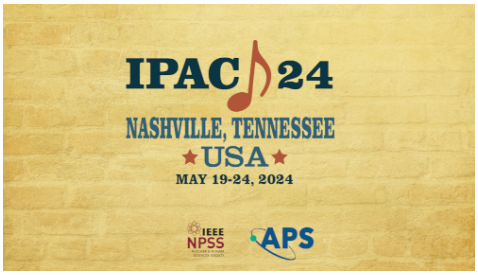

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Improving the uniformity of magnetron sputtering titanium film for nonlinear injection kicker

Thursday, 23 May 2024 16:00 (2 hours)

The design and manufacturing of the Nonlinear Injection Kicker is one of the upgrade project for the Taiwan Photon Source (TPS). In accordance with the requirements of the developed ceramic vacuum chamber, it is necessary to apply a uniform titanium coating on the inner surface of the ceramic substrate to reduce the impedance and image current observed by the stored electron beam. Therefore, titanium films must be sputtered onto a 30 cm × 6 cm ceramic substrate, and these films must exhibit excellent uniformity. Based on our tests of sputtering titanium films on ceramic substrate, the uniformity of the titanium film can be controlled within 5%. The adhesion between the ceramic substrate and the titanium films meets the highest level of ASTM-D3359 5B standard, with an adhesive strength reaching 40 MPa. This paper describes the detailed manufacturing processes and testing results.

Footnotes

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Paper preparation format

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Region represented

Asia

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