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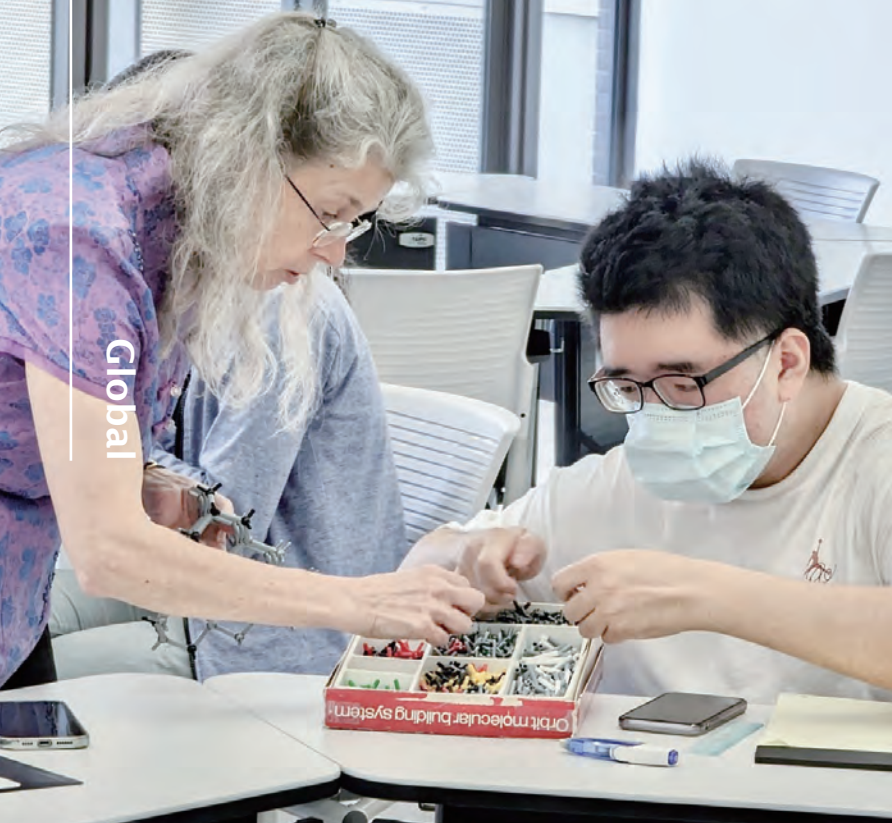
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Acclaimed American Materials Scientist Delivers Lectures at Taipei Tech

Taipei Tech had the privilege to host a series of lectures by the acclaimed Susan Troler-McKinstry, a member of the American National Academy of Engineering and a Professor at the Pennsylvania State University (Penn State). From May 29 to June 2, she lectured on the topics of crystal chemistry and structure-property relationships, primarily addressing graduate students studying material science.

Troler-McKinstry currently heads the Center for Three-Dimensional Ferroelectric Microelectronics (3DFeM) at Penn State. She is also Professor of Ceramic Science and Engineering and Professor of Electrical Engineering. Troler-McKinstry is a fellow of the American Ceramic Society, IEEE and of the Materials Research Society; and also an academican of the World Academy of Ceramics. Her leadership roles have included being the President of the Materials Research Society in 2017 and of the IEEE Ultrasonics, Ferroelectrics and Frequency Control Society. Troler-McKinstry has been an International Chair Professor at the Taipei Tech Department of Materials and Mineral Resources Engineering since 2019.

Wang Sea-fue, Taipei Tech President, praised Troler-McKinstry as a pioneer in electroceramics. Her main research interests include thin films for dielectric and piezoelectric applications. "It is our great honor to have her as our guest lecturer," said Wang, "and I believe that our students can gain valuable knowledge from her that can later be applied to different fields of research such as semiconductor, spaceflight, communication, electron, automation control, and biotechnology."

Troler-McKinstry spoke about her passion for teaching during the lectures. Her lectures covered the interaction between crystallography, bonding, and properties, and the systematics of designing the response of materials. She also illustrated the



Susan Troler-McKinstry, member of the American National Academy of Engineering and Professor of the Pennsylvania State University (Penn State), was invited to lecture at Taipei Tech from May 29 to June 2

fundamental concepts of crystal structure building through providing lecture material for students to build their own molecular system.

During Troler-McKinstry's stay in Taipei, she was also invited to visit Taiwan Semiconductor Manufacturing Co., Ltd. (TSMC) and led a seminar on three-dimensional ferroelectric microelectronics material. The introduction of these new materials for hardware upgrades is expected to trigger a fresh wave of technological advancements in the semiconductor industry.

