japanese Sinologists: Special Exhibition at NTU Library

17 Bonded by Passion: NTU Women's Basketball Team

Back Cover

18 Prelude to Springtime: 2021 NTU Azalea Festival



NTU D-School CEO Bing-Yu Chen explaining the mission and tasks of Future NTU at the Summit.

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James Chih-Hsin Yang: NTU Cancer Center Strives for Best of the Best

Nestled in a quiet corner in the Gongguan area, the National Taiwan University Cancer Center is surrounded by lush green trees. Although it is affiliated with NTU Hospital, the Center does not have the hustle and bustle that typifies most hospitals. Rather, when entering the Center's atrium, you are greeted with gentle sunlight shining through the high glass ceiling, bestowing warmth and serenity. To the patients, the sunlight somehow bestows not just feelings of warmth and serenity, but also much-needed hope and strength. Dr. James Chih-Hsin Yang, the Center's Superintendent, is deeply aware of the trust patients place in the medical staff, and this in turn drives him to lead the Center towards becoming one of the world's best.

Looking back, Dr. Yang remembers his early enlightenment as a 6th-grader in Germany.

Education in Germany emphasizes exploration and self-expression, even in natural science. Dr. Yang recalls a teacher in elementary school who asked the students to match birds by identifying their chirpings. He failed miserably in the test. Mathematics was always a subject in which he excelled in Taiwan, but the math teacher in Germany had doubts about his ability because he never volunteered to answer a single question in class. Although the diverse and open teaching method initially came as a shock, Dr. Yang has since upheld the "thinking outside the box" approach when it comes to research.

After returning to Taiwan, he first attended Taipei Municipal Jianguo High School, then National Taiwan University. He was given the opportunity to fully realize his potential at the most liberated education institutions in Taiwan. As he advanced from being a student to a full professor at NTU, he deeply aware of the obstacles of education in Taiwan. Taking the NTU College of Medicine for example. While it is the medical school where the top local students are trained to become outstanding doctors, Dr. Yang believes students would achieve more breakthroughs were they given a solid training in logic and taught to hone their abilities to think creatively and dialectically from an early age.

Superintendent Dr. James Chih-Hsin Yang wants the National Taiwan University Cancer Center to become not just "the best in the Chinese-speaking world," but "the best in the world".



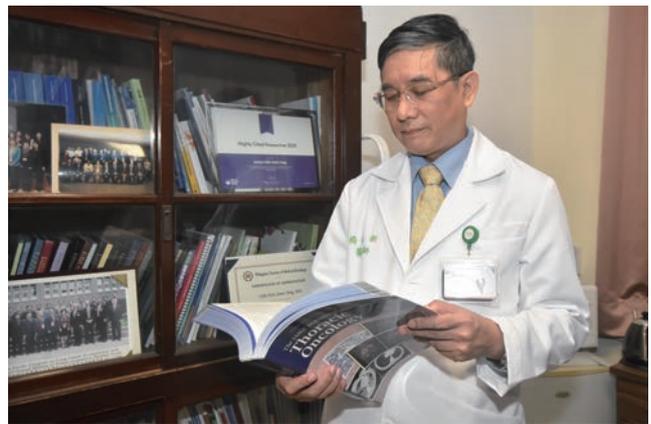
In this spirit, Dr. Yang encourages diverse thinking in the rather rigid, rule-abiding medical education program so that students may realize greater possibilities. “People used to know cancer is not contagious. But, can’t bacteria cause cancer? Now they know this is the case with gastric cancer.” Despite his emphasis on out-of-the-box thinking, the process of scientific dialectics matters even more to him. After all, it is the process by which doctors find accurate solutions to critical issues.

Generally, a good doctor is tasked with diagnosing the problems and making accurate medical decisions for his/her patients. However, Dr. Yang has higher hopes for the NTU College of Medicine and Hospital. While working for the Department of Oncology at the NTU Hospital, he proactively scouted for opportunities to conduct clinical trials of new drugs and eventually transformed the hospital into a global hub for clinical drug trials. NTU Hospital is now a global leader in experimental treatments, constantly exploring possibilities for new treatments. “Being Taiwan’s best medical institution, NTU Hospital should always aim higher. This is a great opportunity for the world to see Taiwan,” explains Dr. Yang.

Dr. Yang wants the National Taiwan University Cancer Center to become not only “the best in the Chinese-speaking world,” but also “the best in the world.” Taiwan leads the world in many areas of

cancer treatment, such as, according to the Bill Gates Foundation, the 5-year survival rate of stage IV lung cancer and blood cancer care. The NTU Cancer Center is blessed with a host of outstanding doctors from NTU Hospital and state-of-the-art facilities. Given these advantages, the Center truly can uphold its grand vision of becoming one of the best in the world.

With 30 years dedicated to the relatively unpopular field of clinical trials, Dr. Yang is taking the helm in Taiwan’s quest for more efficacious cancer treatments. He humbly attributes his success to luck, referring to a decision he made when a clinical trial was in development. He hopes to encourage more young doctors to join this field by sharing his experience to increase not only NTU’s global visibility, but also the patients’ trust in medical care.



Superintendent Dr. James Chih-Hsin Yang wants the National Taiwan University Cancer Center to become not only “the best in the Chinese-speaking world,” but “the best in the world.”



In recognition of his years of dedication to the development of new cancer drugs and clinical trials of cancer treatments, Dr. Yang recently won the 24th Annual National Chair Professorship Award.

Q&A

Q : What was your favorite corner on the campus as a student?

A : The old library, which is now the Gallery of National Taiwan University History. The rich history of the place made people feel as if they were in Europe.

Q : What do you like to do in your spare time?

A : I love listening to music. I used to sing in the choir. The music I listen to spans a wide range of genres, but classical music is my all-time favorite.



The fruit of his years of dedication to the development of new cancer drugs and clinical trials of cancer treatments, Dr. Yang's journal articles are cited worldwide.

Bio

Q : Have you ever imagined what career you might have pursued if you were not a professor or doctor?

A : Talents aside, I would very much like to be a musician. I also think working in the R&D department of a pharmaceutical company may be interesting.

Q : How do you describe your relationship with work?

A : I truly enjoy it. I am lucky enough to have my family as my support, and I feel blessed doing what I love every day.

Dr. James Chih-Hsin Yang currently serves as the Superintendent of the National Taiwan University Cancer Center and the Director of the Graduate Institute of Oncology. He has dedicated himself to the development of new cancer drugs and clinical trials of cancer treatments. He has led large-scale global clinical trials and his journal articles are cited worldwide. As a pioneer in developing cancer treatments, he has recently won the 24th Annual National Chair Professorship Award.

