



# ntu beats

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## Nobel Laureates Speak at NTU

- Mentorship Program Launches Career Development Workshop
- D-School Course for Students in Malaysia
- Korean Alumni Asso. Established to Strengthen Global Bonds



## Environmental Justice

How a Young Scientist Is Teaching Citizens to Care About the Deep Sea

By the time children in densely populated cities look up from their homework and glowing screens, the ocean—only a few meters away in reality, but worlds apart in imagination—has often already disappeared from their view. How, then, do you persuade them to care about coral reefs bleaching silently beneath the surface?……

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## FEATURES



### A Rising Tide for Environmental Justice:

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## GLOBAL OUTLOOK



### NTU Korean Alumni Association Inaugurated to Strengthen Global Bonds

Marking a milestone in National Taiwan University (NTU)'s global outreach efforts, the NTU Korean Alumni Association was officially inaugurated in November 2025. For years, Korean students have stood among NTU's top ten international student groups and contributed significantly to the intellectual ...



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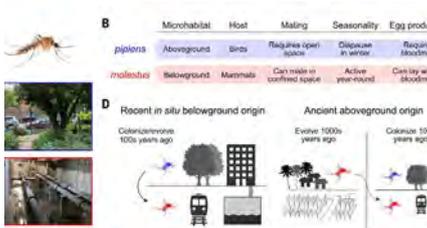


### Strategic Self-Promotion: Crafting Your Story for Career Success

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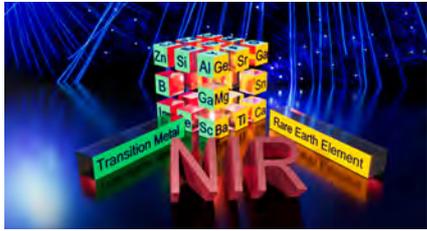
# ACHIEVEMENTS



## Study Uncovers Origins of the Urban Human-Biting Mosquito: West Nile Virus Transmission and Vector Control Strategies

For decades, scientists held that the human-biting mosquito *Culex pipiens form molestus* had evolved from the bird-biting *Culex pipiens form pipiens* in European subways about 200 years ago, serving as a textbook case of rapid urban adaptation. A recent study led by Princeton University, with NTU's Professor Kun-Hsien Tsai and ...

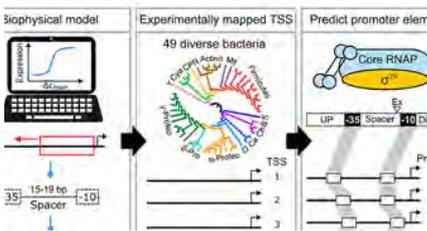
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## NTU Chemistry Team Publishes Landmark Review on Near-Infrared Phosphors, Advancing Next-Generation Optical Applications

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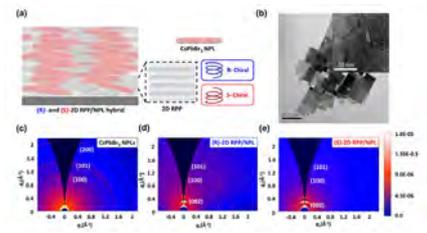
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## Ancient Genetic “Start” Signal Found Across Three Domains of Life

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A research team led by Distinguished Professor Chun-Wei Chen of the Department of Materials Science and Engineering and the International Graduate Program in Molecular Science and Technology (NTU-MST) at National Taiwan University has developed chiral perovskite photocatalytic materials, opening a new path for artificial photosynthesis through the integration of chirality and electron spin effects. Their work demonstrates...

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## Scientists Uncover a Rare Sugar in Taiwan’s Medicinal Fungus with Potent Anticancer Potential

A research team led by Prof. Chia-Chuan Chang of the Department of Pharmacy at National Taiwan University, with Prof. Mei-Kuang Lu of the School of Chinese Medicine and Prof. Tung-Yi Lin of the Institute of Traditional Medicine (Director; also Associate Chair of the School of Chinese Medicine, and Director of the Traditional ...

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# TEACHING & LEARNING



## Nobel Laureate James E. Rothman and Joy Hirsch Engage NTU Faculty and Students in Deep Scientific Dialogue

National Taiwan University's Raymond Soong Chair Professorship of Distinguished Research Lecture Series welcomed 2013 Nobel Prize in Physiology or Medicine laureate James E. Rothman on November 5, 2025...

[...more](#)



## Nobel Laureate Eric S. Maskin Explores Solutions to Inequality...

On December 15, the Taiwan Bridges Program welcomed Eric S. Maskin, recipient of the 2007 Nobel Prize in Economic Sciences, to National Taiwan University for a public lecture titled ...



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## Nobel Laureate James A. Robinson Speaks at NTU on Why Nations Fail

As part of National Taiwan University's Raymond Soong Chair Professorship of Distinguished Research Lecture Series, NTU welcomed James A. Robinson, ...



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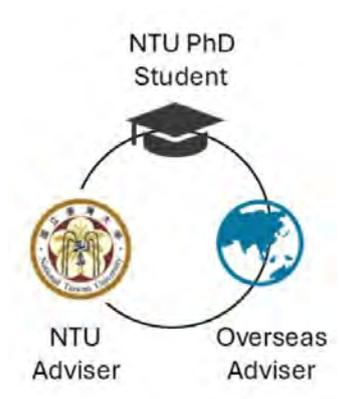


## Why Trust in Science Depends on Understanding Its Power to Self-Correct

As part of the Taiwan Bridges Program, Donna Strickland, winner of the 2018 Nobel Prize in Physics, delivered a keynote lecture at National Taiwan ...



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## Doctoral Training Across Borders: NTU's International PhD Co-Advising Project

In November 2025, National Taiwan University (NTU) launched the International PhD Co-Advising Project, a strategic initiative designed to further internationalize doctoral education ...

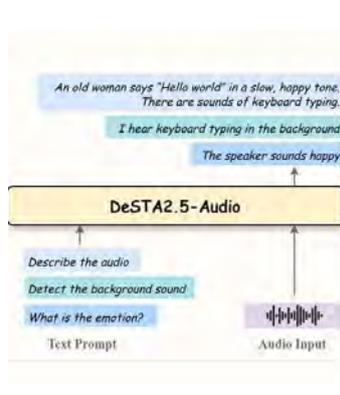
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## Designing the Future: NTU D-School Empowers a New Generation of Youth...

In September 2024, Design Your Life—a flagship course innovated by the College of Design and Innovation at National Taiwan University and its...

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## Teaching AI to "Listen": A Breakthrough in Audio-Language ...

Human speech is incredibly nuanced—imbued with emotions, tones, and subtleties that plain text simply cannot capture. Since standard Large Language ...

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## PEOPLE



## When Love Hurts: The Long-Term Impact of Intimate Partner Violence

Intimate partner violence (IPV) is a widespread albeit often hidden social problem. In Taiwan, despite the existence of well-established legal protections and formal reporting systems, many victims do not seek help immediately. Based on their survey of administrative data collected nationwide, a team of NTU researchers has examined how IPV reshapes victims' lives over time and argue that the act of reporting marks a critical turning point—one that often...

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## NTU Scholarship Awards Ceremony: Nurturing Altruism...

On December 10, 2025, National Taiwan University held its 114th Academic Year Scholarship Awards Ceremony, presenting scholarships in 15 categories. These awards represented

[...more](#)



## Goodbye, Xiao Fu Square

On a late December day in Taipei, as the temperature dipped toward 10 degrees Celsius, the main campus of National Taiwan University should have felt hushed—emptied by the winter break, stilled by the cold.

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| FEATURES

# A Rising Tide for Environmental Justice

## How a Young Scientist Is Teaching Citizens to Care About the Deep Sea

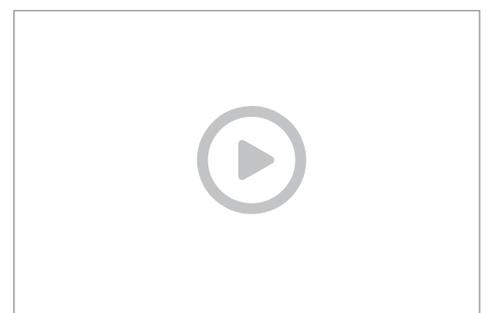
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By the time children in densely populated cities look up from their homework and glowing screens, the ocean—only a few meters away in reality, but worlds apart in imagination—has often already disappeared from their view. How, then, do you persuade them to care about coral reefs bleaching silently beneath the surface?

That nagging question has accompanied Mariana Gabrielle Cangco Reyes-- a doctoral student in climate change and sustainability-- for years. Born and raised in the Philippines, she finally came to the realization that environmental advocacy succeeds not by shouting louder, but by listening more intently.

In 2025, Reyes was awarded the Student Social Contribution Special Award, in recognition of her work as the founder of Daluyong 2.0, a coral transplantation and coastal cleanup initiative that also achieved second place at the United Nations Youth Assembly in New York. The honor, she insists, is of secondary importance. What truly matters is whether ordinary citizens—students, fishermen, families—begin to see themselves as stewards rather than bystanders.



| Intro-video of Mariana Gabrielle Cangco Reyes.

“You can’t just talk about coral reefs in abstract,” Reyes said. “You have to engage people where they are.”

With fishermen, she speaks of livelihoods and marine economies. With students, she touches on grades, futures, and choices. With the public, she talks about food security and life experience. And with government officials, she frames conservation in terms of tourism, governance, and long-term resilience.

Environmental protection, she argues, is never separate from society. Once people realize how deeply they are implicated in the problems, action follows.

## A Movement Built on Partnerships

That philosophy lies at the heart of Daluyong 2.0—daluyong meaning “surging wave” in Filipino. The project’s significance lies not only in its ecological goals, but in the breadth and reach of its alliances. Local residents in Mabini, Batangas Province. Students from Mabini National High School. University students . The Philippine Finswimming Federation. The maritime police, the Coast Guard Auxiliary, and municipal governments—all have become participants in what Reyes calls a shared undertaking.

In practice, the project embodies two of the United Nations’ Sustainable Development Goals: protecting life below water, and building partnerships across sectors. It is conservation expressed through civic choreography.

## “The Ocean is Part of Who I Am”

Reyes’ connection to the sea is intimate and personal. She grew up in Mabini, one of the world’s premier diving destinations. Her parents were diving instructors; she first entered the water at eight. Over the years, she watched reefs near her home whiten and fade—casualties of warming seas and shifting climates.

“Nature feels like an extension of myself,” she said. “I can’t ignore its decline.”

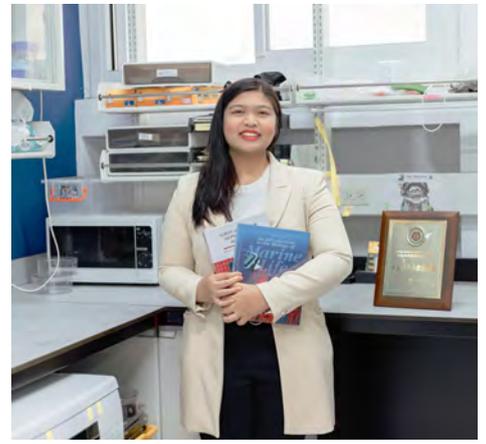
With her parents, the local diving community, and fellow residents, she began organizing reef restoration and ocean cleanup efforts—small steps at first, then steadily expanding. Certified as a CMAS scuba instructor, Reyes did not merely coordinate logistics; she descended into the sea alongside volunteers, guiding coral transplantation herself.

