

Lawrence Berkeley National Laboratory

Recent Work

Title

ELASTIC PROTON-PROTON SCATTERING AT 7, 5, AND 3 BeV/c

Permalink

<https://escholarship.org/uc/item/80m185g6>

Authors

Clyde, A.R.
Cork, Bruce
Keefe, D.
et al.

Publication Date

1964-04-07

00 00 00 00 22 23 00 22 40 01 68

UCRL 11362
Abstract

UNIVERSITY OF
CALIFORNIA

*Radiation
Laboratory*

FOR REFERENCE

NOT TO BE TAKEN FROM THIS ROOM

BERKELEY, CALIFORNIA

DISCLAIMER

This document was prepared as an account of work sponsored by the United States Government. While this document is believed to contain correct information, neither the United States Government nor any agency thereof, nor the Regents of the University of California, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof, or the Regents of the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof or the Regents of the University of California.

Elastic Proton-Proton Scattering at 7, 5, and 3 BeV/c. * A. R. Clyde
(introduced by Bruce Cork), Bruce Cork, D. Keefe, L. T. Kerth, W. M.
Layson, and W. A. Wenzel, Lawrence Radiation Laboratory, Berkeley. --

We have measured the elastic proton-proton scattering cross section at incident momenta of 7, 5, and 3 BeV/c, and scattering angles from 3 to 90 deg c.m. For high-momentum transfer, a CH₂ target was used, and one, or in some cases both, scattered protons were detected by scintillation counters. The momentum interval for the scattered protons was selected by means of a 16 deg deflecting magnet, and magnetic quadrupoles were used to increase the effective solid angle. A similar system was used to detect protons scattered at nearly 180 deg c.m. from a hydrogen gas target. The observed cross section for high-momentum transfer is much larger than the value extrapolated from lower-momentum transfers if we assume a simple exponential law. Low-momentum-transfer measurements were made to approximately $\pm 1\%$ statistical accuracy.

*Work done under the auspices of the U. S. Atomic Energy Commission.

Abstract for APS Meeting-Denver, Colorado, June 25-27, 1964.