



Simulation Studies for Ion Beam Extraction Systems

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The characteristics of the ion beam extracted from an ion sources were investigated using computer code SIMION 3 D Version 7.0. It has been used to evaluate the extraction system in order to produce an ion beam with high current and low beam emittance. The results show that the shape of the extraction electrode plays an important role in ion beam formation. Comparison has been made between two extraction systems, Pierce extraction electrode and spherical extraction electrode. The results show that the spherical extraction system yields ion extraction beam with lower emittance and radius than that the Pierce system. The simulation can provide the basis for optimizing the extraction system and the acceleration gap for ion source.

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