[Panda Lecture]: Chu Duc Trinh's Bio-MEMS Research Sparks Lively Discussion Among Engineering Faculty and Students

Campus focus

Prof. Chu Duc Trinh, Rector of the University of Engineering and Technology at Vietnam National University, Hanoi, and a renowned international scholar, was invited to Tamkang University as a Tamkang Clement and Carrie Chair professor. At 2:10 p.m. on November 10, he delivered a lecture at the Chang Yeo Lan Hall of the Hsu Shou-Chlien International Conference Center, introducing the latest advances in Biological Microelectromechanical Systems (BioMEMS) and Organ-on-Chip technologies. His 40-minute talk drew strong interest, followed by an extended 40-minute Q&A session with continuous questions from the audience.

The lecture, hosted by the Department of Mechanical and Electro-Mechanical Engineering, was titled "Small Technologies, Big Impact: BioMEMS, Organ-on-Chip, and the Biosystems." Dean Tzung-Hang Lee of the College of Engineering delivered the opening remarks and introduced the speaker.

Speaking from a physicist's perspective, Prof. Chu began with Newtonian mechanics and modern physics as shaped by Nobel laureate Richard Feynman. He discussed how fundamental physics has evolved into advanced MEMS and BioMEMS technologies, with a focus on miniaturization inspired by Feynman's famous statement in the 1960s: "There's plenty of room at the bottom." He explained how integrating electronic and non-electronic components into microchips has fueled the emergence of the BioMEMS field.

Prof. Chu highlighted his laboratory's work on Lab-on-a-Chip systems, demonstrating how microscale devices can precisely simulate human organ functions to support drug testing, disease modeling, and personalized medicine. He also introduced advances in lung cancer cell research and female reproductive studies, including microenvironments designed for oocyte and embryo culture.

The lecture drew faculty and students from the departments of Mechanical and Electro-Mechanical Engineering, Computer Science and Information

Engineering, and Water Resources and Environmental Engineering. Distinguished attendees included Vice President for Academic Affairs Hui-Huang Hsu, Prof. Shung-Wen Kang from the Mechanical Engineering Department, Chair Shi-Hsin Chen and Assistant Professor Joe-Mei Fung of the Computer Science Department, and Prof. Chi-Wang Lee from the Water Resources Department. Various questions were raised by faculty and graduate students, ranging from ethical issues in organ-on-chip technologies and AI modeling in BioMEMS to biosensor applications and the possibility of directly applying BioMEMS to human organs. Other topics included the early detection potential of automated lung cancer diagnostic systems and their impact on inhibiting cancer metastasis. Prof. Chu addressed each inquiry thoroughly and expressed optimism that scientific and technological progress will continue to accelerate in the foreseeable future.

Vice President Hsu, who facilitated this academic visit, shared in an interview that he met Prof. Chu during his service in Vietnam and was impressed by his advanced research achievements. He also noted that most Tamkang Clement and Carrie Chair professors have featured scholars from Europe, the United States, and Japan. “By inviting a Vietnamese scholar this time, we hope to strengthen academic exchange with Southeast Asia and demonstrate our commitment to regional collaboration.”

On the morning of the lecture, Prof. Chu was accompanied by Dean Lee, Department Chair Chyan-Chyi Wu, and Prof. Kang from the Mechanical Engineering Department to meet TKU President Huan-Chao Keh and Chairperson Flora Chia-I Chang, respectively. President Keh and Chairperson Chang extended their warm welcome, introduced the origins of the Tamkang Clement and Carrie Chair, and presented commemorative gifts, including the Panda trophy and a signature TKU commemorative vase decorated with calligraphy from masters Chi-Mao Lee and Ben-Hang Chang, featuring campus scenery and the school anthem.

Prof. Chu stated that he was greatly honored to be invited as a Tamkang Clement and Carrie Chair professor and intends to display the Panda trophy in his office. Visiting Tamkang University for the first time, he was impressed by the beautiful scenery of Tamsui and enjoyed a leisurely