## From Local Action to Global Recognition

As her academic work deepened, Reyes began weaving her research into practice. Drawing on techniques she learned at NTU, including ecological monitoring , she helped identify the keystone coral species and benthic communities. The result: she devised a low-cost, environmentally sensitive restoration method grounded in natural processes rather than expensive technology.

Participation was intentionally inclusive. Experienced divers focused on reef restoration; students joined shoreline cleanups. The barrier to entry was minimal—commitment and resolve mattered more than paper credentials.

“If you’re willing to help,” Reyes said, “there’s a place for you.”



Mariana Gabrielle Cangco Reyes, recipient of the 2025 Student Social Contribution Special Award.



Reyes presenting her latest research progress to faculty members and peers from the International Program in Climate Change and Sustainable Development (IPCS).



NTU President Chen presenting the Student Social Contribution Special Award to Reyes during the university's anniversary ceremony.

## Environmental Literacy as Civic Education

Reyes's advocacy does not stop at the shoreline. She lectures high school students on the UN Sustainable Development Goals, participates in global youth leadership programs in Okinawa, and has led student teams to international social impact initiatives, including one at the University of Pennsylvania.

Her educational philosophy is simple yet radical: environmental literacy should be taught alongside civics and ethics.

“We teach children to say ‘please’ and ‘thank you,’” she said. “We should also teach them how to care for the environment .”

She shows students images of what lies beneath the surface—bleached corals, discarded electronics, wedding dresses, abandoned underwater. The goal is not shame or guilt, but realization and clarity.

In her graduate program, she found a community that practiced what it preached: paperless classrooms, reusable utensils, conversations shaped as much by birdwatching and hiking as by abstract theory. A shared refrain echoed through the discussions: How much time do we really have before 2030 arrives?

Echoing across borders and disciplines, that question has engendered wide solidarity.

## The Quiet Power of Persistence

Reyes recalls the day she was recognized in New York, without drama.

“I never imagined I’d end up there,” she said. “All I did was reach out.”

The moment that stays with her is not the award ceremony, but a plain meal shared after a coral restoration dive—hands reaching over banana leaves, food shared without ceremony.

Later, a biology student from South Africa told her: Your story will encourage other female scientists.

The comment startled her. It reminded her that any action, however modest it may feel, can send ripples outward.

Reyes now speaks of environmental work with what she calls a “critical but hopeful” attitude—clear-eyed about degradation, unwilling to settle for “good enough,” and committed to making steady, patient efforts.

Like the coral fragments replanted off the coast of Mabini, change does not call attention to itself. It accumulates through baby steps—growing quietly, persistently—until one day, it becomes a wave.

<https://ntubeats.ntu.edu.tw/enews/014>

GLOBAL OUTLOOK

# NTU Korean Alumni Association Inaugurated to Strengthen Global Bonds

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Jaemin Kim, the founding president of the NTU Korean Alumni Association, actively helped Korean students adapt to campus life while also launching entrepreneurial ventures during his studies.

Marking a milestone in National Taiwan University (NTU)'s global outreach efforts, the NTU Korean Alumni Association was officially inaugurated in November 2025. For years, Korean students have stood among NTU's top ten international student groups and contributed significantly to the intellectual and cultural life of the campus. The formation of this association opens a new chapter in nurturing lifelong connections, mutual support, and professional collaboration among Korean alumni in Taiwan.

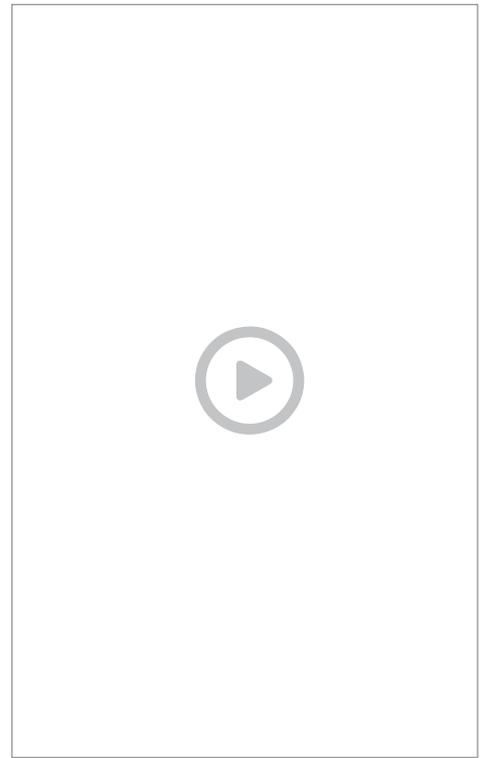
The association is led by its inaugural president, Jaemin Kim, an entrepreneur with a remarkable record of leadership who previously served as president of the NTU Korean Student Association. Affirming that the association's vision goes beyond the usual alumni networking, Kim elaborated, "Our mission is to support Korean alumni as they build their careers in Taiwan's distinctive economic environment, while also giving back to the society that shaped our academic paths." He was joined at the inauguration by Vice President Jennifer Huang, a long-standing advocate for international student engagement and cross-cultural exchange.



Launched in November 2025, the NTU Korean Alumni Association opens a vital new chapter for the Korean alumni community and its growing role within NTU's global network.

The inauguration ceremony drew distinguished guests from industry as well as academia, including NTU Associate Vice President for International Affairs Jiun-Haw Lee, and representatives from the Korean Mission in Taipei and KOTRA. A highlight of the event was the notable intergenerational exchanges it fostered: alumni currently working at such top tier global technology leaders as NVIDIA and Micron attended the event to share their professional experiences, mentor students, and discuss career paths—particularly within Taiwan’s strategically important semiconductor sector.

As the NTU Korean Alumni Association embarks on its journey, it already stands as a testament to the importance of global education and the shared values of the NTU community. By offering a platform for collaboration, mentorship, and innovation, the association nurture the ties between Korea and Taiwan, ensuring they will ever grow stronger—driven by shared success and a commitment to the future.



NTU Korean Alumni Association Inauguration Highlights.

<https://ntubeats.ntu.edu.tw/enews/014>

| GLOBAL OUTLOOK

# Strategic Self-Promotion: Crafting Your Story for Career Success

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In December 2025, the 5th NTU International Mentorship Program (IMP) marked a major milestone with its inaugural career development workshop. Held on the main campus of National Taiwan University, the event drew more than 150 highly motivated students, promising a powerful catalyst for professional growth. Participants from over 30 countries represented 60 academic departments, reflecting the aspirations and angst felt by young talents poised to navigate an increasingly complex and competitive global job market.

The workshop offered students a precious opportunity to set academic theories aside and consider the perspectives shared by real-life movers and shakers. Three senior executives from diverse industries shared their candid insights and practical frames for succeeding in today's workplace. A clear message rang out in the session: career readiness requires much more than just impressive academic credentials—it requires mindset, adaptability, and purpose.



Sharing real-life case studies, the discussants advised students to grasp the essential mindsets and core competencies required in navigating today's workplace.

Jeff Neo, Managing Director of Kuehne+Nagel, spoke compellingly about the changing nature of work in an era shaped by automation and artificial intelligence. Noting that technical expertise is no longer a differentiator but rather a baseline expectation, Neo declared, *“It’s not your degree that defines your future—it’s your attitude,”* encouraging students to nurture their wisdom, resilience, and courage for leadership. While academic qualifications may open doors to career paths, he stressed, character and mindset are what sustain long-term success.

Dr. TF Hsieh challenged the participants to rethink how they measure professional value. Rather than focusing solely on job titles or salary and perks, he urged students to open their minds and consider the positive impact one creates within organizations and communities. Building on this perspective, Allen John Ku spotlighted the human dimension of career development and encouraged the students to cultivate meaningful relationships and maintain balance. Finding one’s purpose, he reminded the audience, is more often an ongoing journey than a fixed destination.

Overall, the workshop discussants effectively reframed the notion of career success as an exercise in strategic self-promotion—the ability to thoughtfully and authentically articulate one’s experiences, strengths, and aspirations. By integrating these precious insights and frames with their academic training, the student participants will be better prepared to share their own personal narratives with clarity, confidence, and intention as they step onto the global stage.



More than 150 students from 30 countries and 60 academic departments participated in the workshop.



The 5th International Mentorship Program hosted a career development workshop on “Strategic Self-Promotion,” led by three senior executives with extensive industry experience in diverse fields.



Group photo of the discussants and participating students.



Click or Scan the QR code to learn more about the program.

ACHIEVEMENTS

# Study Uncovers Origins of the Urban Human-Biting Mosquito: West Nile Virus Transmission and Vector Control Strategies

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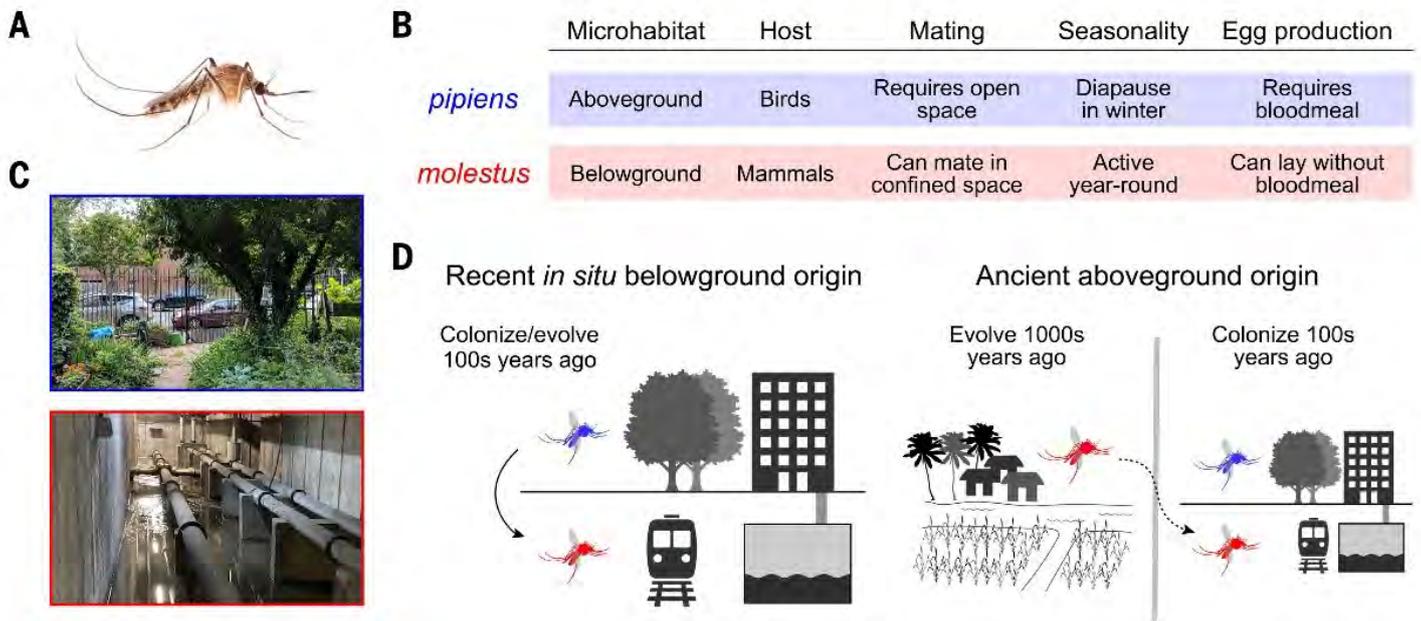


Fig. 1. *Cx. pipiens* form *molestus* behavior, ecology, and hypothetical origin.