Future NTU: Pioneering the Future

Preface

The future is at hand! With extreme climate threats and the COVID-19 pandemic, the fast-changing reality of our interconnectedness has never been more evident. For the survival of future generations, humankind must pool talent and resources to develop ways to coexist with Mother Nature and make ecosystems more sustainable.

In order to innovate new paths to the future, there is urgent need to reflect on the crises that challenge social and economic sustainability, such as fragmented social systems, rapidly aging population, natural disasters, income inequality, and resource depletion.

Facing such challenges, universities should shoulder their responsibility and provide the platform of knowledge-sharing in order to help create a sustainable future. This effort would enable society to tackle environmental and social changes by finding enduring solutions amidst all the uncertainty, complexity, and risks. It is also the task of the universities to develop education models based on the concept of “learning society,” which connects global trends with local knowledge, and traditional education systems

with unconventional methods. To achieve this goal, NTU kick-started the Future NTU project in the beginning of 2019.

Headed by NTU D-School, the project initiated a series of brainstorming sessions and workshops with faculty and students across various disciplines. More stakeholders were eventually involved, with thousands of participants reflecting on NTU’s core values, as well as proposing innovative solutions to shape its future as it marches towards its centenary in 2028.

Historical Development of the University System

It is necessary to review the historical development of the university system before delving into the discussion of Future NTU. The Western higher education system was initially dominated by the Church and subsequently secularized after the Renaissance. In the 19th century, it adopted the Humboldtian model that focused on the integration of empirical research, teaching, and academic freedom. This model indirectly inspired the model of late 20th-century universities, with a great focus on linking innovative applications with industrialized capital markets.

With the development of disruptive technologies and industrial transformation in the 21st century, the world has shifted from Industry 4.0 to Technology 4.0 or even Society 5.0. The Internet and globalization have



fundamentally changed the way information is produced and disseminated. This coincides with the shift from the traditional Newtonian view that a pristine and singular truth exists in the world, to quantum theory that describes a realm in which the truth is vague, uncertain, complex, and ever-evolving.

To address this trend, universities have to adapt to learners' needs. As a trailblazer, NTU cares about every community member's ability to take on the challenges of tomorrow, which learners can only address by having a solid grasp of real-world problems and integrating cross-domain knowledge.

Mission and Vision

The mission of NTU is to pioneer the future by setting our vision on eternity and taking action as pioneers.

To achieve this mission, all members of NTU must be able to imagine real future possibilities. NTU must transform into a fully open and inclusive institution by breaking through boundaries in teaching, talent acquisition and administration, allowing everyone to maximize their potential.

To this end, NTU invites the faculty, students, staff and alumni to build a vision from three dimensions, including seeking self-actualization, advancing collective intelligence, and promoting a commonwealth society. Incredible synergy can be generated when everyone is given the opportunity to do their best, then the spark ignited during each encounter would enrich collective intelligence.

Besides passing down academic heritage, the Future NTU initiative shall also strive to lead the trend by offering solutions to the pivotal issues the world faces today, as well as propelling the society towards a better future.

Building a "Learner-centered Open University"

To further illustrate how Future NTU will be realized, several strategic directions called the "breaking" and "making" of Future NTU have been developed. The "breaking" implies breaking down current limitations to allow greater flexibility



NTU President Kuan explaining the vision for Future NTU at the Future NTU Summit .



Future NTU student workshop.

and openness inside the university, and the "making" refers to transforming teaching and learning into a learner-centered system.

There are six strategic directions for the "breaking" and "making" of Future NTU. These strategic directions emphasize not only breaking down the old framework, such as the barriers of disciplines, the segregation between alumni and current students, the confinement of classrooms, and the boundary between industry and academia, but also shaping a new outlook for learning, and developing a personal approach to learning.

Based on the approach of "learner-centered open university," knowledge, experience and wisdom will be shared among a larger community to enhance collective intelligence and the common good. Let us work together and stride towards the vision of Future NTU — pioneering the future.

Summit - Under the Pandemic -



Speakers exchanging ideas with student delegates during the Summit.



Reset the Mindset for the Post-COVID Era: GIS TAIWAN 2021

Founded in 2009, Global Initiatives Symposium in Taiwan (GIS Taiwan) is Taiwan's first international official student forum. GIS TAIWAN is supervised by the Student Activity Division of the Office of Student Affairs (OIA) but organized by NTU students themselves, working hand in hand with scholars, entrepreneurs, and young adults worldwide to put theory into practice. Every year, GIS TAIWAN serves as a platform for students and industry leaders to discuss international issues and devise feasible development plans.

Due to the pandemic, the five-day forum originally slated for last July was postponed to January 25-29. The theme of this year's forum, "Reset the Mindset," sought to address four burning issues:

"Data Surge," "Green Action," "Social Stigma," and "Capital Redefined." By "resetting" perspectives and transforming current models of thinking, student delegates were given the opportunity to reexamine these real-life problems besetting society and to work out sustainable solutions.

At the opening ceremony, President Chung-Ming Kuan delivered a thought-provoking speech, stressing that though the pandemic had imposed unprecedented challenges, it also presented a perfect timing for people to pause and reevaluate the future. President Kuan expressed his faith in the ability of NTU students to turn adversity into advantage and work toward the betterment of society. Nita Ing, the opening speaker, who is Chairman of Continental Holdings Corporation, encouraged students to break through existing moulds, pursue their passion, and not fear failure.

A highlight of GIS TAIWAN was the "action projects" devised and presented by student



delegates at the Action Project Exhibition near the close of the event. The challenge was for students to develop a problem-solving project using something they had learned from the keynote speeches and panel discussion. The action projects were inspired by the forum's academic topics, and students were guided by mentors to revise and refine their ideas as they brainstormed in quest of innovative solutions.

An "Innovation Carnival" was held at this year's GIS TAIWAN for the first time. Twenty-two startups set up booths at the NTU Sports Center spotlighting "Smart Technology," "Recreation and Entertainment," "Innovative Education," "E-commerce," and "Liberal Arts" The startups also showcased their business models, product lines, and service offerings. Students had the opportunity to swap ideas with the business representatives and learn more about different industries. GIS TAIWAN also arranged "Leader Dialogues" at Grand Hyatt Hotel, inviting 28 leaders and managers to share with students

their experiences in business management. Since many of the delegates were international students, event organizers arranged a cultural tour for them to experience Taiwan's local cuisine and music.

To safeguard the health and well-being of the participants, the organizers implemented mandatory pandemic prevention measures, such as enforcing the wearing of facemasks when indoors, providing alcohol disinfectants, taking everyone's temperature, and arranging spaced seating. GIS TAIWAN included a session on envisioning the post-pandemic era, at which public health experts shared their thoughts. The list of guest speakers included Chairman of the CECC Expert Consultation Committee, Shan-Chwen Chang, Former Vice President of ROC Chien-jen Chen, and Director General of the Department of Cyber Security, Hong-Wei Jyan.

