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# Simulation of carbon ion beam charge exchange in a tandem accelerator

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A tandem accelerator is a type of electrostatic accelerator that utilizes the high-voltage terminal twice to achieve higher ion energy. In this accelerator, a charge exchange cell is positioned between the low-energy and high-energy sections of the accelerating tube, converting the negative ion beam into a positive one. The charge exchange cell can be categorized into two types: gaseous charge exchange cells and carbon foil-based charge exchange cells. To enhance beam transfer efficiency in a tandem accelerator, the gaseous charge exchange cell is generally preferred. This paper presents a simulation of the charge exchange process for negative carbon ions using nitrogen gas. The conversion efficiency of negative carbon ions to positive ions is calculated for various nitrogen gas throughputs.

## Footnotes

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Word

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Asia

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