Contribution ID: **1811** Contribution code: **THPS127** Type: **Poster Presentation**

Design of RF duct shielding for the SPS-II 3-GeV electron storage ring

Thursday 5 June 2025 15:30 (2 hours)

The Siam Photon Source II (SPS-II) is a fourth-generation synchrotron light source designed to provide high-brightness, low-emittance, high-energy electron beams for advanced synchrotron applications. SPS-II is equipped with a 150-MeV linear accelerator, a 3-GeV booster synchrotron, and a 3-GeV electron storage ring, enabling the production of high-quality synchrotron radiation for a wide range of scientific research fields. The 500 MHz RF system in the storage ring serves to replenish the energy lost by electrons due to synchrotron radiation. RF cavities generate oscillating electromagnetic fields at a specific frequency, accelerating the electrons each time they pass through the cavity. The RF ducts house the waveguides and transfer RF power to the RF cavities inside the storage ring tunnel. However, penetration in the storage ring tunnel may allow radiation within the shielding tunnel to leak outside the shielding. For this reason, the design of the RF ducts must be carefully considered. The FLUKA particle transport code is used to investigate the shielding. The results indicate that the radiation dose is below the design criterion, meeting the radiation safety standards.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

Author: AIM-O, Pawitra (Synchrotron Light Research Institute)

Co-authors: SAETIAW, Jullada (Synchrotron Light Research Institute); RITTAPROM, Kamthon (Synchrotron Light Research Institute); JUNTONG, Nawin (Synchrotron Light Research Institute); RATTANAWICHAI, Peerawoot (Synchrotron Light Research Institute); PRUEKTHAISONG, Piyawat (Synchrotron Light Research Institute); PRAWANTA, Supachai (Synchrotron Light Research Institute); SRICHAN, Supawan (Synchrotron Light Research Institute)

Presenter: PRAWANTA, Supachai (Synchrotron Light Research Institute)

Session Classification: Thursday Poster Session

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