FINAL REPORT

INVESTIGATION OF NUCLEAR-ENERGY LEVELS

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Project 1670-2

OFFICE OF NAVAL RESEARCH, U. S. NAVY DEPARTMENT
CONTRACT N5onr 116, PROJECT ORDER III, ONR PROJECT NRO24-01

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This contract dealing with the Investigation of Nuclear-Energy Levels was terminated on April 1, 1955. It has been superseded by another contract continuing the same investigation.

During the life of the contract, from June, 1946, until its termination, some 64 publications dealing with new data on the structure of various nuclei have appeared, mainly in The Physical Review. A list of these titles follows:

1947


1948

1949


1950

1951


1952


1953


The Decay of Rh104m (4.3 min) and Rh104 (44 sec) (with W. C. Jordan and S. B. Burson). Phys. Rev., 90, 862 (1953).
1953 (concluded)

The Radiations of $^{64}$Gd$^{159}$ (18 hr) and $^{64}$Gd$^{161}$ (3.7 min) (with W. C. Jordan and S. B. Burson). Phys. Rev., 92, 315-18 (1953).
Decay of $^{66}$Y$^{165m}$ (1.2 min) and $^{68}$Y$^{165}$ (2.3 hr) (with W. C. Jordan and S. B. Burson). Phys. Rev., 92, 1218-21 (1953).

1954


1955

This project has very materially aided in the educational development of several graduate students in physics. Some have taken positions on receiving the master's degree, while others have continued through the completion of their work for the doctor's degree.

Students receiving M.S. degree—

John Sazyinski  G. D. Hickman
Charles E. Branyan  Wm. H. Nester
Wm. J. Childs  F. B. Stumpf
H. Nine

Students continuing Ph.D. work—

David W. Martin  L. K. Schmid
M. K. Brice

Students receiving the Ph.D. degree—

Robert G. Shreffler  Harry B. Keller
C. M. Fowler  W. C. Rutledge
Ernest Salmi  James M. LeBlanc
A. E. Stoddard  Wm. C. Jordan
Franklin B. Shull

Through the "Participating University Program" of the Argonne National Laboratory, a portion of this investigation has been carried on continuously near their reactor. This has enabled the study to deal with very short-lived radioactivities. Students taking advantage of this arrangement have been temporary members of the section directed by Dr. S. B. Burson.

The apparatus used in the beginning consisted mainly of photographic magnetic spectrometers and a special double-focusing spectrometer for beta-ray studies. Scintillation crystal apparatus has been added, allowing coincidence and summation observations to be made to supplement spectrometer data. At Argonne a hundred-channel pulse-height analyzer has been available for the students' use.

It is proposed to pursue the same objective under the continuing contract.