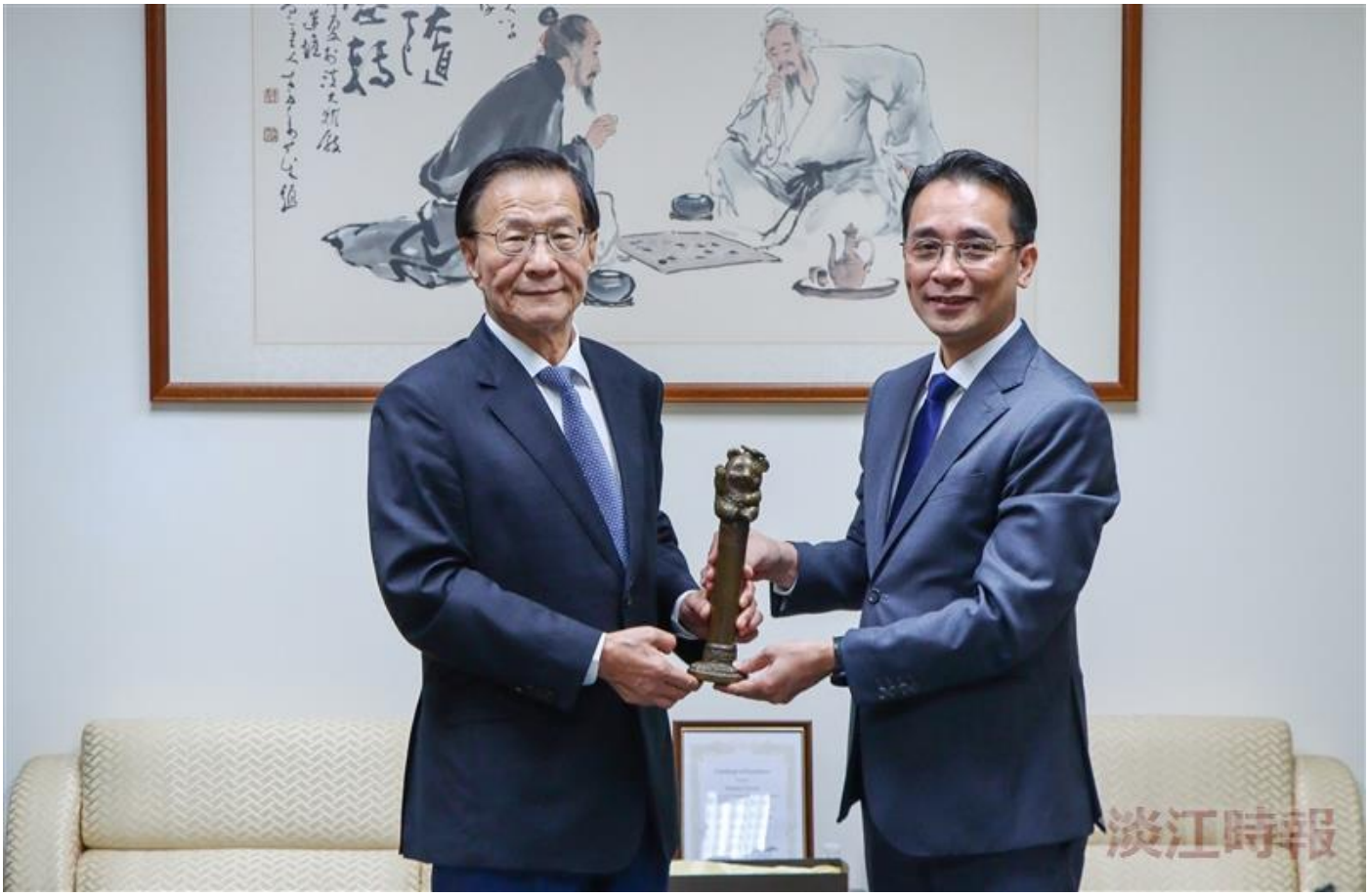
bicycle ride along the banks of the Tamsui River while savoring local coffee. He also discussed his current research interests with President Keh and praised TKU's campus facilities and faculty as highly conducive to learning. He expressed a strong interest in the academic strengths of the College of Engineering and the College of Artificial Innovative Intelligence, as well as the opportunities for faculty and students to obtain professional certifications on campus. He is currently planning for master's students from his university to study at TKU and hopes to further expand collaboration and exchange between the two universities. He also noted that Vietnam is actively developing its semiconductor industry and looks forward to establishing professional training pathways in Taiwan to strengthen the practical skills of Vietnamese students.


Organ-on-Chip, and the
Biosystems
淡江時報


Research A
• MEMS and BioM
• Microfluidics
• Circulating tumo
microfluidics
• Organ-on-a-chip
淡江時報


AMKANG CLEMENT AND CARRIE CHAIR
2025 TAMKANG CLEMENT AND CARRIE CHAIR
Rector, University of Engineering and Technology, Vietnam National University, Hanoi
Prof. Chu Duc Trinh
Small Technologies, Big Impact: BioMEMS, Organ-on-Chip, and the Rise of Automated Biosystems
Rector, University of Engineering and Tec
Vietnam National University, Hanoi
Prof. Chu Duc Tri
Small Technologies, Big Im
BioMEMS, Organ-on-Chip,
Rise of Automated Biosyst
報到 13:30 - 14:10
演講 14:10 - 16:00
淡江時報


熊貓講座
淡江時報


淡江時報


淡江時報