For decades, scientists held that the human-biting mosquito *Culex pipiens* form *molestus* had evolved from the bird-biting *Culex pipiens* form *pipiens* in European subways about 200 years ago, serving as a textbook case of rapid urban adaptation. A recent study led by Princeton University, with NTU's Professor Kun-Hsien Tsai and alumnus Kai-Di Yu, disproves this theory. DNA evidence from 12,000 samples shows that *molestus* originated more than 1,000 years ago in the Mediterranean or Middle East, likely Ancient Egypt, where it first adapted to humans in early agricultural societies. The findings were published on October 23 in *Science*.

"This mosquito became famous during WWII in London, seemingly adapted to underground life. But our DNA analysis tells a very different story," remarked Lindy McBride. First author Yuki Haba, now at Columbia University, coordinated global sampling and personally analyzed 800 specimens, confirming the species' ancient origins.

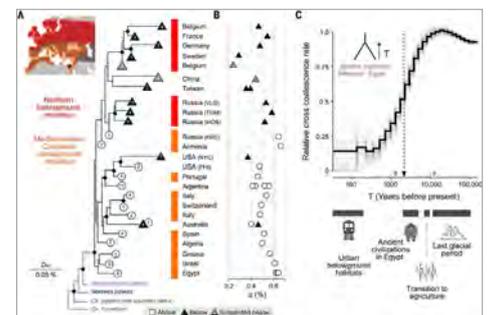


Fig. 2. Form *molestus* evolved thousands of years ago in the Mediterranean region.



Click or Scan the QR code to read the full article published in *Science*.

In Taiwan, Tsai and Yu have long monitored underground mosquitoes, finding genetic differences between northern and southern populations. Their work suggests multiple lineages exist, likely due to repeated introductions or genetic exchanges.

Beyond revising a classic example of urban evolution, the study carries major public health implications. The West Nile virus, a bird virus that spills over to humans via mosquito bites, may have been influenced by hybridization between *molestus* and *pipiens*. While hybridization is less common than once thought, it does occur in large cities, raising concerns that urbanization promotes genetic mixing and increases transmission risks. Researchers emphasize the need for more sampling across urban and rural areas to clarify gene flow and biting behavior.

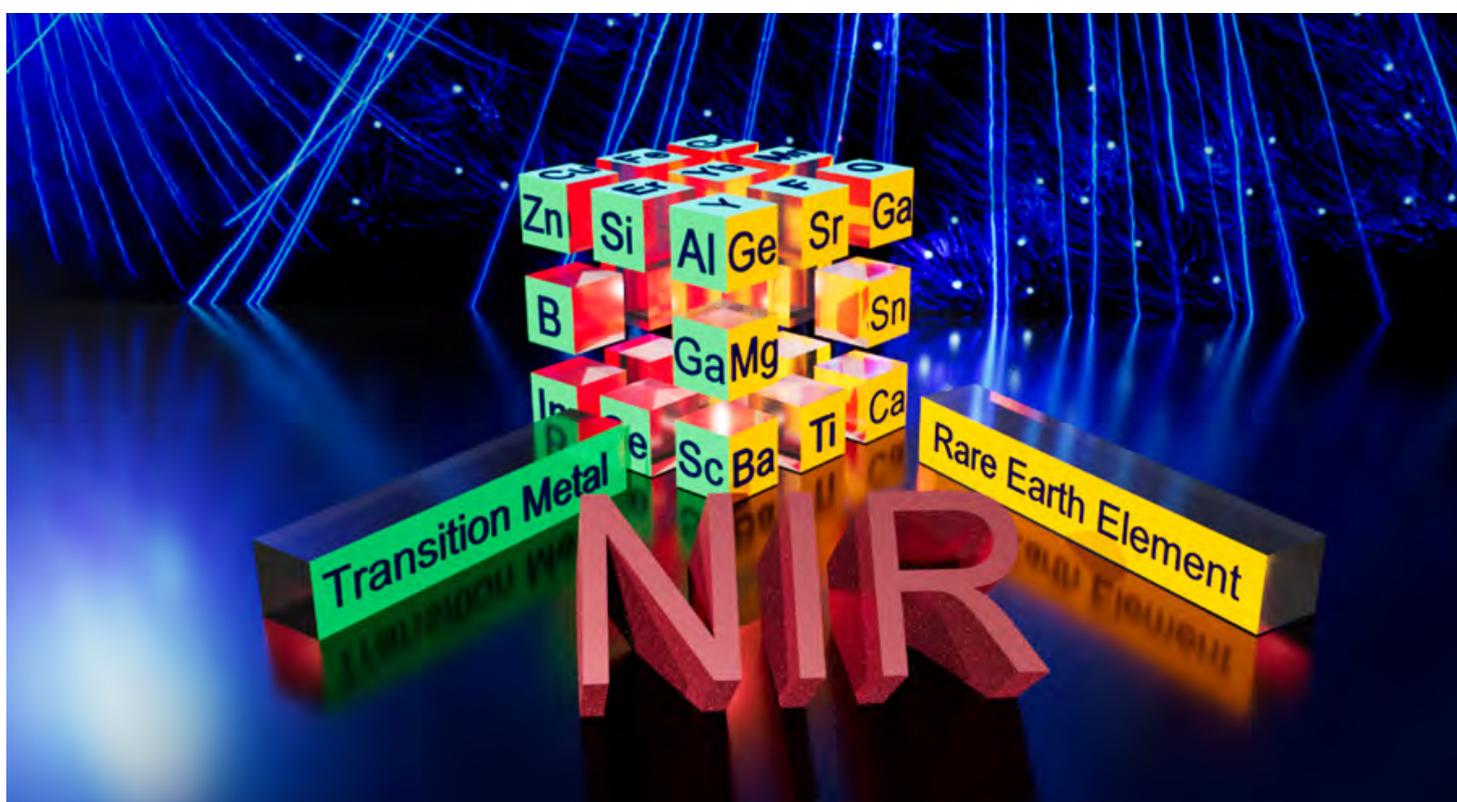
“Our work opens the door to investigating links between urbanization, hybridization, and spillover of viruses from birds to humans,” said Haba.

The study urges government agencies to support interdisciplinary research and integrate findings into urban planning, climate adaptation, and health policy. Recommendations include monitoring mosquito populations, strengthening vector control, promoting community health education, and combining evolutionary biology with ecology to build a stronger foundation for disease prevention.

ACHIEVEMENTS

# NTU Chemistry Team Publishes Landmark Review on Near-Infrared Phosphors, Advancing Next-Generation Optical Applications

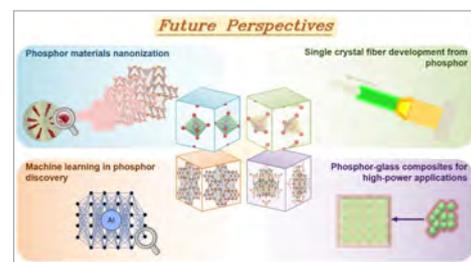
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Schematic illustration of phosphor structural design concepts, revealing the synergistic relationship between host lattices and activator ions.

In recent years, rapid advances in optoelectronic and biomedical technologies have elevated near-infrared (NIR) light to a pivotal role in next-generation optical applications. According to the international standard ISO 20473, the NIR region is subdivided—based on biological penetration depth—into three spectral windows: NIR-I (650–950 nm), NIR-II (1000–1350 nm), and NIR-III (1500–1850 nm). These spectral ranges are critically important for applications ranging from plant lighting, security surveillance, and blood oxygen monitoring to spectroscopic analysis.

Notably, short-wave infrared (SWIR) light in the 900–1700 nm range offers distinct advantages, including reduced light scattering, deeper tissue penetration,



Outlook for development of near-infrared phosphor materials, including phosphor nanostructuring for biomedical applications, single-crystal fiber development, AI-assisted structural design, and phosphor-glass composites for high-power applications.

and superior biocompatibility. These properties provide for clearer biomedical imaging and highly sensitive molecular recognition. However, today's commercially available NIR light sources—such as InGaAs LEDs and tungsten lamps—tend to suffer from narrow emission bandwidths or bulky form factors, limiting their suitability for use in portable devices and broadband analytical applications. Consequently, the development of broadband, high-efficiency, and stable near-infrared phosphor-converted light-emitting diodes (NIR pc-LEDs) has emerged as a major research focus across academia and industry.



Click or Scan the QR code  
to read the full article in  
*Progress in Materials Science*.

Recently, Distinguished Professor Ru-Shi Liu of the Department of Chemistry, College of Science, National Taiwan University, and his research team published a comprehensive review article titled “*Revolutionary Near-Infrared Phosphors with Emerging Structures and Mechanisms Driving Next-Generation Applications*” in the prestigious journal *Progress in Materials Science*. Their review provides a systematic and in-depth examination of the evolution of near-infrared phosphor materials from the NIR-I to the NIR-III regions, offering detailed insights into structural design strategies, energy transfer mechanisms, and emerging application potential.

By integrating the theoretical frameworks of crystal structure, photophysical energy transfer mechanisms, and forward-looking application perspectives, the article presents a panoramic view of the current state and anticipated future directions of NIR phosphor research. The authors aim to set forth a solid foundation for the rational design of next-generation near-infrared luminescent materials.

Looking ahead, the team underscores that the incorporation of artificial intelligence and sustainable materials concepts will drive future research in two key directions: cross-scale integration and intelligent materials design. These advances are expected to open new vistas in high-efficiency lighting, biomedical imaging, and optical communication technologies.

