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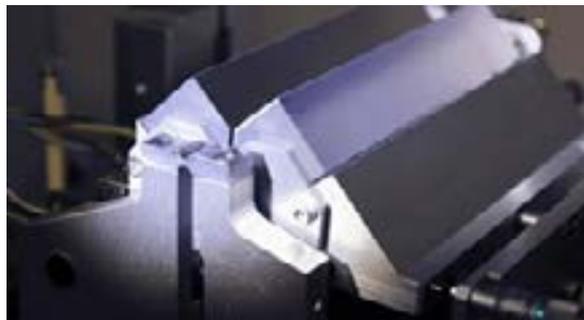
EMERGING MATERIALS AND NANOTECHNOLOGY

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To explore nano world and material structure stress by X-ray nanoprobe at Taiwan photon source**Shao-Chin Tseng**

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The X-ray nanoprobe (XNP) will open to all professors and researches, since 2017. The XNP provides versatile X-ray-based inspection technologies, including diffraction, absorption spectroscopy, imageology, and so on. Also, it will improve the analysis scale of inhomogeneous materials, tiny and diluted samples to the nanoscale. Moreover, the high-transmitted XNP can be used to inspect the “Nano World” like atomic arrangements, chemical and electronic configurations, which are widely adopted in the physics, chemistry, materials science, semiconductor devices, nanotechnologies, energy and environmental science, and earth science. Beside to the opening to the researchers, it is also important to improve the inspection and research strength of the XNP in the nanomaterials field, in order to increase the academic influence of the XNP and the Taiwan photon source. The primary experimental technique of XNP includes X-ray fluorescence spectroscopy (for the analysis in the depth-of-field distribution of elements), extended X-ray absorption spectroscopy (for the analysis in the electronic configuration and the atomic or molecular bonding length), excitation X-ray fluorescence spectroscopy (for the analysis in the recombination and transport of carriers), in-phase scanning X-ray imageology (the Fourier phase transform calculation can improve the space resolution down to 3 nm to 5 nm, and detect the stress distribution inside the nanostructures). The design XNP and the experimental applications will be reported.

**Biography**

Shao-Chin Tseng has completed his PhD from Department of Materials Science and Engineering, National Taiwan University. He is the Assistant Scientist of National Synchrotron Radiation Research Center. He studies on Nanotechnology, X-ray Nanoprobe, Optoelectronic Materials, Semiconductor Process and Biomedical Sensing. He has published more than 25 papers in reputed journals.

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