GIS TAIWAN, which closed on January 29, hosted a total of 217 student delegates, including 46 foreign students from 14 countries. Seeking to turn ideas into action, the platform provided student delegates with the opportunity to explore possibilities and interact with experienced industry leaders. Students who participated in the Action Project Exhibition were challenged to put their knowledge into action and make a real difference.

Despite the challenges imposed by the ongoing pandemic, GIS TAIWAN effectively facilitated communications between the private sector, academia, and the student delegates. By partaking in the discussion, student delegates learned to look deeper into societal issues and come up with solutions from a broader, more inclusive perspective.



Students tasting the foods of various countries at the Cultural Festival.

NTU Receives an Unprecedented Number of International Applications

In response to the COVID-19 pandemic, National Taiwan University (NTU) launched the COVID-19 Special Visiting Student Program and the Hong Kong Student Visiting Program to provide the opportunity for international students to continue their studies. These programs are intended to not only safeguard the students' health but also familiarize them with the University. Thanks to a collective outreach effort, NTU received 4,072 applications this year, an unprecedented number. This marked a 200 percent spike over the preceding year. Additionally, the Office of International Affairs (OIA) launched an online "NTU Open Day for International Students" for the first time, both to increase the University's global visibility and to help students tackle various problems related to the pandemic.

This online window facilitated a series of novel interactions between international students and NTU.

The four-day event included five sessions devoted to three themes: "NTU at a Glance," "College Tour," and "Programs Taught in English." On YouTube and Facebook, interested students from near and far had the opportunity to learn more about application processes and NTU's rich academic resources.

In "NTU at a Glance," six international students from the U.S.A., Japan, Korea, Indonesia, Burkina Faso, and Belize, respectively were invited to share their personal views about Taiwan and campus life. They all expressed hearty appreciation to NTU for offering its bountiful resources in support of the students' academic aspirations and social activities. In the "College Tour" and "Programs taught in English" sessions, students learned more about their fields of study and optimal ways to apply their knowledge in



NTU OIA hosting the first online NTU Open Day for International Students.



Dr. Yuan-Tseh Lee, Nobel Laureate and NTU alumnus, visiting the College of Science to record a short film for the event.



International students participating in livestreaming events.

their future careers. The livestreamed event attracted over 3,000 views within 2 weeks.

Despite the formidable challenges posed by the pandemic, NTU has spared no effort to break new ground digitally and virtually to attract and host international students. Looking ahead, NTU will continue to host similar online events by strengthening its partnerships with overseas alumni associations and top-tier high schools.

NTU and LANL Develop a New Approach for Producing High-performance and Robust Perovskite Solar Modules

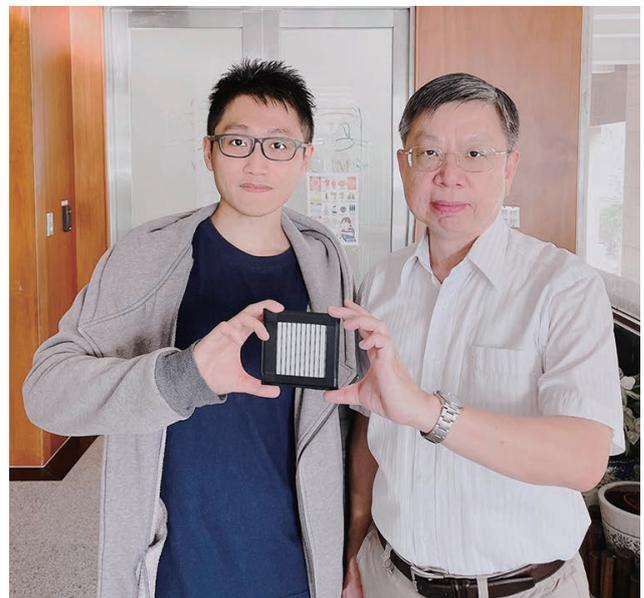
Prof. Leeyih Wang of the Center for Condensed Matter Sciences leads an international research team with members from NTU and Los Alamos National Laboratory (LANL). The team has developed a new synthetic route that breaks the bottlenecks and opens the way to prepare large-scale, high-quality organic-inorganic hybrid halide perovskite. This innovative new approach enables the fabrication of robust, highly efficient perovskite solar modules. This research result was recently published in *Joule*, a renowned journal in energy studies.

During the past decade, unprecedented progress has been made in pursuing high-efficiency perovskite solar cells. Recently, a single-junction perovskite cell with outstanding power conversion efficiency was selected by the industry for potential commercialization. However, two barriers to commercialization remain, namely, the lack of low-cost and scalable production and poor device lifetime. In other words, a scalable fabrication approach that yields a durable, high-quality perovskite layer over module scale is the key to making perovskite photovoltaic technology commercially feasible.

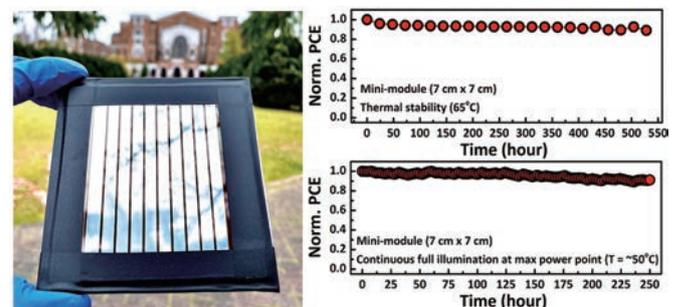
This study identified sulfolane as an additive in the perovskite precursor that converts perovskite phase via a new reaction route. The key issue lies in building intermolecular hydrogen-bonding forces between sulfolane and methylammonium iodide, which would slow down the nucleation and crystallization process and significantly extend the processing window from 9 to 90 seconds. Importantly, two mini-modules have PCEs of 17.58% and 16.06%, respectively, and the encapsulated mini-modules retain about 90%

of their initial performance after operating under 1-sun irradiation for 250 hours at 50°C.

The leaders of the LANL group, Prof. Leeyih Wang and Dr. Wanyi Nie, point out that broadening the processing window in the antisolvent route is essential for transferring the process to industrial-scale production. It allows the flexibility in up-scale process development without sacrificing device performance. The large-scale production can also benefit from the widened time window for better tolerance towards manufacturing errors and environmental variations. This work paves the way for low-cost, high-throughput commercial-scale production of large-scale solar modules in the near future.



Ph.D. student Hsin-Hsiang Huang of the Department of Materials Science and Engineering (left) and his dissertation advisor, Prof. Leeyih Wang of the Institute of Polymer Sciences and Engineering (right).



A perovskite solar module and its operational stability.



Scan the QR code to read the journal article.

