1939

Apparatus for Producing Soft X-Rays

F. M. Bailey

*Iowa State College*

Copyright © Copyright 1939 by the Iowa Academy of Science, Inc.
Follow this and additional works at: https://scholarworks.uni.edu/pias

Recommended Citation

Available at: https://scholarworks.uni.edu/pias/vol46/iss1/76

This Research is brought to you for free and open access by UNI ScholarWorks. It has been accepted for inclusion in Proceedings of the Iowa Academy of Science by an authorized editor of UNI ScholarWorks. For more information, please contact scholarworks@uni.edu.
A DEUTERIUM—DEUTERIUM SOURCE OF NEUTRONS

VICTOR YOUNG

A single section accelerator tube built for 300 to 400 k.v. is used to accelerate a beam of deuterons obtained from a conventional arc discharge source. The beam impinges on a target of $\text{P}_2\text{O}_5 + \text{H}_2\text{O}$ producing neutrons according to the reaction

$$\text{H}_2 + \text{H}_2^* = \text{H}_3 + \text{n}$$

The target assembly is immersed in a tank of water which because of the elastic $\text{H}^1$ and $\text{n}$ collisions becomes a source of thermal neutrons.

Detection is accomplished by placing a piece of silver in the tank. The silver becomes artificially beta radioactive by the well known reactions

$$\text{Ag}^{108} + \text{n} \rightarrow \text{Ag}^{109}$$

$$\text{Ag}^{109} \rightarrow \text{Cd}^{109} + \text{e}^-$$

Since the half life of the beta activity is something over three minutes there is ample time to remove the silver from the tank and detect the beta particles with a thin walled Geiger-Müller counter.

DEPARTMENT OF PHYSICS,
STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

APPARATUS FOR PRODUCING SOFT X-RAYS

F. M. BAILEY

A 30-watt soft x-ray apparatus has been designed to provide a simple and economical source of soft x-rays for radiography in the wavelength region between 1.1 and 0.6 Angstroms. The x-ray tube was constructed of pyrex, and a thin spherical window incorporated for transmitting the radiation. The electrical equipment was built from standard laboratory parts, employing a neon sign transformer as a source of potential.

DEPARTMENT OF PHYSICS,
IOWA STATE COLLEGE,
AMES, IOWA.

Published by UNI ScholarWorks, 1939