Contribution ID: **665** Contribution code: **THPB003** Type: **Poster Presentation**

Study on improving titanium coating for the TPS NIK ceramic chamber

Thursday 5 June 2025 15:30 (2 hours)

This study aims to optimize the titanium coating for the Nonlinear In-vacuum Kicker (NIK) as part of the electron injection system upgrade project at the Taiwan Photon Source (TPS). To efficiently conduct the image current generated by the stored beam, a highly conductive titanium thin film must be deposited inside the NIK ceramic chamber. The improvement study demonstrated a reduction in resistivity from $3.5\times10^{-6}\Omega\cdot m$ to $7.16\times10^{-7}\Omega\cdot m$, while the deposition time for a 5.5μm thick film was reduced from 80 hours to 27 hours. When applied to the NIK ceramic substrate (346mm×60mm), the film achieved a thickness uniformity of 2.65% and an adhesion strength of 62.5MPa.

Footnotes

Paper preparation format

Word

Region represented

Asia

Funding Agency

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Session Classification: Thursday Poster Session

Track Classification: MC7: Accelerator Technology and Sustainability: MC7.T14 Vacuum Technology