NTU Contributes to the Sustainable Development of Marine Resources, Results Published in *Science Advances*

The Shackleton team led by Prof. Kevin C.-W. Wu of the Dept. Chemical Engineering, National Taiwan University, developed a Highly Selective, High-Performance Osmotic Power Generator that mimics the functionality of biological ion channels. The results were published in the *Science Advances*.

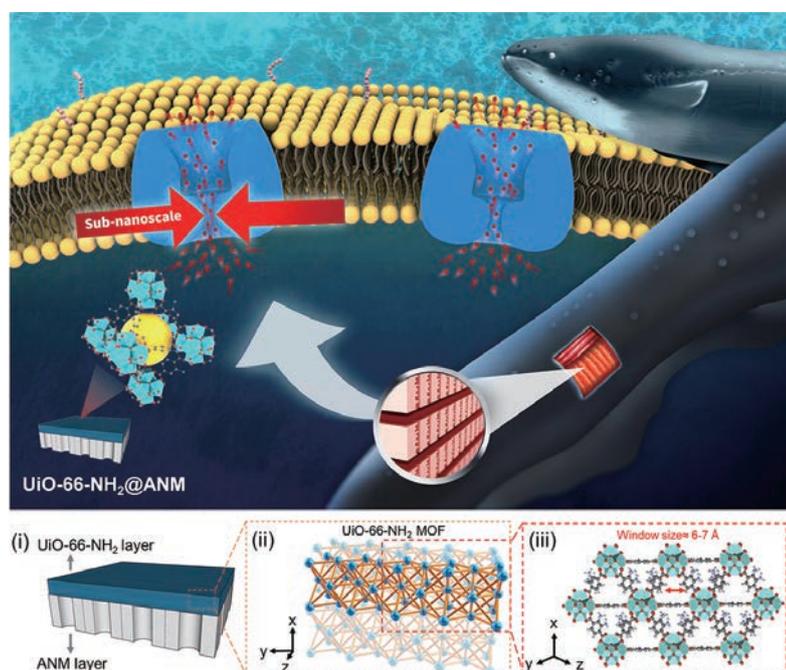
The sustainable development goals proposed by the United Nations in 2015 include making marine resources sustainable by 2030. In the research and development of “blue energy,” the use of ion-selective membranes to convert ionic gradients into electric energy has generated a high level of interest. However, the performance thus far has been limited by the high mass transfer resistance of disordered nanoporous films.

With the support of the Ministry of Science and Technology, Prof. Kevin C.-W. Wu of NTU’s

Department of Chemical Engineering and Prof. Li-Hsien Yeh of the Dept. Chemical Engineering, National Taiwan University of Science and Technology, have worked together to solve this problem by creating a biomimic nanoporous membrane consisting of metal-organic frameworks (i.e. UiO-66-NH₂). The team was inspired by the characteristics of biological ion channels in electric eels with high hole density, ion transmission, and ion selection (see figure below).

The “defect-free” metal-organic framework (UiO-66-NH₂) film was successfully grown on another highly ordered alumina nanochannel film (ANM). The research results verified that this heterogeneous film has ultra-high-speed ion transmission and ion diode properties, as well as ultra-high Br⁻/NO₃⁻ anion selectivity. Both features have set a new record in the field.

The team members believe that the metal-organic frameworks (MOFs)-based heterogeneous membrane that mimics the functionality of bio-ion channels will offer ample room for development in terms of advanced separation technology, seawater desalination as well as other energy fields in the future. It is also noteworthy that all four authors are from Taiwan. The team remains grateful for the support of the Shackleton Research Project from the Ministry of Science and Technology (MOST) and (NTU), and feels deeply honored to contribute to the sustainable use of marine resources on behalf of Taiwan.



Schematic depiction of the electric-eel-inspired heterogeneous membrane, UiO-66-NH₂@ANM with sub-nanoscale channels. The continuous and pinhole-free UiO-66-NH₂ membrane with numerous ordered sub-nanochannels was fabricated onto the alumina nanochannel membrane (ANM) support.



Scan the QR code to read the journal article.

Published in *Nature Communications*: Reconstructing Asymmetric Cell Division

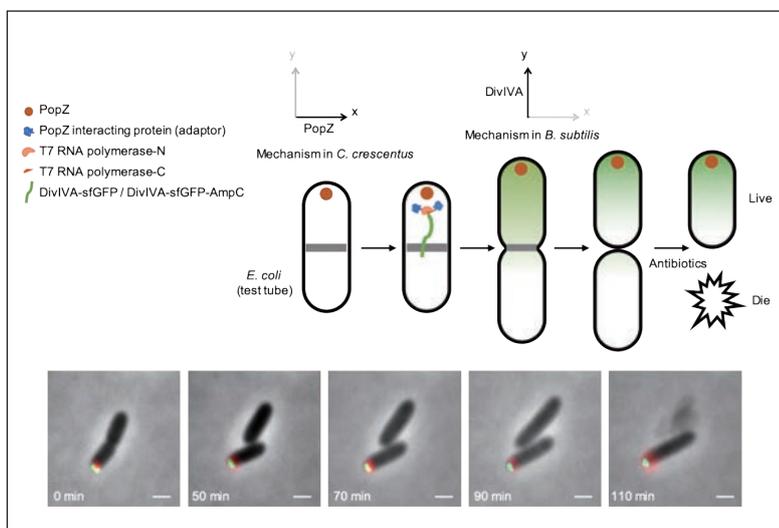
Establishing protein gradients for asymmetric cell division is fundamental for development across all kingdoms of life. While the central players and interactions of the process have mostly been elucidated via genetic approaches, the redundancy of natural systems complicates the understanding of underlying design principles. Consequently, an NTU research team took a bottom-up or “synthetic biology” approach to construct intracellular asymmetry and asymmetric division in *Escherichia coli*, in which division is normally symmetric. The results were published in the prestigious journal *Nature Communications* in February.

The team’s first step was to look for a synthetic polarity that is orthogonal to the *E. coli* proteome, before using the anchor to exert a polarized enzymatic activity. They found that the oligomeric PopZ from *Caulobacter crescentus* can serve as a robust polarized scaffold that functionalizes RNA polymerase asymmetrically in *E. coli*. However, when freely diffusible sfGFP was used as the downstream reporter, there was no

intracellular gradient, nor was there any difference in fluorescence between the two recently divided daughter cells.

What can be deduced using basic mathematics is that this occurs because diffusion is too fast compared to the length scale of an *E. coli* cell. The team then proceeded to use another natural mechanism that also is orthogonal to the *E. coli* proteome to circumvent diffusion. When the oligomeric pole-targeting DivIVA from *Bacillus subtilis* was fused to the sfGFP reporter, the newly synthesized protein could be constrained to establish intracellular asymmetry. Finally, when AmpC, an enzyme that can confer resistance to ampicillin, was fused to DivIVA-sfGFP as the cell fate determinant, only the daughter that inherited PopZ/ DivIVA-sfGFP-AmpC survived the drug challenge. This demonstrated a proof-of-concept functional differentiation at the first cell division.