Taipei Tech and the Taiwan Academy of Banking and Finance (TABF) jointly hosted the “International PBL Workshop on Financial Culture and Talent Empowerment” on June 13th. Students and faculty from Chulalongkorn University’s Business School in Thailand were invited to tour Financial Explorer 62, Taiwan’s first finance museum. TABF stated that this visit marked the first large-scale international exchange group to visit Financial Explorer 62 since its establishment.

During the visit, the faculty and students had the opportunity to understand Taiwan’s progressive transformation in financial systems and strengthening in financial resilience following significant domestic and international economic events. The museum also showcased Taiwan’s development trajectory in financial liberalization, internationalization, and digitization, while promoting Taiwan’s efforts in sustainable finance and inclusive financial policies.

Professor Chang I-min of Taipei Tech’s Department of Cultural Vocation Development and the workshop’s Project Director emphasized that this marks the first collaborative effort between Taipei Tech and Chulalongkorn University’s Business School in a cross-country, interdisciplinary PBL workshop. “Through visiting venues and facilities about Taiwan’s financial history, we hope to foster students in developing sustainable financial perspectives that can further help them contribute to the United Nations’ Sustainable Development Goals,” Chang stated. Tanawit Sae-Sue, Lecturer of Chulalongkorn University’s Business School, expressed that the experience was amazing and allowed the students to understand Taiwan’s financial history and development. “It is a cross-cultural learning experience that perfectly combines education with entertainment,” Sae-Sue mentioned.

Before the inception of Financial Explorer 62 in 2022, Taiwan lacked an official venue dedicated to showcasing its domestic financial development. With the joint efforts of the Financial Supervisory Commission and TABF, Financial Explorer 62 was established in 2022. Thailand, one of the key partners in Taiwan’s New Southbound Policy, has always had close cooperation with Taiwan in agriculture, labor, and tourism. This workshop provided an excellent platform for the two countries to understand, communicate, and exchange ideas on financial education and inclusive finance.

Problem-based Learning (PBL) Workshop Takes Thai Students to Taiwan’s First Museum of Finance





Taipei Tech life distinguished professor Lu Hai-han has spearheaded a cross-disciplinary research team to overcome existing 5G technological limitations by adopting single optical carrier modulation.

Taipei Tech Researchers Unveil Groundbreaking 5G Solutions in World-Renown Communications Engineering Journal

Paper publication link:
<https://www.nature.com/articles/s44172-023-00068-1>

Lu Hai-han, a distinguished life professor in the Department of Electro-Optical Engineering at Taipei Tech, has spearheaded a cross-disciplinary research team to overcome existing 5G technological limitations by adopting single optical carrier modulation. Their breakthrough findings were featured in *Communications Engineering*, a globally acclaimed journal under the *Nature* portfolio. This marks the first paper from Taiwan published in this journal, significantly amplifying Taiwan's global presence in the realms of 5G technology and free-space optical (FSO) communication systems.

Lu is currently a fellow of the International Society for Optics and Photonics (SPIE) and of the Institution of Engineering and Technology (IET). He has won the Outstanding Engineering

Professor Award from the Chinese Institute of Engineers and the Sun Yat-sen Academic Award (Natural Science) from the Sun Yat-sen Academic and Cultural Foundation. He has also been awarded the Taipei Tech Outstanding Research Award for nine consecutive years.

Lu indicated that the current 5G technology mostly utilizes multi-optical carrier modulation. This method requires a large number of base stations to support the 5G wireless transmission of high-frequency signals in order to meet usage demand, and it also has the inherent and significant challenge in suppressing signal interference. "Multi-optical carrier signals are very much like a crowded MRT train," Lu analogized. "The signals interfere with each other, resulting in the degradation of transmission performance."

The research team has proposed an innovative solution. By using the 40-kilometer single-mode fiber to transmit a single optical carrier, and generating multi-optical carrier modulation through the Mach-Zehnder modulator (MZM)-optoelectronic oscillator (OEO), they can simultaneously transmit a large number of signals. This method effectively suppresses RF power fading caused by fiber dispersion and interference from optical beating originating from multiple optical carriers.

In contrast to the current 5G fiber broadband system, the research team's proposed integrated fiber/FSO communication system, operating at MMW/sub-THz frequencies, has demonstrated superior transmission rates, extended transmission distances, and exceptional performance. This lays robust technical foundation for the development of various pioneering applications in the 5G arena. Lu further noted that the system can also be broadly used in high-speed autonomous vehicles, intelligent drone patrols, smart IoT, smart healthcare, and industrial automation.

