

14. MEASUREMENT OF STOPPING POWERS OF HEAVY IONS ON SILICON USING SANDWICH TARGETS

V.H. Rotberg, M.M. Vilela* and A.C.C. Villari*

The most accurate procedure to measure stopping powers is to produce foils of materials and measure the energy loss using the so called "half moon method". For certain materials, however, self supporting foils cannot be made and other techniques must be used. Such is the case for silicon where many attempts have failed until now to produce a self supporting target.

We have successfully fabricated a thick sandwich target of silicon and measurements are now being carried out. The target consists of a silicon layer sandwiched between two thin gold layers and this whole structure is supported by a thick nickel foil (see Fig. 1).

The procedure is to measure the backscattered spectrum from the target. Figure 2 shows a typical measurement. The difference in energy between the two thin peaks of ^{160}O backscattered from the gold layers can be used to calculate the

stopping powers by a procedure developed by Warters¹⁾.

REFERENCES:

- 1) W.P. Warters (thesis) California Institute of Technology (1953).

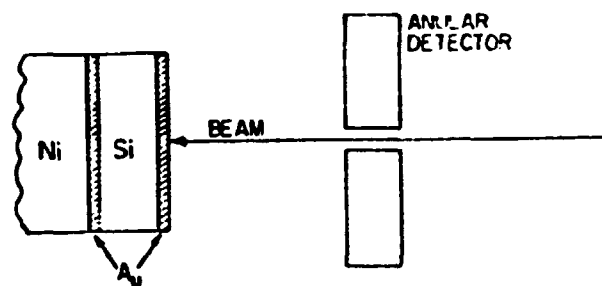


FIG 1

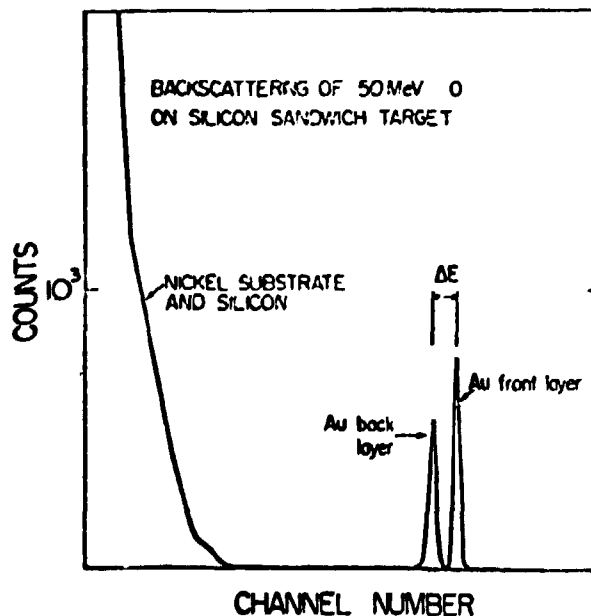


FIG 2

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