

MESSAGE FROM THE DIRECTOR

The annual report provides an overview of the National Synchrotron Radiation Research Center (NSRRC) for you. These include research highlights, accomplishment by our users and a summary of the new capabilities of our facility.

It has been over 12 years since the first operation of the 1.5 GeV synchrotron, the Taiwan Light Source (TLS) in October 1993. The year 2005 was indeed important for NSRRC. After over a decade of promoting synchrotron research, we now have a steady stream of users who rely on our facility to conduct their research and produce significant scientific contributions. In 2005, the user group consisting of both domestic and international participating institutions reached over 1000 people. The number of publications in high impact factor journals continues to increase. These facts are all quite encouraging to us.

In year 2005, we are especially thrilled to see the completion of several major upgrades of the accelerator as initiated a few years ago, including superconducting RF cavity, superconducting wigglers, bunch-by-bunch feedback, and top-up injection. These upgrades have made the TLS a world-class facility. As a result, the focusing of the TLS activities can now be switched from a machine-driven to a user-driven priority. Our immediate goal is to fully utilize our significant resources to further stimulate scientific research using beamlines at both TLS and SPring-8. One of the most important items on the agenda for the next few years is to meet the increasing demands of X-ray users. Building more function specific end stations is also a key action item for such experiments as high-energy photoemission, X-ray nano imaging, and possibly drug design. Recently, a



new reach-out program is also set up with the Program Office of National Science and Technology Program for Nanoscience and Nanotechnology to explore easy access by users without previous synchrotron experience.

In the past several years, NSRRC has also conducted studies on the feasibility of building a new accelerator-based light facility. The studies have reached a conclusion recently for a new low-emittance 3 GeV synchrotron, the Taiwan Photon Source (TPS), to be built on the current site. This will be the major new task for NSRRC in the years to come, if the project succeeds in obtaining its funding from the Taiwan government. We envision that the TPS will provide cutting-edge facilities for research for the next twenty years in emerging areas such as nano technology, protein structures in the genome, and bio medical imaging, which are all vital to future scientific research and economic development in Taiwan. We believe the construction of TPS will greatly enhance Taiwan's scientific infrastructure and its technological impacts will be felt for generations to come. Our ultimate goal is to have the new synchrotron become one of the leading regional facilities for international users, in particular the Asian/Oceanic synchrotron community.

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