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Evaluation of coating thickness and thermal deposited power for nonlinear in-vacuum kicker

Monday 2 June 2025 16:00 (2 hours)

This study looks at the relationship between titanium coating thickness and thermally deposited power in the ceramic chambers of nonlinear in-vacuum kickers (NIK), which are critical components of synchrotron light sources. Simulations show that as coating thickness increases, magnetic field attenuation increases, whereas thinner coatings result in greater thermal power deposition. The study found that a 5 μm titanium coating is the most effective for reducing magnetic field attenuation and managing thermal loads. Furthermore, the significance of coating uniformity is emphasized, as it improves injection stability and efficiency. The article wraps up with key findings and recommendations for future research to improve NIK performance.

Footnotes

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