

Laser ion source at Brookhaven National Laboratory

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Abstract

In the field of accelerator, many laser systems are being used. Some lasers are used to make electron beams, Other laser is used to measure energy of negatively charged proton beams. Our group focus on creating heavy ion beams by laser ablation, since it has great advantages to provide high brightness ion beams. Several projects are being pursued in Brookhaven National Laboratory. Among them, a low charge fast species switching ion source will be discussed. The laser ion source provides various species including Li, C, Ca, O, Ca, Ti, Fe, Al, Ta and gold. These singly charged ion beams are delivered to electron beam ion source (EBIS) which strips electrons off to be highly charged states. Then, the requested charge state ions are selected and accelerated to 1 GeV/u and are used investigate biological effect caused by cosmic rays.