Taipei Tech Honors Class of 2023, Conferring Honorary Degree to Distinguished Entrepreneur Alumnus

On June 10th, over two thousand graduates of Taipei Tech received their diplomas during the commencement ceremony. The ceremony also saw Tseng Kuo-hua, President of Chicony Power Technology Co., being awarded an honorary doctorate in recognition of his contributions to Taipei Tech, the industry, and the country.

Tseng graduated from the three-year bachelor's program in industrial engineering at the Provincial Taipei Institute of Technology (the predecessor of Taipei Tech) in 1979. He later obtained a master's degree in industrial engineering and management in 2004. Throughout his forty-year career in power supply manufacturing industry, Tseng has excelled in manufacturing management, industrial engineering, and procurement. His leadership was pivotal in transforming Chicony Power during a critical period, steering the company out of the red within a year and cementing its position as a global leader in power supply manufacturing by 2019.

To express his gratitude to his alma mater, Tseng has invested over 100 million NTD in industry-academic collaboration projects with Taipei Tech to foster future talent. Tseng also serves as a long-standing director of the Cultural and Educational Foundation of Taipei Tech. To demonstrate his unwavering commitment to education, he makes regular personal donations to assist financially disadvantaged students in completing their education.



Tseng Kuo-hua, President of Chicony Power Technology Co., receiving an honorary doctorate degree at the commencement ceremony

At the ceremony, Taipei Tech President Wang Sea-fue underscored the increasingly prevalent use of AI technology. He emphasized the importance for graduates to not only obtain irreplaceable professional skills but also acquire soft skills that AI cannot imitate, such as emotional intelligence, interpersonal skills, humility, and empathy. Wang further encouraged graduates to develop a strong mindset to weather difficulties and obstacles they might face in the future.

Chang Chi-cheng, president of the Taipei Tech Alumni Association and an honorary speaker at the ceremony, reflected on his own graduation thirty years ago, admitting he too felt uncertain about his future. "Fortunately, countless Taipei Tech alumni have aided me in establishing my business over the years," Chang shared. He assured the graduates that they could reach out to the alumni community for guidance and support whenever needed.

Taipei Tech's Department of Intelligent Automation Engineering has recently celebrated the graduation of the inaugural students in its P-TECH (Pathways in Technology Early College High School) program



Taipei Tech P-TECH Graduates Achieve 70% Employment Rate with Above-Average Starting Salaries



Taipei Tech's Department of Intelligent Automation Engineering has recently celebrated the graduation of the inaugural students in its P-TECH (Pathways in Technology Early College High School) program. Upon their graduation in June, twenty out of the twenty-nine graduates have secured a job, with starting salaries exceeding the average pay of university graduates. The remaining graduates plan to continue their studies in Taiwan and across the globe.

Taipei Tech President Wang Sea-fue pointed out that the program provides students courses in fields with high demand such as smart manufacturing, artificial intelligence, the Internet of Things, and mechatronics integration. Successful alumni entrepreneurs have been brought onboard as corporate mentors, establishing a unique "one student-two mentor counseling scheme" to help students build professional connections at an early stage.

Wang also revealed that several companies, including Syscom Computer Engineering Company, Gallant Precision Machining Co., and Kwan Chiu Radio MFG, have committed their support for the program's innovative "pre-employment scholarship" system. This agreement ensures this year's graduates the prospect of employment with competitive starting salaries before their graduation.

Jiang Cho-pei, Head of the Department of Intelligent Automation Engineering, indicated that the graduates of the P-TECH program had won first place at the MechaHeroes mechanical mechatronics competition in the Taiwan northern region, outshining teams from National Taiwan University, National Taiwan Normal University, and National Taiwan University of Science and Technology. "The impressive result shows that the program's curriculum, which combines practical training and internships, is indeed heading in the right direction," commented Jiang.

Twenty-year-old program graduate Wang Bing-sheng, who has secured admission to the University of Nottingham for a master's degree in computer science, aspires to work in an international software company. During his internship at IBM, Wang took the initiative to participate in the deployment of enterprise-grade software. His mentors and supervisors at IBM also secured for him a DevOps (development and operations) position in an international team. Although he often needed to stay up late for meetings, Wang greatly enjoyed his internship days. "Attending the P-TECH Program allowed me to clarify my professional interests and career trajectory at an early age through internships," Wang reflected.