ACHIEVEMENTS

# Ancient Genetic “Start” Signal Found Across Three Domains of Life

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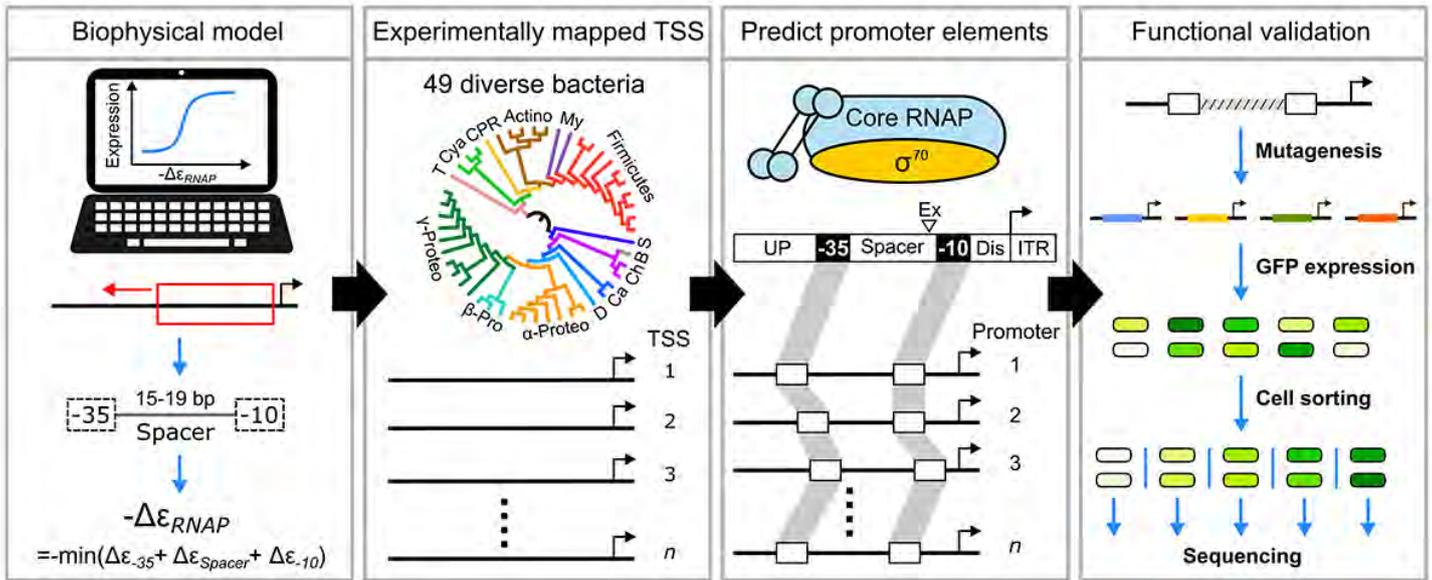


Fig. 1: Schematic of the systems biology approach for decoding bacterial promoters.

DNA may be regarded as the language of life. Using four letters—A, T, G, and C—genomes encode thousands of genes and regulatory elements that govern gene expression. Decoding DNA sequences not only illuminates the origins of life but also helps explain how organisms adapt to changing environments, providing essential knowledge for synthetic biology and for predicting future evolutionary trajectories.

Since genes follow strict rules for encoding proteins, identifying them in DNA is relatively straightforward. Regulatory elements, by contrast, vary widely in length and sequence, making them far more difficult to detect. While tools such as AlphaFold have revolutionized protein structure prediction and design, a major frontier in the life sciences remains the development of computational models capable of predicting and engineering regulatory DNA elements.

Among these regulatory elements, promoters play a central role by controlling transcription—the first step in gene expression. To decipher the sequence rules underlying the promoter function, Prof. David Chou of the Department of Life Science has applied high-throughput approaches to characterize more than 16 million promoter variants in *E. coli* (Fig. 1). This extensive dataset was mined to

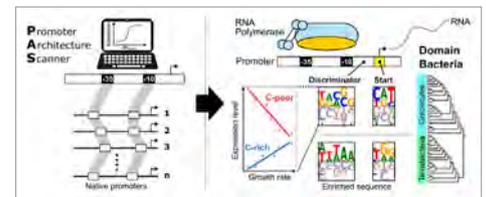


Fig. 3: Cover of *Nucleic Acids Research*, highlighting the discovery of the “start” promoter element conserved across the bacterial domain. Together with the -35 and -10 elements, the start element is recognized by RNA polymerase to initiate transcription “start” series.

train a predictive model, which in turn was applied to analyze 49 diverse bacterial genomes. The study revealed a broadly conserved promoter architecture and yielded two major findings (Fig. 2):

1. In addition to the well-known “-35” and “-10” elements, bacterial promoters contain a previously unrecognized and widely conserved element that specifies transcription start sites. Prof. Chou termed this newly identified element “start”.
2. The “discriminator” element, located downstream of the -10 element, exhibits pronounced sequence divergence between the two major bacterial clades, Terrabacteria and Gracilicutes. This divergence reflects a functional distinction: many Gracilicutes use discriminator sequences to tune promoter strength in response to growth rate, whereas Terrabacteria do not employ this regulatory mechanism.

Remarkably, the bacterial “start” element closely resembles the “initiator” element used by archaea and eukaryotes to define transcription start sites. This similarity suggests that the last universal common ancestor may have relied on a promoter architecture akin to that still observed today, offering the promise of fresh insights into the ancient origins of gene regulation on Earth.

Prof. Chou observed, “These findings reshape our understanding of evolution and lay the foundation for identifying and engineering regulatory elements in microbial genomes.” The study report was selected as the cover story of *Nucleic Acids Research*, Volume 53, Issues 21–22 (Fig. 3).



Fig. 3: Cover of *Nucleic Acids Research*, highlighting the discovery of the “start” promoter element conserved across the bacterial domain. Together with the -35 and -10 elements, the start element is recognized by RNA polymerase to initiate transcription “start” series.

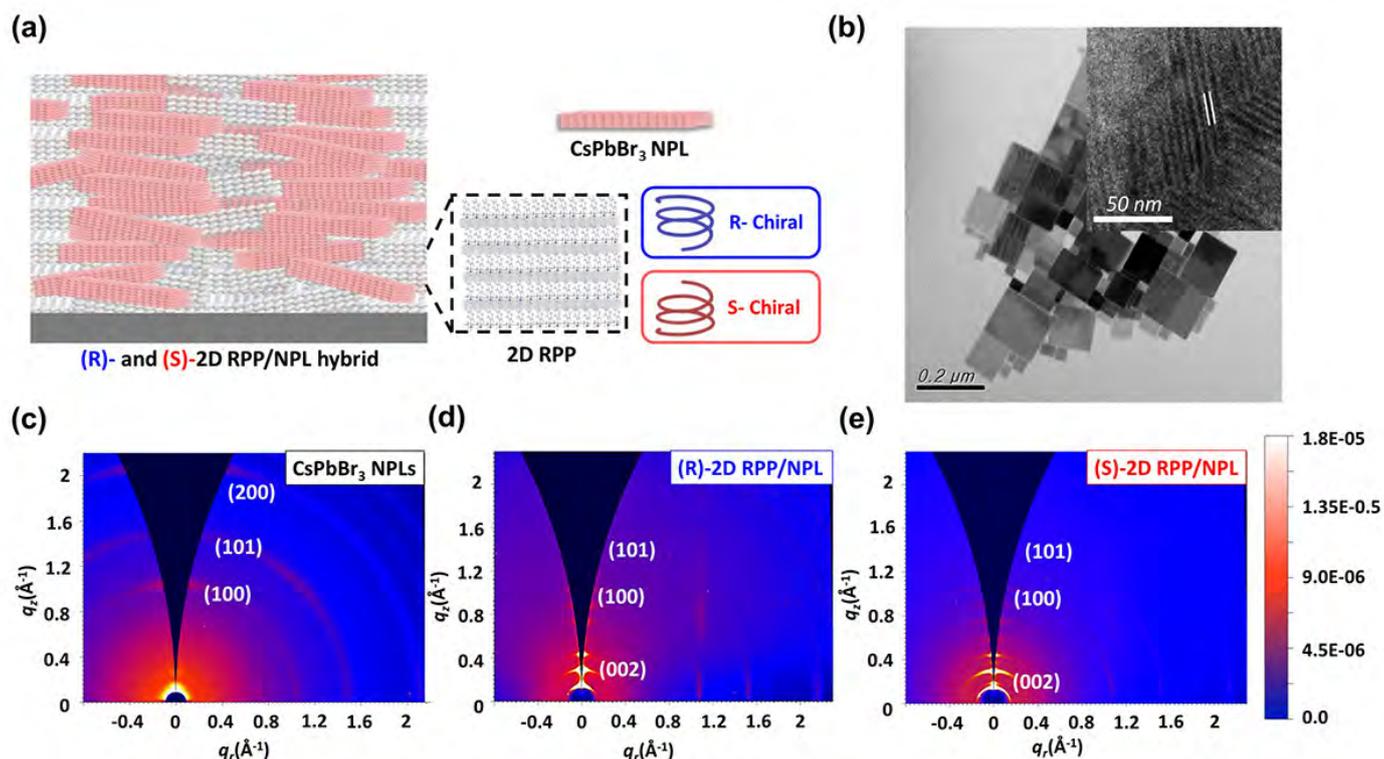


Click or Scan the QR code to read the full article in *Nucleic Acids Research*.

ACHIEVEMENTS

# Chirality-Driven Spin Photocatalysis for Artificial Photosynthesis

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Charts and images of the morphology and structural characteristics of chiral perovskite nanocrystals.

A research team led by Distinguished Professor Chun-Wei Chen of the Department of Materials Science and Engineering and the International Graduate Program in Molecular Science and Technology (NTU-MST) at National Taiwan University has developed chiral perovskite photocatalytic materials, opening a new path for artificial photosynthesis through the integration of chirality and electron spin effects. Their work demonstrates an efficient photocatalytic strategy for converting carbon dioxide into value-added fuels using solar energy, offering a promising approach to sustainable energy conversion.

The research introduces left-handed and right-handed chiral molecules into CsPbBr<sub>3</sub> perovskite nanocrystals, enabling precise control over electronic spin states during photocatalytic reactions. The resulting chiral perovskites

exhibit strong chiroptical responses, which facilitate the generation of spin-polarized electrons in the illumination of light. This chirality-regulated spin polarization significantly enhances the efficiency of photocatalytic CO<sub>2</sub> reduction by promoting selective reaction paths and improving charge utilization.

The study further demonstrates that chirality-induced spin polarization in organic-inorganic hybrid perovskite thin films suppresses charge-carrier recombination. By prolonging the lifetime of photogenerated electrons and holes, the overall photocatalytic performance is markedly improved. These findings offer compelling experimental evidence that spin polarization plays a decisive role in governing photocatalytic reaction kinetics and efficiency.

More importantly, this work establishes spin control as a new design principle for photocatalysis and energy conversion. By synergistically coupling chiral molecular structures with spin physics, the study opens a new research direction in chiral optoelectronic materials. The proposed strategy carries broad implications for solar energy conversion, photocatalytic water splitting, and green energy catalysis, thus offering a fresh framework for the development of next-generation photocatalysts.

This breakthrough research was recently published in the *Journal of the American Chemical Society (JACS)* and was selected as the journal's front cover, underscoring its scientific significance and impact.