The study suggests that the coupled oligomerization and restriction in diffusion may be a method for generating a spatial gradient for asymmetric cell division, serving as complementary evidence to support that limiting diffusion may be an essential underlying constraint for maintaining an intracellular gradient in many forms of life. From an application perspective, the ability to differentiate cells at the first cell division would allow synthetic morphogenesis with bit sizes precisely at single cells, thus presenting another important step forward.



An NTU research team therefore took a bottom-up, or so-called “synthetic biology” approach to construct intracellular asymmetry and asymmetric division in *Escherichia coli*, in which division is normally symmetric.



Scan the QR code to read “Construction of intracellular asymmetry and asymmetric division in *Escherichia coli*.”

Unveiling an Alternative Regulation Mechanism of Wnt/ β -catenin Activation in Advanced Prostate Cancer

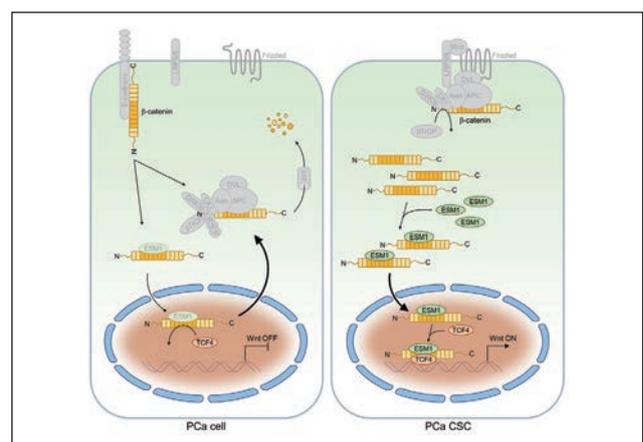
Wnt/ β -catenin signaling pathway is one of the fundamental mechanisms related to cell proliferation, stem cell pluripotency, and cell fate determination during embryonic development and tissue homeostasis. As a result, activating mutations in this pathway are often linked to human birth defects, cancer, and other diseases. Increasing evidence has indicated that dysregulation of the Wnt/ β -catenin signaling may contribute to the development and progression of cancer. The mechanism that activates Wnt/ β -catenin signaling may be different for different cancer types. Activating mutations in Wnt/ β -catenin signaling are quite common in most cancer types, but not in the advanced prostate cancer. This phenomenon may suggest that other regulation strategies of Wnt/ β -catenin signaling may exist in the advanced prostate cancer. A research team led by Dr. Kuo-Tai Hua from the Graduate Institute of Toxicology at NTU has found a protein named endothelial cell-specific molecule 1 (ESM1) to be positively associated with carcinogenesis of the prostate cancer. The ESM1 mislocalization leads to an induction of Wnt/ β -catenin-related cancer stemness and further contributes to the aggressive features of the prostate cancer. The research results were published in the prestigious *EMBO Journal* in February 2021.

ESM1 is originally identified as a circulating proteoglycan. This report is the first one to demonstrate aberrant subcellular localization of ESM1 in the nucleus. After observing this unexpected finding, the research team hypothesized that nuclear ESM1 would promote the more aggressive features of the prostate cancer. Experimental results showed that the nuclear ESM1 interacted with β -catenin to stabilize

β -catenin/TCF4 complex, thus supporting prostate cancer stemness. With an in vitro model, the research team had shown the therapeutic potential of targeting ESM1 to interrupt the ESM1/ β -catenin/TCF4 interaction in metastatic prostate cancer. These findings might be helpful in the future drug design strategies of the novel targeted therapy for the advanced prostate cancer.

The translocation of proteins is fundamental for proteins to exert their specific functions in different cellular compartments. The research team demonstrated what happened after the aberrant ESM1 protein localization and how this phenomenon lead to irretrievable consequences. Since the Wnt/ β -catenin signaling is frequently activated in advanced prostate cancer and related to tumor metastasis and therapy resistance, finding a novel target to block this pathway is imperative for tumor control. The research team has established the significance of mislocalized ESM1 implications for the potential use as a candidate therapeutic target in advanced prostate cancer.

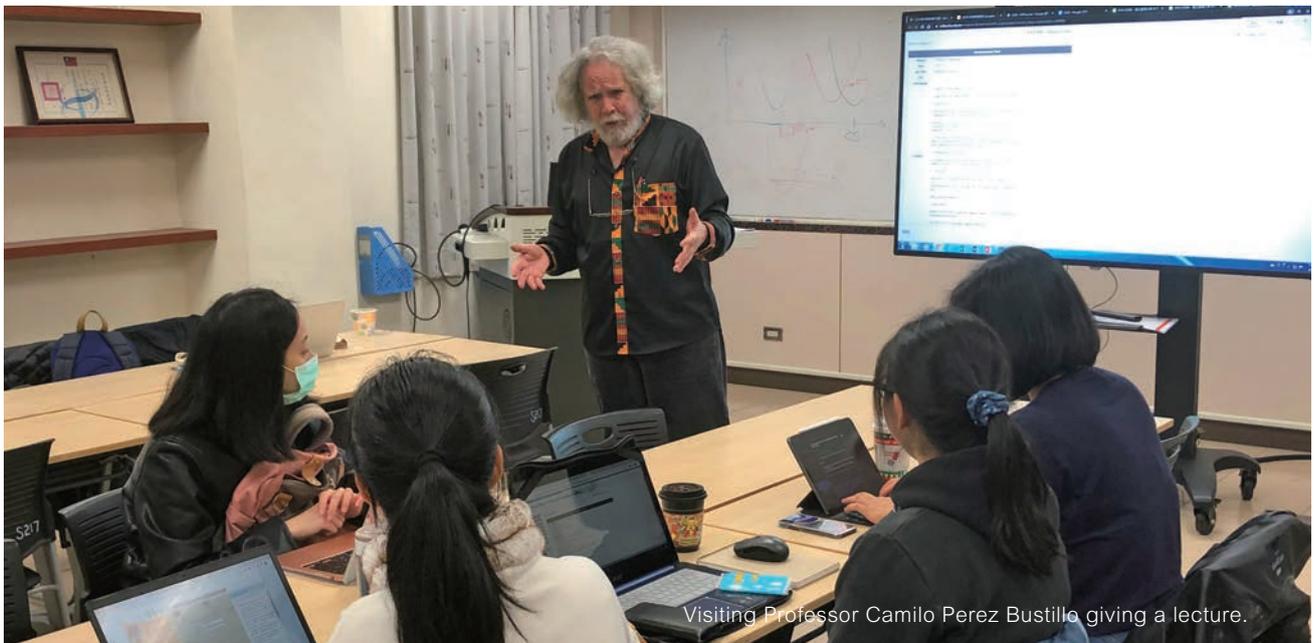
The first and corresponding authors of the research article are Ke-Fan Pan and Kuo-Tai Hua from Graduate Institute of Toxicology at NTU. The research team comprises Wei-Jiunn Lee, Chun-Chi Chou, Yi-Chieh Yang, Yu-Chan Chang, Ming-Hsien Chien, Michael Hsiao. The research was subsidized by NTU and the Ministry of Science and Technology.



