

STUDY OF TRANSVERSE EMITTANCE EVOLUTION IN 3.5-CELL DC-SC PHOTO-INJECTOR

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Abstract

High quality electron beam with low transverse emittance in 3.5-cell DC-SC photo-injector is crucial significance for PKU-ERL-FEL facility. In this paper, we analyse the emittance evolution in the 3.5-cell DC-SC photo-injector by simple model with consideration of DC acceleration, RF acceleration and space charge effect. The results are compared with Astra simulation. The matching condition of DC-gun and Superconducting cavity, which is critical for the final emittance at the exit of the injector, is also presented.

**CONTRIBUTION NOT
RECEIVED**