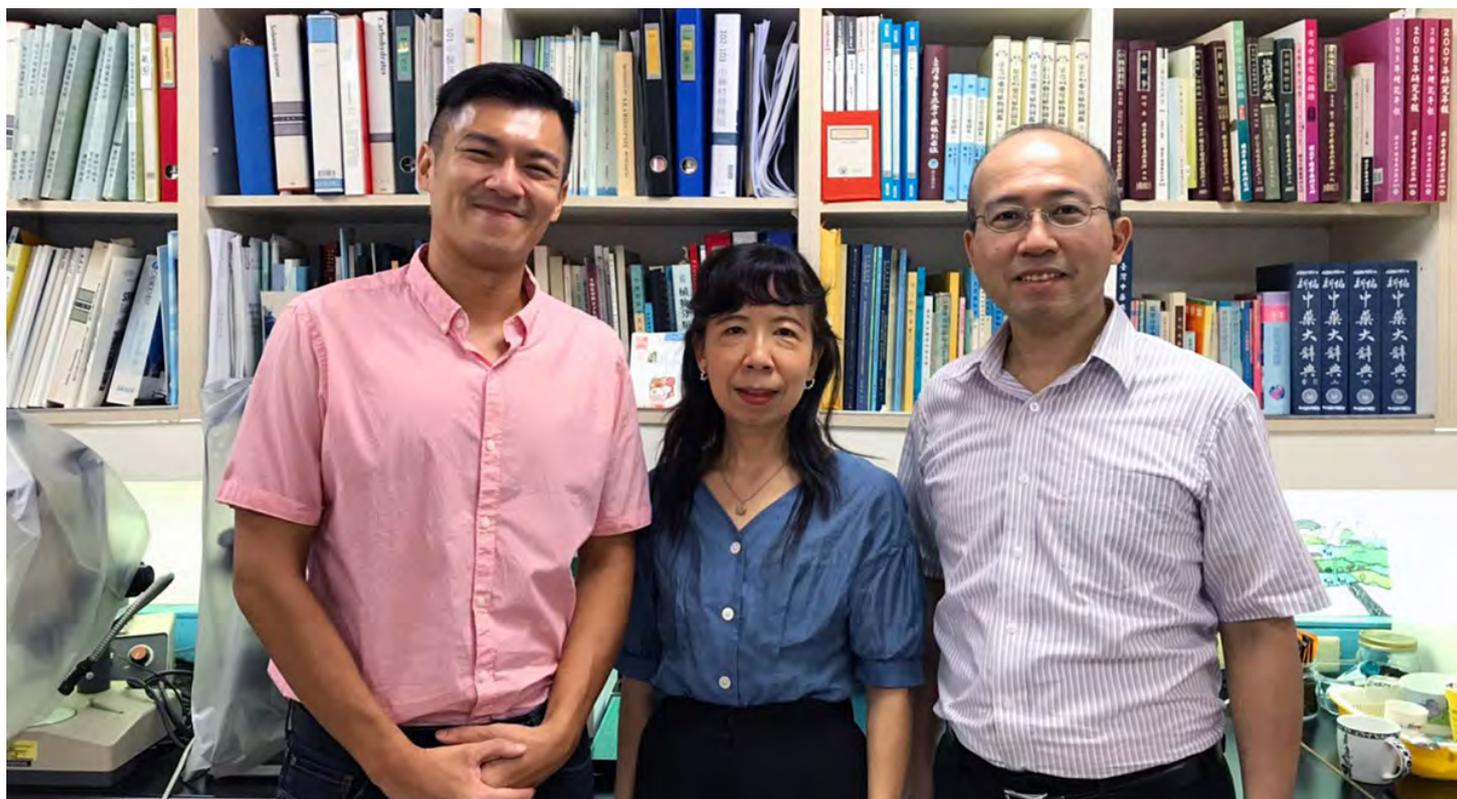


Click or scan the QR code to read the full article in *Journal of the American Chemical Society*.

ACHIEVEMENTS

# Scientists Uncover a Rare Sugar in Taiwan's Medicinal Fungus with Potent Anticancer Potential

Share:     



The collaborating researchers (left to right): Prof. Tung-Yi Lin, Prof. Mei-Kuang Lu, and Prof. Chia-Chuan Chang.

A research team led by Prof. Chia-Chuan Chang of the Department of Pharmacy at National Taiwan University, with Prof. Mei-Kuang Lu of the School of Chinese Medicine and Prof. Tung-Yi Lin of the Institute of Traditional Medicine (Director; also Associate Chair of the School of Chinese Medicine, and Director of the Traditional Chinese Medicine Glycomics Research Center) at National Yang Ming Chiao Tung University, has identified a hitherto underexplored bioactive compound in *Antrodia cinnamomea* (niu-chang-chih), often referred to as Taiwan's national treasure.

*Antrodia cinnamomea* is a medicinal fungus endemic to Taiwan and widely used in traditional herbal medicine. Its bioactive properties long had been attributed primarily to triterpenoids and small-molecule components, such as maleic acid and



Fruiting bodies from a 24-month-old sample of *Antrodia cinnamomea* (Photo adapted from doi:10.1093/ecam/nep108).

succinic acid derivatives. However, the team's findings reveal that this fungus also produces a specialized sugar-based molecule with significant anti-inflammatory and anticancer potential.

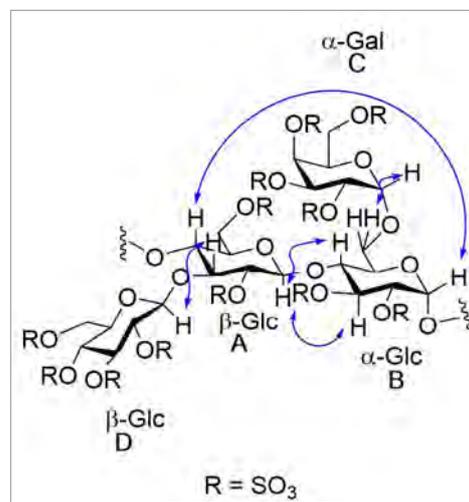
By cultivating *Antrodia cinnamomea* under highly controlled conditions enriched with ammonium sulfate, Prof. Lu's team stimulated the fungus to produce a rare compound, called sulfated polysaccharide (SPS). Among the extracted compounds, one fraction—designated N50 F2—displayed particularly robust biological activity.

Through in vitro cellular experiments, Prof. Lin's team found that N50 F2 significantly reduces levels of key inflammatory markers, including IL-6 and TNF- $\alpha$ , which are commonly elevated in inflammatory and immune-related diseases. The compound was observed to act by dampening hyperactive immune signaling pathways, suggesting potential applications in managing chronic inflammatory conditions.

Beyond its anti-inflammatory effects, N50 F2 also exhibited pronounced anticancer activity in lung cancer cell models. The compound not only inhibited cancer cell proliferation but also induced apoptosis, the programmed self-destruction of malignant cells. By modulating multiple cancer-related proteins and signaling pathways, N50 F2 represents a promising candidate for the development of novel anticancer strategies.

Structural analysis conducted by Prof. Chang's team revealed that N50 F2 is a unique sulfated galactoglucan, composed of glucose and galactose units with sulfate groups. This distinctive molecular architecture is believed to contribute to its bioactive properties.

Together, the collaborators' findings underscore the untapped potential of natural fungal polysaccharides for drug discovery and biomedical applications. With scalable cultivation and extraction methods already established, the research teams are optimistic that N50 F2 may be developed for use in health supplements and clinical therapies. The research team plans further studies to evaluate the efficacy of N50 F2 in animal models and, ultimately, in human trials.



Proposed repeating unit of N50 F2, a sulfated galactoglucan derived from *Antrodia cinnamomea*.



Click or Scan the QR code to read the full article in *Carbohydrate Polymers*.

TEACHING & LEARNING

# Nobel Laureate James E. Rothman and Joy Hirsch Engage NTU Faculty and Students in Deep Scientific Dialogue

Share:     



James E. Rothman, 2013 Nobel Laureate in Physiology of Medicine and Chair of the Department of Cell Biology at Yale University, whose work on vesicle trafficking has profoundly shaped modern cell biology.

National Taiwan University’s Raymond Soong Chair Professorship of Distinguished Research Lecture Series welcomed 2013 Nobel Prize in Physiology or Medicine laureate James E. Rothman on November 5, 2025. Accompanying him was his wife, Prof. Joy Hirsch, a renowned neuroscientist at Yale University, who was invited to deliver the NTU College of Medicine Dean’s Lecture. The visit culminated in a joint panel discussion, offering NTU faculty and students alike a rare opportunity to engage with two leading figures at the forefront of biomedical science.

Prof. Rothman was awarded the Nobel Prize for elucidating the molecular mechanisms governing vesicle trafficking within cells—often described as uncovering the principles behind the cell’s “logistics system of life.” In his keynote lecture, “*Why Is Synaptic Transmission So Fast?*”, Rothman vividly illustrated how



James E. Rothman (right) and his wife, neuroscientist Joy Hirsch (center), engaging in a panel discussion at NTU, sharing insights on science, perseverance, and discovery.

synaptic vesicle release operates at speeds thousands to tens of thousands of times faster than other cellular processes, such as cell growth or hormone secretion, earning what he called a “turbocharged” level of performance.

Drawing on decades of pioneering work, Rothman explained how synaptic vesicles achieve this extraordinary speed through a highly symmetric molecular architecture composed of SNARE proteins, chaperone proteins, and calcium-sensing proteins. Using insights from cell-free protein reconstitution systems and cryo-electron microscopy, he described a three-stage energy release mechanism that enables ultrafast neurotransmitter release. He also shared recent findings demonstrating that calcium-sensing proteins function as a molecular “trigger” during the final release phase, supported by evidence from disease-related protein mutations observed in patients with neurological disorders.

During the panel discussion, Prof. Rothman reflected candidly on his scientific journey, emphasizing that a research career in science is inevitably shaped by setbacks and uncertainty. “Only genuine passion allows you to persist,” he observed. When asked how good science is done, he urged young researchers to maintain rigorous self-criticism and to remain open to unexpected results. He introduced his personal motto, “TAGFY—Troubles Are Good For You,” encouraging students to view challenges as essential to scientific development and growth.

Prof. Hirsch complemented these insights by emphasizing that impactful research should challenge prevailing assumptions and change how people think. She highlighted the importance of collaboration, openness, and intellectual confidence—believing in the questions one asks, while recognizing science as an ongoing journey of exploration without a final destination. Both speakers concluded by encouraging students to take responsibility for their own growth, noting that engaged and thoughtful students can, in turn, help their mentors grow as well.

The event sparked lively discussion and left a lasting impression, offering profound inspirations drawn from the speakers’ scientific excellence, intellectual humility, and shared passion for discovery.



NTU President Wen-Chang Chen (left) presenting the Raymond Soong Chair Professorship trophy to Professor James E. Rothman (right) during the campus visit.

| TEACHING & LEARNING

# Nobel Laureate Eric S. Maskin Explores Solutions to Inequality in a Globalized World

Share:     



Eric S. Maskin is a leading American economist who currently serves as Adams University Professor at Harvard University. He was awarded the Nobel Prize in Economic Sciences in 2007 for laying the foundations of mechanism design theory. His influential research spans game theory, incentive economics, and contract theory, and continues to shape both academic inquiry and real-world policy debates.

On December 15, the Taiwan Bridges Program welcomed Eric S. Maskin, recipient of the 2007 Nobel Prize in Economic Sciences, to National Taiwan University for a public lecture titled “*Why Globalization Has Failed to Reduce Inequality.*”

Prof. Maskin began by noting that while globalization over the past two decades has dramatically expanded the global exchange of goods, a more recent and defining feature has been the internationalization of production. Although emerging economies have achieved remarkable economic growth through global division of labor, this process has often intensified domestic income inequality. This outcome, he observed, runs counter to the predictions of a cornerstone of economic theory—the theory of comparative advantage—which suggests that globalization should raise demand and wages for low-skilled workers in developing countries, reduce wage gaps with high-skilled workers, and ultimately



NTU President Chen presenting Prof. Maskin with the Raymond Soong Chair Professorship trophy.

narrow income disparities. Yet empirical evidence from recent decades shows the opposite trend: in many emerging economies, including China and India, inequality has widened even as overall prosperity has grown.