Schematic diagram illustrating how elevated ESM1 expression promotes development of PCa by raising cancer stem cell populations via Wnt signaling.



Scan the QR code for more information.



Visiting Professor Camilo Perez Bustillo giving a lecture.

Human Rights, Trauma, and Transitional Justice: A College of Science Seminar

A seminar on “Human Rights, Trauma, and Transitional Justice” was initiated by Dr. Su-ling Yeh, Associate Dean, College of Science, and is co-taught by Profs. Camilo Perez Bustillo and I-Ching Lee. A visiting professor at the Department of Psychology, Juris Doctor (J.D.) Bustillo, provides the structure for the seminar by combing through the history of many countries, introducing examples of human rights violations, the damage they have caused, and the attempt to repair and heal through transitional justice. An expert in quantitative research, Dr. I-Ching Lee encourages students to reflect on why such atrocities continue to reappear in human societies, as well as how transitional justice can help to heal old wounds. Despite their apparent abstractness, the mechanism and causal relationships applied in transitional justice can help people to break away from personal experiences and facilitate cross-social and historical perspectives, while examining the similarities and differences in different stories.

Coming from a range of departments, the students learn about the obstacles to achieving

transitional justice with the hope of providing feasible resolutions to social dilemmas. Professors and students from a variety of disciplines discuss news stories, current events, research papers, and historical accounts. The main topics of their discussions include how art can present and stir reflection on past atrocities, how justice may ultimately be served for comfort women from Taiwan and Korea, why aboriginal people in Taiwan must never stop fighting for justice, and how we can avoid repeating the horrors of White Terror.

Students attending the seminar not only reexamine White Terror Taiwan through the lens of research, but are also exposed to similar experiences in other countries. The objective is to demonstrate why transitional justice is served in different ways due to the differing contexts and conditions in other countries, as well as the complex relationship between transitional justice, political structure, and the determination to not repeat the same mistakes.

Many of the questions raised in the seminar cannot be answered in absolute terms. For example, can there be reconciliation between victim and perpetrator if the latter is not punished by law? Is it possible to never repeat the same mistakes? Hopefully students who attend the seminar will be challenged to address issues of their own concerning transitional justice and look for feasible solutions.

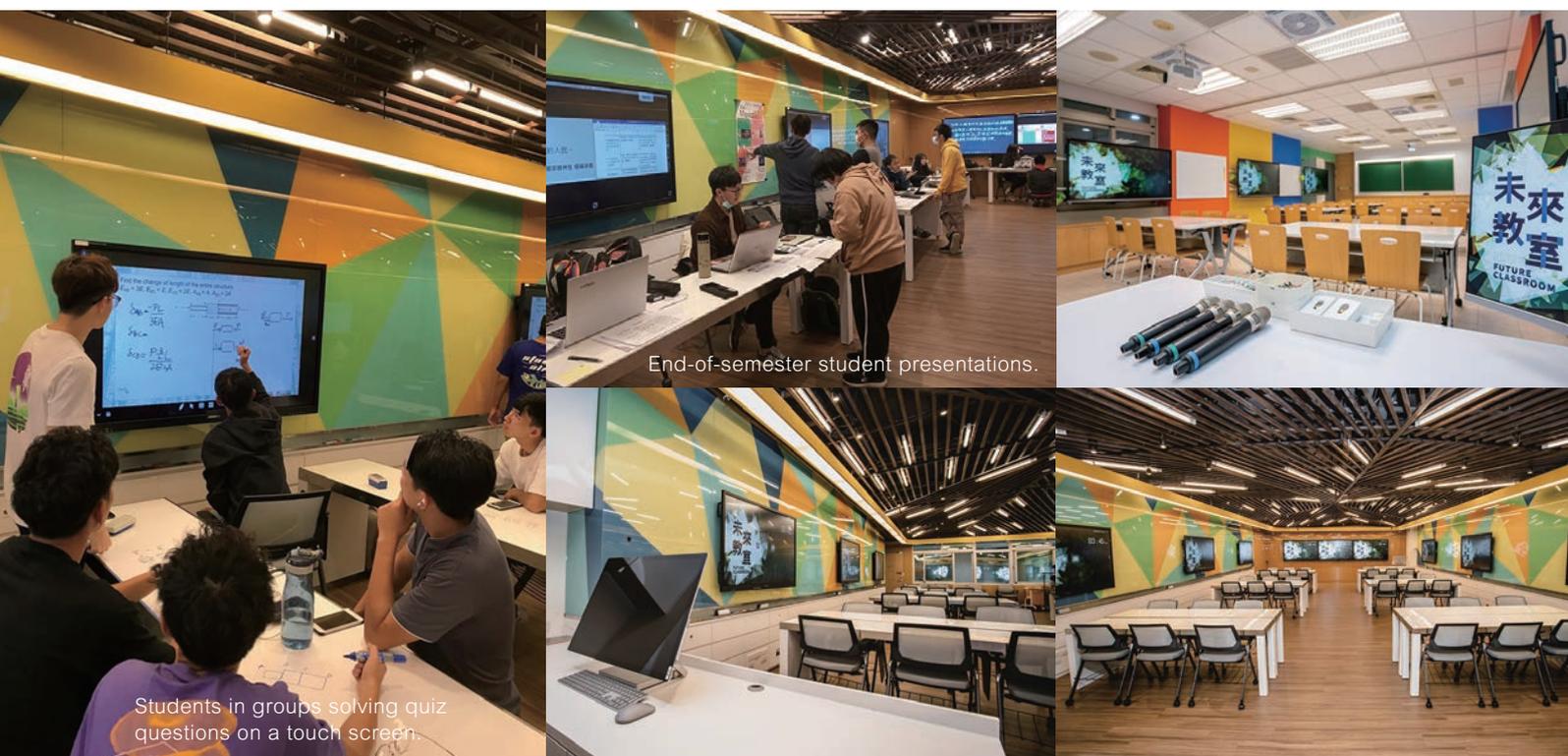
NTU Pioneers the Future of Higher Education with Future Classroom

In his prescient book, *Democracy and Education*, John Dewey made the following cautionary remark, “If we teach today's students as we taught yesterday's, we rob them of tomorrow” (Dewey, 1916). Higher education needs to evolve in terms of content, setting, and equipment. As technologies are an integral part of contemporary life, mastering their use is vital for students to achieve success in their studies and future careers. To that end, the willingness to participate in discussions and the ability to present their work are a must.