Fellow graduate Zhao Wei-siang, freshly turned twenty, has already been awarded a 100,000 NTD pre-employment scholarship from Syscom Computer Engineering Company. Upon graduation, he will assume the role of a software engineer at the company. Zhao appreciated the early industry exposure, saying, "Entering the workplace early has helped me understand current industry demands and identify my interests. The pre-employment scholarship was also an opportunity too attractive to ignore."

Taipei Tech Design Student Exhibition Highlights Social Issues and Sustainability

Eleven projects crafted by Taipei Tech design students garnered a spot as finalists in different categories in this year's Golden Pin Design Awards. Dubbed as Taiwan's premier annual design competition, the Golden Pin Design Awards saw nearly five thousand submissions from design schools throughout Taiwan this year. Three of the eleven Taipei Tech projects made their way into the "Best of the Year" shortlist, with one entry making it to the final round of the "Recycled Design" category. Moreover, seven Taipei Tech projects entered the final round of the Young Pin Design Award, Golden Pin's award that celebrate upcoming designers.

The projects that entered Golden Pin were part of the Taipei Tech industrial design graduation exhibition. Reflecting on the theme of the exhibition—"The Double Wave"—Taipei Tech Vice President Yang Shih-hsuan commented that it symbolizes gusts of wind that elevates the graduates towards their dream. "Their designs not only reflect on some critical social issues but also underscore the importance of sustainability," Yang said. He expressed hope that the graduates would continue to stay inventive, articulating their unique perspectives through design.

The industrial design graduation exhibition was hosted in the Taipei Tech Art and Culture Center until May 15. The exhibition is also hosted online and can be found through the link <https://www.behance.net/ntutid108>. The designs were then showcased in the 2023 Yodex, Taiwan's annual exhibition for young designers, from May 19 to 22.

Among the projects this year, "FAREWELL" is the project conceptualized by students Huang Si-yu and Chuang Wen-yu that address Taiwan's ten thousand roadkill incidents each year. Huang and Chuang found that the way the roadkill remains are handled have not been sanitary nor respectful. "FAREWELL" tackles this issue by having QR-code-enabled cardboard boxes available in partner convenience stores that anyone can use. After putting the animal in the box, the operator scans the QR code on the box to register this incident, which automatically informs the local sanitation team, ensuring the prompt retrieval of the farewell box for the cremation process.



Huang Si-yu and Chuang Wen-yu conceptualized the "FAREWELL" service to dispose roadkill properly and respectfully



Combining memorial and ecological restoration, Hsieh Yu-lun and Tang Chun-wei's project "Yung Sheng" reimagines reef burials

The exhibition featured various other innovative design projects, such as sustainable footwear made from repurposed tea grounds, tree bench that helps to protect tree root systems, and a bookstore designed to allow exploration and develop concentration.



Leung Sze-pui designed sustainable footwear, "Teagee," made from repurposed tea grounds

Taipei Tech and Google Join Hands to Foster Digital Skill Development

Taipei Tech Academia-Industry Liaison Office and Google Taiwan have launched a collaborative initiative aimed at fostering digital talent. The goal is to integrate resources from the industry, government, and academia to train future professionals with expertise and competitive abilities in the digital economy. The project is expected to advance the growth of the digital economy and IT industry.

Three programs will be launched as part of this project: digital advertisement, Google Analytics 4, and Google Cloud Computing Foundations. Over 12,000 students have registered for these programs. To highlight the distinction between these programs and other existing certificate training programs, Taipei Tech has emphasized that they are designed to shape the digital career path of students. On June 17th, the two parties organized the "Digital Talent Matchmaking Day," facilitating dialogue between industry representatives and students on career opportunities. Prospective candidates also had the chance to have immediate interviews with hiring officials.

Tina Lin, General Manager of Google Taiwan, mentioned that the collaborative project with Taipei Tech was launched during the pandemic with the goal of building digital skills for students, job-seekers, and employees. "Through hosting the first matchmaking event this year, we aim to further assist the local industry in finding digital talents more efficiently and accelerate industry transformation," said Lin.



Taipei Tech Academia-Industry Liaison Office and Google Taiwan have launched a collaborative initiative aimed at fostering digital talent

Thomas C.K. Yang, Vice President of Taipei Tech, stated that the collaborative program will enhance students' professional knowledge of the digital economy and bridge the gap between education and work. Yang further noted that according to data provided by 1111 Job Bank, there are over twenty thousand jobs available in the current Taiwan market related to digital marketing, indicating the growth and evolution of this field. "Individuals with solid digital skills can excel in various jobs," said Yang, "making them the most sought-after employees in today's job market."