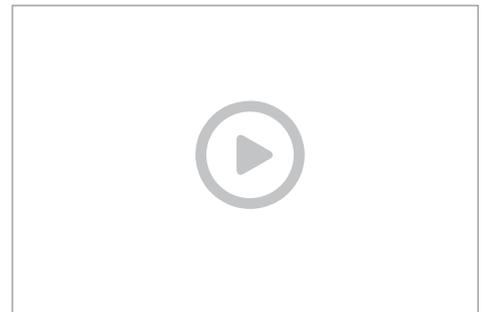
To resolve this paradox, Prof. Maskin introduced an alternative framework grounded in matching theory. He explained that today's global trade differs fundamentally from earlier models based on local production followed by international exchange. In modern global value chains, workers' skills can be differentiated into multiple tiers. In emerging economies, medium- and lower-middle-skilled workers—who constitute a large share of the labor force—benefit from globalization because multinational firms create new opportunities that significantly raise wages for mid-skilled labor. By contrast, low-skilled workers often lack the capabilities required to enter global production networks, leaving them trapped in stagnant wages and thereby exacerbating income inequality.

Addressing the policy implications, Prof. Maskin emphasized that trade protectionism and anti-globalization measures are not viable solutions, as they would undermine the substantial economic gains that globalization generates. Instead, he argued that the fundamental remedy lies in upgrading the skills of low-skilled workers. Governments in emerging economies, he stressed, must play a central role—either by offering subsidies or tax incentives to encourage firms to invest in worker training, or by directly expanding public investment in vocational and skills-based education. Such measures would enable low-skilled workers to participate in international production networks and share more equitably in the benefits of globalization. As a concrete example, he cited Brazil's Conditional Cash Transfer programs, which demonstrate how targeted investments in education can effectively mitigate income inequality.

Prof. Maskin's incisive analysis prompted the audience to reconsider the complex relationship between globalization and inequality, while also offering valuable policy insights for Taiwan as it navigates an era of globalized production. His lecture underscored that sustainable growth and social fairness depend not on retreating from globalization, but on equipping people with the skills needed to thrive within it.



A group photo of the speaker with NTU faculty and students, marking the memorable end of a fruitful exchange.



Highlights of Prof. Eric S. Maskin's public lecture "*Why Globalization Has Failed to Reduce Inequality.*"

TEACHING & LEARNING

# Nobel Laureate James A. Robinson Speaks at NTU on Why Nations Fail

Share:     



Group photo of Prof. Robinson, NTU faculty, and students.

As part of National Taiwan University's Raymond Soong Chair Professorship of Distinguished Research Lecture Series, NTU welcomed James A. Robinson, recipient of the 2024 Nobel Prize in Economic Sciences, to present a lecture at NTU on December 17, 2025. His talk, titled *Why Nations Fail*, drew a large audience of faculty and students eager to engage with one of the world's leading intellectuals on political economy and institutional development.

Prof. Robinson is widely recognized as a preeminent scholar in political economy, institutional economics, and comparative development. His research has fundamentally reshaped how scholars understand the causes of national prosperity and poverty by demonstrating how political and economic institutions—rather than geography or culture alone—determine long-term development outcomes. In 2024, he was awarded the Nobel Prize jointly with Daron Acemoglu and Simon Johnson, in recognition of their pioneering contributions to the theory



James A. Robinson, a Professor at the University of Chicago Harris School of Public Policy, has long examined the relationships among power distribution, democratization, colonial legacies, and economic development. His research has made a profound impact not only within academia but also throughout public discourse and policy practice, addressing some of the most pressing issues facing societies today.

of institutional formation and evolution, and their influential analysis of how political institutions shape economic growth and inequality.

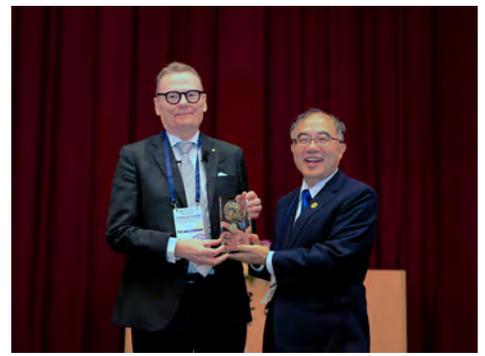
In his lecture, Robinson traced the institutional roots of economic growth through vivid historical examples, beginning with the British Industrial Revolution. He urged the audience to look beyond technology and ask a deeper question: *Why are some societies more capable of innovation and technological dynamism than others?* Economic growth, he argued, depends not just on scientific breakthroughs, but also on whether societies create institutional environments that encourage and protect innovation.

To illustrate this point, Robinson turned to the invention of the light bulb, emphasizing that the patent system is itself a critical institutional design. Its central function, he explained, is to provide clear and credible incentives for innovators—ensuring that creativity and effort are rewarded, thereby sustaining long-term technological progress. Such systems exemplify inclusive economic institutions, which expand participation, uphold the rule of law, maintain fair competition, and allow talent and ingenuity to flourish.

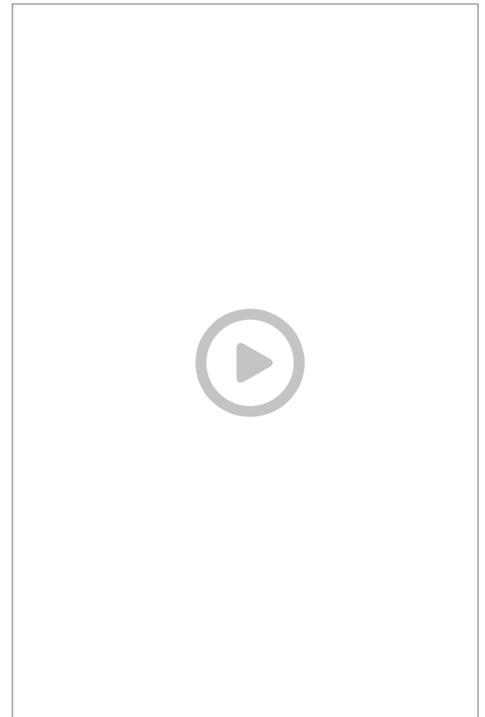
Robinson further argued that inclusive economic institutions cannot exist in isolation from political structures. Durable innovation incentives, he noted, require political systems in which power is sufficiently constrained, and yet where the state is capable of enforcing laws and protecting property rights. Drawing a stark comparison between North and South Korea, Robinson demonstrated how two societies with similar geography and cultural origins can diverge dramatically due to institutional choices—underscoring that economic success is, at its core, a product of political and institutional decisions.

The lecture, hosted by NTU's International School of Political Science and Economics, was followed by an in-depth discussion moderated by Spyros Maniatis, Dean of the School. The lively exchange between Robinson and the audience fostered deep reflections on the role of institutions in shaping global development trajectories.

Currently a Professor at the Harris School of Public Policy, University of Chicago, Robinson continues to explore the intersections of power distribution, democratization, colonial legacies, and economic development. His research continues to make a profound impact not only within academia, but also in public discourse and policy debates worldwide today.



NTU President Wen-Chang Chen (right) presents the Raymond Soong Chair Professorship of Distinguished Research trophy to Prof. Robinson.



Highlights of Prof. James A. Robinson's public lecture "Why Nations Fail." Intro-video of Mariana Gabrielle Cangco Reyes.

TEACHING & LEARNING

# Why Trust in Science Depends on Understanding Its Power to Self-Correct

Share:     



As part of the Taiwan Bridges Program, Donna Strickland, winner of the 2018 Nobel Prize in Physics, delivered a keynote lecture at National Taiwan University on January 12, titled “*Why Trust in Science Is Important.*”

Prof. Strickland is internationally renowned for her pioneering work in ultrafast lasers and nonlinear optics. In 2018, she shared the Nobel Prize with Arthur Ashkin and Gérard Mourou, becoming one of only three women to receive the Nobel Prize in Physics in its more than 100-year history. Together with Mourou, she co-developed Chirped Pulse Amplification (CPA)—a breakthrough that overcame fundamental limits in high-power, ultrashort laser pulses by dramatically increasing peak laser power. Today, CPA underpins strong-field physics and has been widely applied in LASIK eye surgery, precision materials processing, and semiconductor manufacturing, profoundly reshaping modern technology and medicine.



Prof. Donna Strickland, 2018 Nobel Laureate in Physics and a Professor of Physics and Astronomy at the University of Waterloo in Ontario, Canada, delivering her keynote lecture at NTU.

In her lecture, Prof. Strickland addressed the uneven degrees of public trust in science observed across contemporary societies, emphasizing that science remains one of the most powerful engines of human progress. She pointed to technologies now taken for granted—such as the internet, GPS, and MRI medical imaging—all of which originated decades ago from curiosity-driven basic research, pursued without immediate applications in mind.

Drawing on her own scientific experience, Strickland argued that crises of trust often stem from misunderstandings about the nature of science itself. Science, she stressed, is not a collection of immutable truths, but a dynamic process of continuous revision and refinement. When scientists update conclusions in light of new evidence, this is not a failure—it is the scientific method working as intended.

She cited the COVID-19 pandemic as a vivid example, describing it as “a scientific experiment unfolding in real time in the public arena.” As data accumulated, scientific guidance necessarily evolved. Yet these revisions were frequently misinterpreted as inconsistency or unreliability. In reality, she noted, such changes reflect intellectual honesty and responsiveness to new evidence, not weakness. She called on the scientific community to communicate more transparently—clearly distinguishing between what is known, what remains uncertain, and what is still being investigated—to reduce public anxiety and misinformation.

Addressing students directly, Prof. Strickland offered a simple but powerful message:“

Stay curious, be patient, and be honest.”

In an era dominated by information overload and short-term metrics, she acknowledged that these qualities may seem unfashionable—but insisted that curiosity, patience, and honesty remain the most enduring strengths of a scientist.

The lecture hall was filled to capacity and, after the lecture, time was allotted for the students and faculty to engage the Nobel laureate in dialogue. Through the lecture and follow-up dialogue, the participants came away with a deeper understanding that trust in science does not mean blind faith in authority, but rather confidence in a process grounded in evidence, transparency, and self-correction. Ultimately, Strickland emphasized, it is the scientist’s willingness to acknowledge uncertainty and error that forms the true foundation for rebuilding public trust and addressing global challenges.



Prof. Strickland encouraged students not to be constrained by publication counts, but to commit long-term to investigating questions they truly care about. Many major scientific breakthroughs, she noted, emerge from patience and sustained effort rather than chasing transient trends.



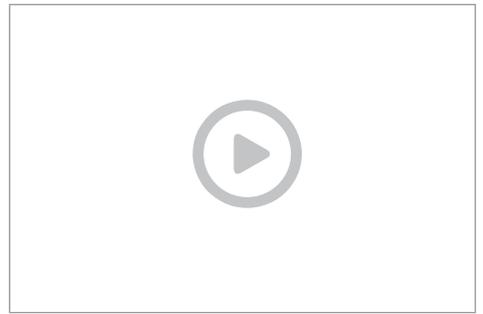
NTU President Wen-Chang Chen (right) presenting the Raymond Soong Chair Professorship trophy to Prof. Strickland (left).



Prof. Shi-Wei Chu of NTU’s Department and Vice President for Student Affairs (right) remarking that Prof. Strickland’s lecture vividly demonstrated how fundamental science shapes human civilization.



Group photo of Prof. Strickland with NTU faculty and students.