In this spirit, technology-assisted teaching is fast becoming a dominant form of education all over the world and Massachusetts Institute of Technology (MIT) is a leader in this trend. Back in 2000, MIT transformed the physics classroom into a Technology-Enabled Active Learning (TEAL) classroom to facilitate efficient, proactive learning using modern

technology. This demonstrated approach certainly warrants the attention and implementation of NTU, Taiwan's leading university. In 2020, the Digital Learning Center of the Office of Academic Affairs assisted in the planning and set up of NTU's first Future Classroom 1.0. Equipped with state-of-the-art teaching equipment, the future classroom integrates such innovations as IoT, BYOD (Bring Your Own Device) and PBL (Project Based Learning) to support a wide variety of teaching scenarios and make future teaching possible today.

Future Classroom 1.0 is equipped with 9 large interactive touch displays with such features as handwritten annotations and online sharing. The 9 interactive touch displays can also project each other with a simple tap, allowing greater flexibility in presenting teaching materials. Each interactive touch display is also paired with a wireless projection system, so that the professor and students can project the screens of their laptops and mobile phones onto the interactive touch display through a wireless connection to facilitate interactive teaching and group discussions. The desks and walls of the classroom are also writable, allowing the students to jot down notes and the conclusions of their discussions with markers.



End-of-semester student presentations.

Students in groups solving quiz questions on a touch screen.

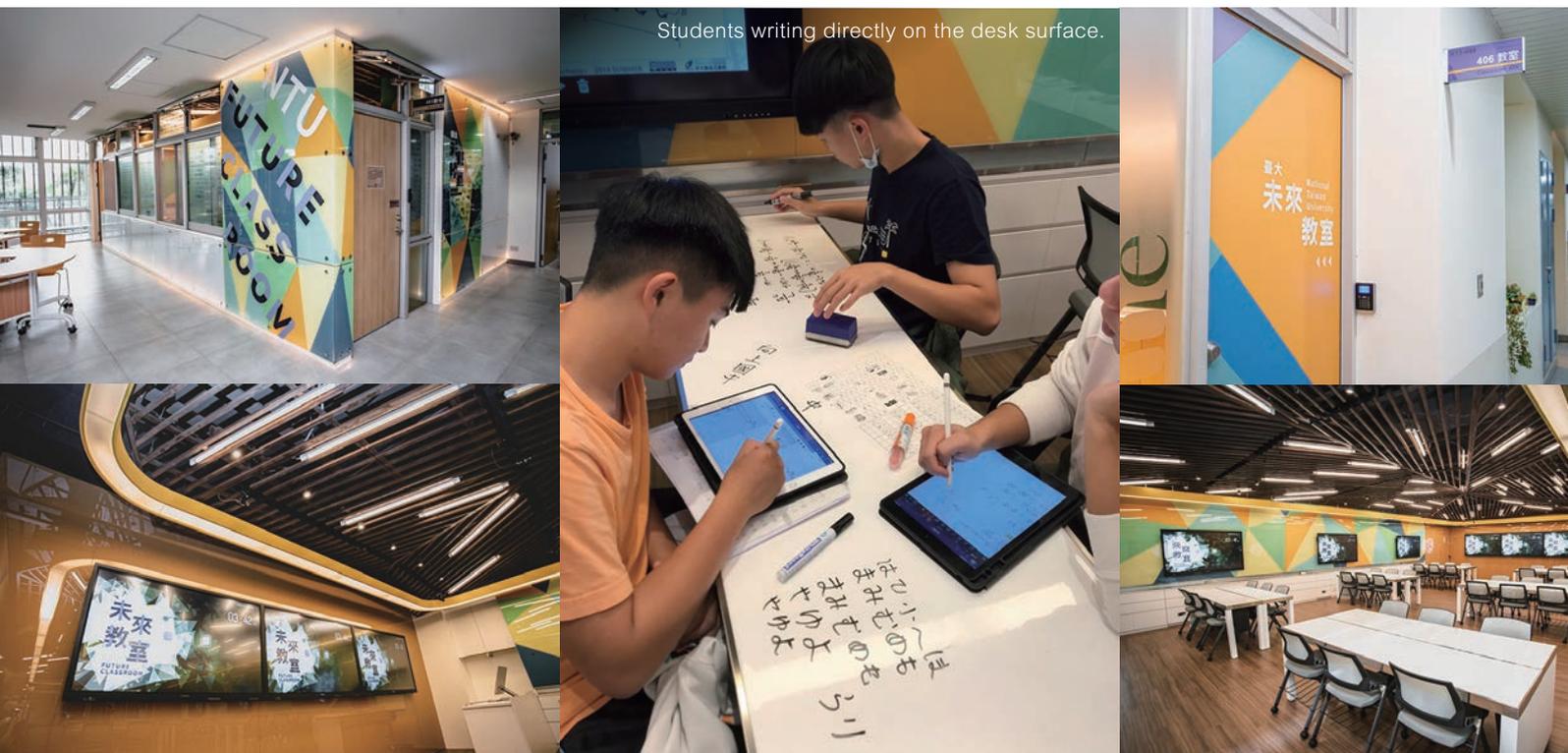
The classroom desks and chairs can be moved freely to create a friendly environment conducive to rich discussions and hands-on participation.

Launched in the fall semester of 2020, Future Classroom 1.0 hosted 11 courses. Nearly 200 students and professors in these courses gave highly positive evaluations of the facilities. Among the students, 91% agreed that “the equipment of Future Classroom facilitates discussions among peers,” and 86% were “eager to attend classes held in the Future Classroom again.” Professors found the Future Classroom to be “perfect for courses that require interaction, group discussions, or presentations.” In the second semester of 2020, 15 courses were held in the Future Classroom, which was rapidly gaining popularity among NTU faculty members as well as students.

In response to the growing demand, the Digital Learning Center set up Future Classroom 2.0 in December 2020. Using the survey feedback on Future Classroom 1.0, the Digital Learning Center also made improvements in Future Classroom 2.0. Meanwhile, colleges and departments that intend to set up their own future classrooms may apply for the necessary assistance. To date, the College of Medicine, School of Nursing, Department of Biochemical

Science and Technology, Department of Animal Science and Technology, as well as the Department of Mathematics have set up their respective future classrooms. By the summer of 2021, the College of Social Sciences, College of Management, College of Law, Center for Teacher Education, and NTU Hospital will have future classrooms of their own. As to other colleges and departments, this is an ongoing process. Going forward, the Office of Academic Affairs will subsidize every department’s purchase of large interactive touch displays for classrooms and meeting rooms. A variety of equipment tutorials, experience-sharing sessions, and TEAL workshops have been arranged to familiarize the users with the technology and enhance teaching/meeting efficiency.

