

Method and Apparatus for Efficient Photodetachment and Purification of Negative Ion Beams

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Technology Summary

A method for substantially improving the efficiency of neutralizing negative ions by photodetachment. The method includes slowing, cooling, or storing negative ions in a gas-filled radio frequency quadrupole ion guide device. Optical radiation is then introduced into the device to neutralize the negative ions by photodetachment. The method further includes incorporating the ion cooling device in purifying negative ion beams, where selected negative ions are neutralized by photons of proper energies, while leaving the other negative ions less affected or unaffected.

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