

Zeitschrift: Helvetica Physica Acta

Band: 59 (1986)

Heft: 4

Artikel: A method of generating intense nuclear polarized beams by selective photodetachment of negative ions

Autor: Hershcovitch, Ady

DOI: <https://doi.org/10.5169/seals-115742>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. [Siehe Rechtliche Hinweise.](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. [Voir Informations légales.](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. [See Legal notice.](#)

Download PDF: 21.12.2024

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

A METHOD OF GENERATING INTENSE NUCLEAR POLARIZED BEAMS BY
SELECTIVE PHOTODETACHMENT OF NEGATIVE IONS*

Ady Hershcovitch

AGS Department, Brookhaven National Laboratory
Upton, New York 11973 U.S.A.

ABSTRACT

A novel method for production of nuclear polarized negative hydrogen ions by selective neutralization with a laser of negative hydrogen ions in a magnetic field is described. This selectivity is possible since a final state of the neutralized atom, and hence the neutralization energy, depends on its nuclear polarization. The main advantages of this scheme are the availability of multi-ampere negative ion sources and the possibility of neutralizing negative ions with very high efficiency. An assessment of the required laser power indicates that this method is in principle feasible with today's technology.

A detailed paper on the method presented has been published in:
Nuclear Instruments and Methods in Physics Research A 243 (1986) 271.

*Work performed under the auspices of the U.S. Department of Energy.