

Tamkang University Launches 2nd NSRRC X-ray Microscopy Station, Boosting Next-Generation Advanced Research

Campus focus

The Department of Physics at Tamkang University, in collaboration with the National Synchrotron Radiation Research Center (NSRRC), has developed the "TPS 27A1" Nano Microscopy Beamline and Scanning Transmission X-ray Microscopy Station. The inauguration ceremony for the TPS 27A1 beamline was held at 11:00 a.m. on Friday, December 20, at the NSRRC. The event featured speeches by Tamkang University Chairperson Flora Chia-I Chang, Vice President for Academic Affairs Hui-Huang Hsu, NSRRC Director Chia-Hung Hsu, and Deputy Director Der-Hsin Wei. This state-of-the-art scientific facility, serving as a flagship beamline, is expected to advance next-generation cutting-edge research in green energy materials in Taiwan. Department Chair Cheng-Hao Chuang noted that Tamkang University began collaborating with NSRRC in 2012 on the "Soft X-ray Emission Spectroscopy Project," establishing the first X-ray microscopy station with a total investment of NT\$70 million. In 2016, the National Science and Technology Council (NSTC) supported Tamkang's 2nd private university project, "X-ray Microscopy Research on Novel/Energy/Nanomaterials," with research funding of approximately NT\$45 million, supplemented by NT\$11 million from the university, amounting to a total investment of NT\$56 million. After 8 years of development, this partnership has resulted in the establishment of the second university experimental station, ranked first in the world. The inauguration ceremony was attended by Dean of the College of Science Tzenge-Lien Shih, Director of Research and Development Hung-Chung Hsueh, and Department of Physics faculty members Way-Faung Pong, Chao-Hung Du, Chung-Li Dong, Ping-Hung Yeh, and Hsiao-Tsu Wang.

In her speech, Chairperson Chang remarked, "Today marks my first visit to NSRRC, where I learned that we have achieved a world-class level comparable to Europe and the United States. Over the past 8 years, under the strong support of successive heads of the Department of Physics at Tamkang, our

university has collaborated with synchrotron research centers in the U.S., Japan, and Canada, producing numerous high-impact papers ahead of schedule. Our faculty have become well-versed in this experimental technology and its applications. I deeply appreciate the NSRRC engineers and scientists for their efforts in bringing this milestone experimental station to fruition, which will further drive the future development of our university's research." Vice President Hui-Huang Hsu expressed gratitude to NSRRC for providing such an outstanding academic environment, enabling Tamkang's team to establish its 2nd experimental station. This facility addresses a broader range of experimental needs on the user end and builds the world's leading X-ray microscopy team. Together, both institutions have created a scientific collaboration platform to explore advancements in nanomaterials with global experts and scholars.

Chuang highlighted that Tamkang's first X-ray experimental station was part of the university's key private university development and R&D project, led by Distinguished Chair Professor Way-Faung Pong in collaboration with Germany's Max Planck Institute. This project resulted in the establishment of the NSRRC 45A1 and A2 beamlines, with NT\$45 million in funding provided by NSRRC and NT\$20 million from the NSTC through the R&D special project of the 2013 private university development program. To date, the facility has supported the production of numerous high-quality international journal papers. "The second X-ray microscopy station will provide high-quality soft X-ray sources and nano-scale chemical element imaging capabilities, showcasing the remarkable outcomes of cross-institutional collaboration. It will offer significant research capacity for domestic and international researchers in fields such as energy, semiconductors, magnetism, and environmental science, contributing substantially to improving the quality of Tamkang's related research," Chuang said.