Highlights of Prof. Donna Strickland's public lecture "*Why Trust in Science Is Important.*"

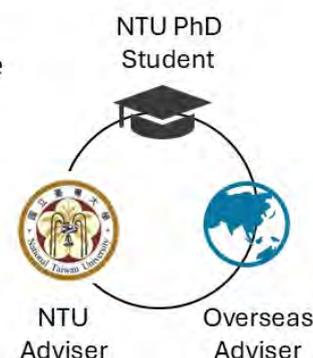
# Doctoral Training Across Borders: NTU's International PhD Co-Advising Project

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## International PhD Co-Advising Project

*Creating a global learning and research environment to nurture world-ready talent*

- **Co-Advising Team (Bottom-up, leveraging faculty members' academic networks)**
  - A team consists of an NTU PhD student, an NTU adviser, and an adviser from an overseas institution.
- **Project Scope**
  - Partners: Institutions ranked among the global top 100 in THE or QS subject rankings, as well as leading research institutes.
  - Joint supervision of the doctoral thesis and research (including online supervision).
  - Includes an overseas research attachment of two to six months.
- **Expected Outcomes**
  - High-quality doctoral thesis.
  - Co-authored journal articles and conference papers.
  - Participation as a committee member in the student's oral defense.



| International Phd Co-Advising Project.

In November 2025, National Taiwan University (NTU) launched the International PhD Co-Advising Project, a strategic initiative designed to further internationalize doctoral education through structured global supervision partnerships. Building on NTU's longstanding commitment to research excellence and international engagement, the project was devised in response to the growing demand for cross-border collaboration, academic mobility, and globally grounded doctoral training. By formalizing co-advising arrangements at the institutional level, NTU reinforces its leadership in internationally connected, research-driven doctoral education.

The project is aimed to offer integrated international learning and research environments for doctoral students while fostering sustained academic collaborations between NTU and partner institutions worldwide. Through joint supervision, doctoral candidates are exposed to complementary expertise, diverse research cultures, and expanded professional networks. Each co-advising arrangement typically brings together an NTU doctoral student, a primary adviser at NTU, and a co-adviser based at an overseas university or research institute, facilitating a continuing process of academic exchange throughout the doctoral student's academic journey.

The co-advising framework combines remote joint supervision with in-person research engagement at the partner institutions. This hybrid model allows students to immerse themselves in international research environments while remaining fully embedded in their home doctoral programs at NTU. These components are strategically integrated into students' research trajectories to promote scholarly collaboration, knowledge exchange, and the development of co-authored research outputs.

The first call for proposals, launched in 2026, attracted strong interest across a wide range of disciplines, reflecting faculty readiness and growing institutional momentum for deeper international collaboration. More than 40 projects were funded, spanning a diversity of research themes and

involving partner institutions in many regions around the world. This breadth highlights NTU's capacity to serve as a vital connector between regional and global research communities.

Through the International PhD Co-Advising Project, NTU aims to demonstrate how structured international supervision can enhance research development, promote cross-cultural academic exchange, and better prepare doctoral graduates for careers in an increasingly interconnected global research landscape. As the initiative moves forward, NTU will continue to position itself as a vital hub for cultivating the next generation of globally engaged scholars.

TEACHING & LEARNING

# Designing the Future: NTU D-School Empowers a New Generation of Youth in Southeast Asia

Share:     



Chen Yu Hsuan leading a two-day Design Your Life teacher training workshop in Malaysia.

In September 2024, *Design Your Life*—a flagship course innovated by the College of Design and Innovation at National Taiwan University and its Stanley Wang D-School—was offered on the international stage. Arranged by the PathFinder Life Design Association in partnership with the NTU Alumni Association in Malaysia, the program presented life design education in Malaysian classrooms, reaching more than 300 secondary school students and engaging 30 local educators in meaningful professional exchanges.

At the heart of the initiative was a simple but powerful insight: across borders, young people are asking the same questions.

Who am I? What should I pursue? How do I navigate an uncertain future?

Chen Yu-Hsuan, co-founder of the PathFinder Life Design Association and program leader, observed that the problems faced by students in Malaysia are



Chen Yu Hsuan (left), who exhibited the project at Huashan 1914 Creative Park, posing with industry mentor Hsiao-Ping Huang.

strikingly similar to those encountered by their peers in Taiwan—confusion about identity, direction, and life’s possibilities. That common experience of uncertainty ensures the course’s relevance beyond cultural and national boundaries, positioning *Design Your Life* as a universal framework for self-discovery, reflection, and intentional decision-making.

The program was supported by Taiwan’s Ministry of Education under the Taiwan Global Pathfinders Initiative (TGPI). Prior to departure, Chen conducted six intensive training sessions at the Stanley Wang D-School, preparing a cohort of university students to serve as facilitators. Afterwards, these student volunteers actively participated in the Malaysia workshops, ensuring pedagogical continuity while fostering authentic, peer-driven engagement—an approach that resonated with the young participants.

This forward-looking initiative was expanded. From July 26 to August 10, 2025, the PathFinder team conducted five additional workshops at Malaysian secondary schools and visited three institutions of higher education there. By leading hands-on activities and providing reflective tools drawn from *Design Your Life*, the program sought not just to empower the students but also to better understand how youth across cultures negotiate personal aspirations within their diverse social and educational contexts.

The journey was formally launched with symbolic support from the NTU D-School leadership. Former dean Pei-Zen Chang presented the team with a ceremonial flag as Associate Dean Shenglin Elijah Chang offered words of encouragement—celebrating the program as a living extension of the D-School’s transdisciplinary vision and global commitment.

The impact of the Malaysia program continued well beyond the classroom. Following the exchange, Chen Yu-Hsuan was selected as a 2025 TGPI Youth Dream Builder and presented the project at an exhibition held at Huashan 1914 Creative Park in Taipei. The exhibition transformed lived experience of the program into public dialogue, presenting a physical *Life Design* handbook, reflective writings, and documentary footage from the journey.

Visitors—students, parents, and educators alike—were warmly invited to engage in the process of life design themselves.

Together, these efforts signal a growing movement, one in which education is not confined to knowledge transfer, but becomes a tool for self-authorship, global connection, and purposeful living. Through *Design Your Life* flagship, NTU D-School is not only exporting a course—it is cultivating a shared language for navigating life in an increasingly complex world.



The program team joined the Annual Meeting of the NTU Alumni Association of Malaysia, and presented certificates of participation to teachers who completed the training program.

TEACHING & LEARNING

# Teaching AI to “Listen”: A Breakthrough in Audio-Language Models

Share:     

Human speech is incredibly nuanced—imbued with emotions, tones, and subtleties that plain text simply cannot capture. Since standard Large Language Models (LLMs) are designed to process only text, a crucial challenge has emerged: How do we teach these models to truly “understand” the rich information embedded in audio?

Traditionally, teaching an LLM to “hear” requires massive amounts of labeled data. For instance, to teach a model that a shouted “Answer me!” conveys anger, humans must manually annotate the data. While collecting labeled data for every possible scenario is theoretically possible, it is practically unfeasible. Worse still, researchers face a dilemma known as *catastrophic forgetting*: as models learn to process audio, they often lose performance in their core strengths—text processing and reasoning (see Research [1]).

## The Solution: The DeSTA Series

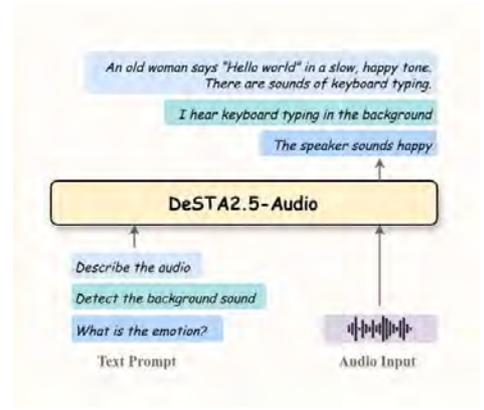
Enter the DeSTA series [2], co-developed by student researcher Kehan Lu from Prof. Hung-yi Lee’s speech processing and machine learning lab and the NVIDIA research team. Designed to overcome these limitations, DeSTA introduces a highly effective and scalable training methodology.

The team achieved a major breakthrough in generalization: by training the model on a single audio task, it was able to adapt successfully to other, previously “unseen” audio tasks. The key innovation lies in a technique that prevents catastrophic forgetting—using the model’s own self-generated data to expand its capabilities without erasing its original data intelligence.

The newly released DeSTA2.5-Audio was trained on approximately 7,000 hours of speech data. While this scale is often beyond the reach of most university laboratories, the project was made possible through the generous computational support of the NVIDIA Academic Grant Program.

The results are striking indeed. Despite being trained on only a fraction of the data used by industry-scale models—which often rely on hundreds of thousands of hours of speech—DeSTA2.5-Audio outperforms these larger systems across most audio-related benchmarks.

This achievement delivers a powerful message: innovative training strategies can matter more than sheer scale or raw computational resources.



A demonstration of the capabilities of audio-language models.

Model	Dynamic-SUPERB Phase-1 (↑)					MSAU (↑)		SAKURA (↑) Speech-EFVal (↑)					
	CTEC	SEM	PAR	ERP	SFC	ASG	Speech	Sound	Music	QA			
AUR-LLM	73.07	89.87	48.56	43.13	43.50	51.71	57.96	58.44	47.00	46.20	37.40	89.42	
AUR+ABC-LLM	82.37	64.58	45.93	54.87	46.10	46.97	57.96	48.15	47.01	53.10	59.45	51.50	
LLM4S [16]	43.89	36.00	17.14	31.53	48.20	34.11	23.39	9.10	20.00	17.04	48.90	18.19	54.90
SALMONN [12]	53.04	50.75	24.58	28.45	11.24	30.44	24.86	41.80	11.90	42.50	33.30	36.89	49.20
Open-Source [17]	41.77	47.17	28.04	30.95	41.40	40.74	40.05	44.00	45.25	43.10	73.20	40.90	32.00
Open2-Audio-Instruct [13]	77.64	91.17	29.21	43.94	47.80	51.69	42.04	54.05	50.90	49.20	41.20	49.11	—
DeSTA2 [2]	79.41	79.42	43.14	51.61	42.50	39.78	33.89	47.79	47.60	56.40	49.40	57.10	89.23
DeSTA2.5-Audio	84.85	84.89	43.74	48.88	46.10	49.23	49.14	44.04	52.69	57.20	70.47	69.87	93.89

Performance comparison showing that DeSTA2.5-Audio outperformed existing audio models at the time of its release across multiple benchmarks.



Click or scan the QR code to read research 1 “Speech-IFEval: Evaluating Instruction-Following and Quantifying Catastrophic Forgetting in Speech-Aware Language Models”.



Click or scan the QR code to read research 2 “DeSTA2.5-Audio: Toward General-Purpose Audio Language Model with Self-Generated Cross-Modal Alignment”.

PEOPLE

# When Love Hurts: The Long-Term Impact of Intimate Partner Violence

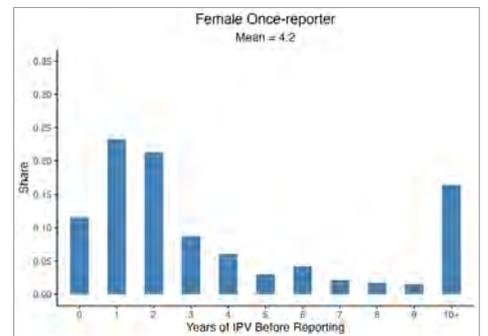
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Press conference held by the Department of Protective Services, Ministry of Health and Welfare, 2025.

