

Lawrence Berkeley National Laboratory

LBL Publications

Title

Summary of the Research Progress Meeting of June 5, 1952

Permalink

<https://escholarship.org/uc/item/4j83r3g1>

Author

Shewchuck, Sergey

Publication Date

1952-07-01

UNIVERSITY OF CALIFORNIA - BERKELEY

UCRL- 1873

UNCLASSIFIED

CY-2

TWO-WEEK LOAN COPY

*This is a Library Circulating Copy
which may be borrowed for two weeks.
For a personal retention copy, call
Tech. Info. Division, Ext. 5545*

RADIATION LABORATORY

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.

UNIVERSITY OF CALIFORNIA

Radiation Laboratory

Contract No. W-7405-eng-48

SUMMARY OF THE RESEARCH PROGRESS MEETING OF JUNE 5, 1952

Sergey Shewchuck

July 11, 1952

Some of the results reported in this document may be of a preliminary or incomplete nature. It is the request of the Radiation Laboratory that the document not be circulated off the project nor the results quoted without permission.

Berkeley, California

SUMMARY OF WEEKLY RESEARCH PROGRESS MEETING OF JUNE 5, 1952

Sergey Shewchuck

July 11, 1952

I. Cloud Chamber Investigation of Low Energy Range-Energy Relations. R.G. Mills

The basis of this talk was a thesis report UCRL-1815, entitled "A Cloud Chamber Investigation of Low Energy Range-Energy Relations", dated May 13, 1952, by Robert Gail Mills. The abstract is quoted as follows:

"An expansion cloud chamber has been developed which operates at a pressure before the expansion in the region of 45 millimeters of mercury. This chamber has been applied to the investigation of the range-energy relations for protons, alpha particles, and oxygen ions in the kilovolt region using elastic recoils from mono-energetic neutrons. These curves are presented. A discussion of the chamber and general considerations in the design of low pressure cloud chambers are included."

II. π^- / π^+ at the Synchrotron. J. Carothers.

This talk likewise was based on a thesis report UCRL-1829, entitled "On the Ratio of π^+ to π^- Mesons Produced by Gamma Rays", dated June 1952, by James Edward Carothers. The abstract is quoted as follows:

"The minus to plus production ratio for pi mesons produced in the 320 Mev photon beam of the Berkeley synchrotron has been measured at 60° , 90° and 150° to the beam for beryllium and at 90° for carbon. Identification of the mesons was made by using a magnet to select a desired momentum interval, and measuring the velocity of the particles delivered by the magnet. The results were:

	Be	C
60°	1.93 ± 0.12	
90°	1.96 ± 0.10	1.27 ± 0.06
150°	1.92 ± 0.11	

The relative production of positive and negative mesons at 90°, per proton for positives and per neutron for negatives, from beryllium and carbon was:

$$\frac{\pi^+_{\text{Be}}}{\pi^+_{\text{C}}} = 1.24 \pm 0.09 ; \quad \frac{\pi^-_{\text{Be}}}{\pi^-_{\text{C}}} = 1.44 \pm 0.08$$

The limits shown are in terms of standard deviation."