



Contribution ID: 554 Contribution code: THPA053

Type: **Poster Presentation**

Dose rate and accumulated dose around the Taiwan Photon Source in various scenarios

Thursday, 11 May 2023 16:30 (2 hours)

The Taiwan Photon Source (TPS) is equipped with 16 real-time radiation monitoring stations around the accelerator. Each operating scenario entails a different dose rate and accumulated dose. In this study, we assessed the beam current and injection efficiency of the accelerator and the dose rate and accumulated dose at the radiation monitoring stations in five scenarios. The background radiation level of the TPS is approximately 0.1 $\mu\text{Sv/h}$. We observed that when the injection efficiency was over 85%, the accumulated dose was similar to the background level. When the injection efficiency was low (~55%), the accumulated dose was high. When the beam trip focused on a hot spot, the accumulated dose was considerably high. The gamma-ray dose rate reached approximately 2,500 $\mu\text{Sv/h}$. These results indicate that the machine should not be continuously operated in injection mode at low efficiency. Furthermore, in beam trip or dump beam mode, operators should pay particularly close attention to radiation safety.

Funding Agency

Footnotes

I have read and accept the Privacy Policy Statement

Yes

Primary author: LIN, Yu-Chi (National Synchrotron Radiation Research Center)

Co-authors: CHEN, Ang-Yu (National Synchrotron Radiation Research Center); CHEN, Chien-Rong (National Synchrotron Radiation Research Center); HUANG, Szu-Jung (National Synchrotron Radiation Research Center); KAO, Sheau-Ping (National Synchrotron Radiation Research Center); LIN, Yu-Wei (Instrument Technology Research Center); WEN, Po-Jiun (National Synchrotron Radiation Research Center)

Presenter: LIN, Yu-Chi (National Synchrotron Radiation Research Center)

Session Classification: Thursday Poster Session

Track Classification: MC6: Beam Instrumentation, Controls, Feedback and Operational Aspects; MC6.T18: Radiation Monitoring and Safety