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Title

Electron-Loss Collisions of Highly-Stripped Niobium Ions With Hydrogen and Argon

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Publication Date

1979

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To be presented at the 1979 American
Physical Society Meeting, Washington,
D. C., April 23-26, 1979

UC-34a
LBL-8713
Abstract

ELECTRON-LOSS COLLISIONS OF HIGHLY-STRIPPED
NIOBIUM IONS WITH HYDROGEN AND ARGON

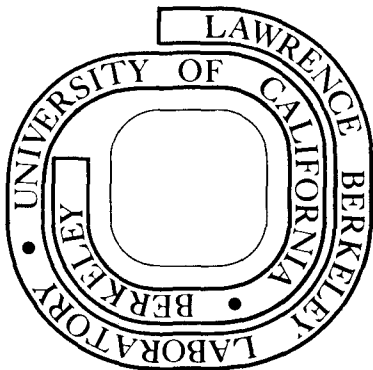
K. H. Berkner, W. G. Graham, R. V. Pyle,
A. S. Schlachter, and J. W. Stearns

January 1979

Prepared for the U. S. Department of Energy
under Contract W-7405-ENG-48

For Reference

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0 0 0 0 5 3 0 2 2 3 9
Jan. 29, 1979
Submission Date

LBL-8713
Abstract

Abstract Submitted

for the Washington, D.C. Meeting of the

American Physical Society

April 23-26, 1979

Physical Review
Analytic Subject Index
Number 34.7-34.5

Bulletin Subject Heading
in which paper should be placed:
Atomic Collisions: Charge
transfer and inelastic scattering.

Electron-Loss Collisions of Highly-Stripped Niobium Ions with Hydrogen and Argon.* K.H. BERKNER, W.G. GRAHAM, R.V. PYLE, A.S. SCHLACHTER, and J.W. STEARNS, Lawrence Berkeley Laboratory, Univ. of Calif., Berkeley, CA 94720--We have measured the cross sections for net impact ionization of H₂ and Ar targets by 3.5 MeV/A Nb^{+q} ions and for electron capture by the Nb^{+q} ions. Niobium ions with charge states q ranging from 23 to 36 were used in these experiments. The impact-ionization cross sections are very large, e.g., 1.0×10^{-14} cm² for Nb⁺³⁴ in H₂, and 3.4×10^{-14} for Nb⁺³⁴ in Ar. These results extend experimental verification of our previously determined scaling rule¹ for electron loss from H to ions with charge states as large as +36.

*Work supported by the U.S. Department of Energy, Office of Fusion Energy under Contract No. W-7405-ENG-48.

¹Olson, Berkner, Graham, Pyle, Schlachter, and Stearns, Phys. Rev. Letters 41, 163 (1978).

Submitted by

Signature of APS Member

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This report was done with support from the Department of Energy. Any conclusions or opinions expressed in this report represent solely those of the author(s) and not necessarily those of The Regents of the University of California, the Lawrence Berkeley Laboratory or the Department of Energy.

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