Intimate partner violence (IPV) is a widespread albeit often hidden social problem. In Taiwan, despite the existence of well-established legal protections and formal reporting systems, many victims do not seek help immediately. Based on their survey of administrative data collected nationwide, a team of NTU researchers has examined how IPV reshapes victims' lives over time and argue that the act of reporting marks a critical turning point—one that often goes far beyond a purely administrative act.

Taiwan criminalized IPV in 1998 and was among the earliest countries in Asia to establish a comprehensive legal framework to address domestic abuse. Nevertheless, IPV remains highly prevalent-- and substantially underreported. Approximately one in four women in Taiwan experiences IPV in her lifetime, yet fewer than one in thirty-two comes forward. Fears of social stigma and economic dependence, as well as concerns about family stability frequently discourage victims from seeking formal help, obscuring both the true scale of violence and its long-term consequences.



While on average, victims take 4.2 years to report, most reports are made within two years of violence onset.

When such cases are finally reported, they trigger a wide range of institutional responses, including protection orders, emergency shelters, legal assistance, and referrals for medical and psychological care. Crucially, reporting is seldom immediate. On average, women delay reporting their cases for more than four years after violence begins; however, more than half of those who seek official help report within two years of IPV onset.

Across multiple dimensions of life, the analysis reveals that IPV disrupts victims' trajectories well before reporting, while the act of reporting itself marks a turning point in outcomes. Employment, for instance, declines substantially following the onset of violence, reflecting the victims' reduced work capacity, instability, and constrained opportunities. After reporting, however, employment gradually recovers, given the improved access to institutional support and greater personal confidence and stability.

Fertility responses further underscore the delayed but consequential role of reporting. IPV does not lead to an immediate decline in fertility, suggesting that family formation decisions may remain unchanged in the short run despite ongoing violence. Following reporting, however, fertility drops markedly—particularly among younger victims—pointing to a rational reassessment of family planning once formal support becomes available.

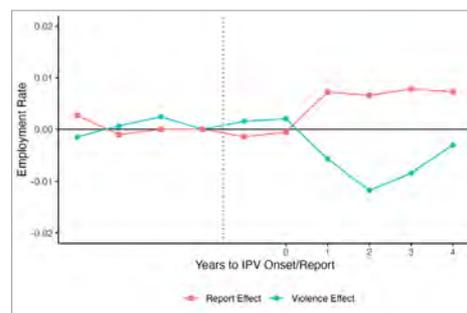
Mental health outcomes provide additional evidence. Depression-related outpatient visits increase sharply at the time of reporting, reflecting both heightened psychological distress and increased engagement with care. These mental health burdens remain elevated for several years after violence begins, underscoring the enduring psychological scars of IPV even as victims transition into formal support systems.

Overall, the study demonstrates that IPV has profound and lasting effects on victims' economic, family, and mental health trajectories—many of which unravel long before victims manage to seek formal assistance. Accordingly, reporting is not merely an administrative record of past abuse, but a pivotal moment that reshapes survivors' lives by unlocking access to legal protections and social services, including mental health services. These findings highlight the importance of policies that lower barriers to reporting and expand early access to support, since timely intervention helps mitigate the long-term consequences of violence.

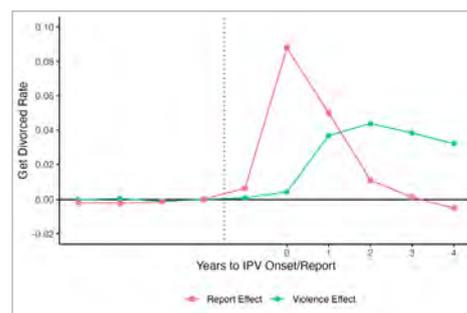
Authors: Harrison Chang (University of Toronto); Shiau-Fang Chao (National Taiwan University); Kuan-Ming Chen (National Taiwan University); Ming-Jen Lin (National Taiwan University)



Results published in Liberty Times on June 25th, 2025.



IPV significantly compromises labor market outcomes among female reporters; their employment rates rebound following reporting.



Female reporters are more likely to divorce after reporting, but seldom file for divorce in the same year the violence occurs.

I PEOPLE

# NTU Scholarship Awards Ceremony: Nurturing Altruism and Empowering Dreams

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| 2025 Academic Year Scholarship Awards Ceremony.

On December 10, 2025, National Taiwan University held its 114th Academic Year Scholarship Awards Ceremony, presenting scholarships in 15 categories. These awards represented far more than financial assistance; they embodied the genuine practice of altruism. Scholarship recipients, faculty members, and distinguished guests gathered to celebrate the participants' perseverance and generosity, as well as the pursuit of dreams.

President Wen-Chang Chen affirmed that this academic year's honors included five university-established scholarships and ten awards sponsored by alumni, corporations, and foundations. Each scholarship—from the Mr. Chien Su-Liang Memorial Scholarship to the Lam Research Paper Award and the Outstanding Student Scholarship—carried a legacy of giving. President Chen further



Liwen Jiang, Biochemical Science and Technology student and the recipient of the Fang Song-Ren Scholarship for Indigenous Students, sharing the moment with faculty members.

encouraged the recipients to embrace this spirit, stating, *“I hope you cherish this goodwill and, one day, use your expertise to pay it forward—becoming a force for good that uplifts society.”*

The ceremony was marked by deeply moving student testimonies. Minyoung Shin, a political science student from Korea, recalled arriving in Taiwan with limited proficiency in Chinese. With the support of the International Degree Student Scholarship, she overcame linguistic and cultural challenges to become a fluent orientation ambassador. Her journey illustrates how receiving such support can inspire leadership and a lasting commitment to service.

Equally powerful was the story shared by Liwen Jiang, a student in Biochemical Science and Technology and recipient of the Fang Song-Ren Scholarship for Indigenous Students. Speaking partly in Amis, she recounted losing her mother and battling cancer during her teenage years. Now pursuing cancer research to help others, she asserted, *“No matter how life fluctuates, I can still choose the direction to move forward.”* Her story exemplifies how altruistic support can transform personal hardship into a vision for the public good.

At the conclusion of the ceremony, student representatives led the recipients in a deep bow of gratitude to the faculty members and scholarship sponsors. Everyone in the hall felt their spirit of appreciation and hope. Much more than a celebration of achievement, the ceremony stood as a powerful testament to the synergy between generosity and aspiration—demonstrating how, at NTU, compassion becomes hope and perseverance turns dreams into positive action.



The recipient of Lam Research Paper Award and Outstanding Student Scholarship (left) and the recipient of NTU Outstanding International Graduate Student Scholarship (right) receiving the honor alongside faculty members.

I PEOPLE

# Goodbye, Xiao Fu Square

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On a late December day in Taipei, as the temperature dipped toward 10 degrees Celsius, the main campus of National Taiwan University should have felt hushed—emptied by the winter break, stilled by the cold.

Instead, the campus commons buzzed with activity from morning till night.

Graduates donning their chic black gowns lined up to have their photos taken against the ivy-adorned exterior of Xiao Fu Square-- its once lush walls now a tangle of bare winter vines. Inside the sole shop still open for business, students searched the half-empty shelves for parting souvenirs—anything to carry away. Some stood outside in the cold, eating Xiao Fu Square's famously incongruous ice cream-- melting faster than usual. Near the service counter, an elderly professor leaned casually against the desk, chatting with staff. Listening closely, one could hear stories untold in any official archive: vignettes of campus life from several decades ago, retold in vivid fragments.

December 24, 2025, was Xiao Fu Square's final day of operation.

Completed in 1981, the solid three-story building sits between NTU's general classrooms, the College of Liberal Arts, and the Boya Teaching Building—an unavoidable point of passage for generations of students rushing between classes. At lunchtime, bicycles and people flowed into the area in front of Xiao Fu Square and the nearby intersection. Inside, the building offered affordable meals, daily necessities, and a kind of quiet convenience that felt indispensable. For many if not most students, if there was something they needed, it could be found at Xiao Fu Square.

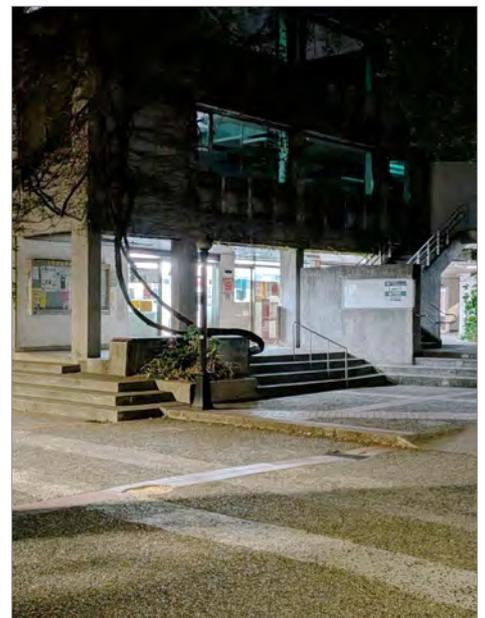
"I once forgot to buy a gift for my girlfriend," recalled Mark, an alumnus from the Department of History. "Xiao Fu Square saved me."

For Mark, whose student days unfolded mostly between lecture halls and the Liberal Arts buildings, Xiao Fu Square was never just a place to eat lunch. It was a constant—part of the rhythm of campus life itself.

Another alumnus, Tsai from the School of Pharmacy, spent much of his undergraduate life there as well. Laughing, he recalled eating at Xiao Fu Square more than ten times in a single week at one point. He also remembers joining rallies and short talks held on the campus commons. Later, as his studies shifted to the College of Medicine, his daily connection to Xiao Fu Square gradually faded.



On Xiao Fu Square's final day, only a handful of items remain on the shelves. (Photo courtesy of the interviewee)



A final photograph before the lights go out at Xiao Fu Square. (Photo courtesy of the interviewee)

Earlier in 2025, NTU announced that Xiao Fu Square, long overdue for major repairs, would close at year's end and be demolished. The news triggered a wave of nostalgia online, as alumni and students shared photos, memories, and farewells.

Even years after graduation, Mark felt a quiet sense of loss when he heard the announcement. During long stretches of thesis writing, Xiao Fu Square had been his refuge—"a place that felt safe," he confessed. To him, it symbolized something stable in campus life. As that symbol vanishes, the campus feels unfamiliar. "It's as if Xiao Fu Square graduated with me," he said.

Tsai, determined to say goodbye, made a rare trip back to campus this semester. Arriving too late, he found the shelves already bare. All he could do was take out his phone and photograph what remained. Still, he views the demolition pragmatically: the building had grown old, and while there is sadness, he anticipates what the campus might build next.

By seven o'clock in the evening, the posted closing time, darkness had already settled. Visitors slowly drifted away. Only the lights of Xiao Fu Square remained on.

At 7:30, a staff member stepped outside, switched off the lights, and pulled down the metal shutter for the last time.

With that, Xiao Fu Square's 44-year chapter in NTU's campus life came to an end.



Once covered in lush greenery, the exterior walls now stand adorned winter branches. (Photo by Yu-Chun Huang)



The new image of the Xiao Fu Square.