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The Mechanical Design and Construction of Transmission X-ray Microscopy (TXM) Endstation at TPS 31A2

Wednesday 28 August 2024 12:30 (15 minutes)

The Transmission X-ray Microscope (TXM) endstation at the Taiwan Photon Source (TPS) shares similar functionalities with the Projection X-ray Microscope (PXM) endstation. Both endstation serve as potential scientific tools for micro-computed tomography (micro-CT) and prove invaluable for non-destructive industrial inspections.The TXM endstation's foundation diverges from the conventional approach by being situated on the second layer, approximately 150 mm lower than the standard ground level. This strategic placement provides the benefit of mitigating environmental vibrations arising from various activities, such as human movement, pump operation, and other sources of ground-related vibrations.The TXM endstation comprises seven major modules: (1) Beam stop module, (2) Condenser stage, (3) Aperture module, (4) Sample system, (5) Zone plate stage, (6) Berten lens module, and (7) TXM base stage. Additionally, the wobble of the rotary stage is monitored using two sets of laser interferometers and a specially crafted diamond-turned reflective mirror. One set of laser heads gauges horizontal variations in the rotary stage,while the other detects shifts along the x-axis.

I plan to submit also conference proceedings

Yes

Primary authors: CHEN, Bo-Yi (National Synchrotron Radiation Research Center (NSRRC)); YIN, Gung-Chian (NSRRC); HSU, Ming-Ying (national synchrotron radiation research center); Mr LEE, Chien-Yu (NSRRC); Mr TSENG, Ying-Shuo (NSRRC); Dr CHAO-CHIH, Chiu (NSRRC); Dr SONG, Yen-Fang (NSRRC); Dr CHAN, Hsiu-Chien (NSRRC); Mr LO, Shih-Ting (NSRRC); Mr FU, Cheng-Yao (NSRRC); Mr CHOU, Yu-Chun (NSRRC); Dr HUANG, Yu-Shan (NSRRC)

Presenter: CHEN, Bo-Yi (National Synchrotron Radiation Research Center (NSRRC))

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