Future Classroom is an experimental field that integrates the latest technologies with teaching. In the spring of 2021, the Office of Academic Affairs invested in VR equipment to support immersive teaching and learning, while encouraging students to work with their professors to develop VR teaching materials. It is hoped that more new teaching models will be developed that create better learning environments and efficiency. In this spirit, NTU hopes to support her students’ quest for success in their studies and future careers!



Calligraphy by Japanese Sinologists: Special Exhibition at NTU Library

This special exhibition showcased 45 works of calligraphy by eminent Japanese sinologists, including Yukiyasu Kanai, Naoki Kano, Hakuson Kuriyagawa, and Konan Naitō, as well as Chinese-style paintings by Chokunyu Tanomura, a master painter of the Meiji era. Visitors to the exhibition were able to not only appreciate the beauty of wonderful calligraphy but also catch a glimpse of the exchanges among eminent sinologists in East Asia. The exhibition ran until April 11, 2021,

The special exhibition was curated by Prof. Rur-Bin Yang, an alumnus of this university. Prof. Yang received his doctorate from the Department of Chinese Literature at NTU. Currently a professor at National Tsing Hua University, he is a distinguished scholar in Pre-Qin philosophy, Song-Ming Confucianism, and East Asian Confucianisms. Also a renowned collector, Prof. Yang has spent years collecting and preserving rare artefacts related to East Asian Confucianisms. Works of calligraphy and paintings by Chinese, Japanese, and Taiwanese intellectuals in the modern era dominate Prof. Yang's collections, he also collects letters, manuscripts, and ancient texts. His collections are truly a treasure trove for researchers studying Taiwan history, Chinese and Japanese modern history, as well as the history of the fine arts in East Asia. Professor Yang and his wife, Professor Sheng-Ping Fang, have so far donated over a thousand works of calligraphy and paintings to National Tsing Hua University, giving birth to the NTHU Museum in the process.

To maximize each artefact's historical significance, Prof. Yang, Prof. Fang and their friend, Prof. Masao Tanigawa of Nara University of Education, selected works from their respective collections and together donated to NTU Library a total of nine pieces of historical



Prof. Rur-Bin Yang (center) and Sheng-Ping Fang (right) presenting letters by Mastsugu Ando to represent their donation of five cultural artifacts of historical significance to NTU; President Kuan (left) accepting the donation on behalf of the University.



Prof. Yang introducing one of the collections he donated: Taira Shidehara's calligraphy in cursive or "grass" script.

significance to NTU, including letters by Mastsugu Ando, the university's third President, and the banner in seal script penned by Dr. Chung-Ming Tu, former Dean of the College of Medicine. The most representative piece is a work of calligraphy rendered in cursive or "grass" script by Taira Shidehara, the university's first President. During the donation ceremony, Professor Yang declared that this was best piece among the three Taira Shidehara artefacts extant in Taiwan.

NTU is duly grateful to Profs. Yang and Tanigawa for donating these precious artefacts, so rich in historical significance to the university.

Bonded by Passion: NTU Women's Basketball Team

"I am because we are, we are because you are with us" is the catchy team cheer of the NTU Women's Basketball Team as well as the team's motto and long-standing faith. Ever since the team won the UBA (University Basketball Association) Division II championship in 2016, the team has become one of the few NTU varsity teams eligible to compete in Division I championships. In 2019, the NTU Women's Basketball Team even made it to the top six in UBA Division I—the only team comprising mostly regular students rather than student-athletes.

Initially, NTU Women's Basketball Team was composed exclusively of regular NTU students. Later, a few athlete-students having competed in Division 1 joined the team. Despite their differences in skill levels, the players are passionate and dedicated to achieving a common goal.

As with other collegiate athletes, balancing between collective and personal needs is a

perennial lesson for these players. Despite a heavy course load, they dedicate personal time to practice weekly and schedule morning training twice a week one month before competition. Though not necessarily as skilled as other Division I cohorts, these players always demonstrate camaraderie and fighting spirit on the court. "They may not necessarily be the most talented but they can certainly be the most hardworking," says Professor Yu-Hsien Tseng, the team's coach.

Many on the NTU Women's Basketball Team were star players in the High School League (HBL). Once in college, however, they learn to balance between school work and passion for basketball, knowing that becoming a professional player isn't the only option. It is in this spirit that the players hone their skills, give each other support, and acquire knowledge in their respective fields.

Many alumni members team up to play in friendly matches and pass on valuable experiences to current players. Being a member of the NTU Women's Basketball Team is an honor of a lifetime and they will continue to shine on the court and in respective fields.



NTU Women's Basketball Team.

Prelude to Springtime: 2021 NTU Azalea Festival

This year's NTU Azalea Festival was held in March, amidst the floral fecundity embellishing the campus. Flower lovers came in droves to take selfies or simply immerse themselves in the flowery scene. The event's opening ceremony and department expo were livestreamed, allowing alumni and friends around the world to appreciate the splendor of azaleas.

The livestreaming department expo offered lively presentations for high school students and their parents to learn more about their targeted departments in terms of courses and research and even have their questions answered virtually by professors and current students.

In the livestream, the event begins with a student host interviewing fellow students and inviting them to try their luck in the "NTU I Know Best" trivia contest. The most scenic spot on campus, according to a student survey, is the Koo Chen-Fu Memorial Library. As for NTU President Chung-ming Kuan, he enjoys a sense of openness and boundlessness every time he walks along the Royal Palm Boulevard and past the Fu Bell.

"Rather than getting bogged down by COVID-19, NTU ratcheted up its efforts in 2020," President Kuan affirms. Besides making continuous progress in the major global university rankings, NTU is also carrying out its social responsibilities, hoping to make a positive impact on pressing issues. He also stresses that changes must be made in higher education so that it is not only focused on the students' interests and needs but it also equips them with the ability to learn across disciplines, innovate, and look past boundaries. President Kuan has high hopes that every NTU student will have access to the most up-to-date



Azaleas in full bloom on the NTU campus (photo courtesy of alumnus Jason Lin).



The blooming azaleas on the NTU campus attract flocks of visitors, some immortalizing their beauty in photography and art.

learning and research materials to keep pace with the fast-changing world and become a leader of tomorrow in his or her respective field.

Azaleas have adorned NTU campus for over eight decades. Over the years, they have been managed with "tender loving care" by the Office of General Affairs and the Department of Horticulture and Landscape Architecture. With COVID-19 still raging globally, the University hopes that this event offers precious glimpses of beauty and joy to not only the NTU family but also the general public, with the colorful floral splendor of the azaleas.



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