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Measurement of Thermal Emittance from a Cs₂Te Photocathode Based on a VHF Electron Gun

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RF electron guns can produce higher quality electron beams due to their high accelerating gradients, and semiconductor photocathodes have higher quantum efficiencies. However, the thermionic emission of the material can affect the beam emittance. Therefore, it is necessary to develop cathodes with lower thermionic emission, and to measure the thermionic emission, especially under high power conditions, in order to iteratively optimize the cathode fabrication process. This paper mainly focuses on the study of thermionic emission measurement based on a VHF electron gun.

Footnotes

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