

# An Intense Slow Positron Production for 15 MeV LINAC at Argonne National Laboratory

Hongmin Chen<sup>1</sup>, Y.C. Jean<sup>1</sup>, C.D. Jonah<sup>2</sup>, S. Chemerisov<sup>2</sup>, A. F. Wagner<sup>2</sup>, and D.M. Schrader<sup>3</sup>, A. W. Hunt<sup>4</sup>

<sup>1</sup>Department of Chemistry, University of Missouri-Kansas City  
Kansas City, MO 64110

<sup>2</sup>Chemistry Division, Argonne National Labs, Argonne, IL 60439

<sup>3</sup>Department of Chemistry, Marquette University, Milwaukee, WI 53233

<sup>4</sup>Idaho Accelerator Center, Idaho State University, Pocatello, ID, 83209-8263

e-mail:jeany@umkc.edu

## Abstract

An intense slow positron beam using a 20 MeV LINAC (average current  $1.25 \times 10^{15} \text{ e}^-/\text{s}$ ) at the Radiation and Photochemistry group, Chemistry Division of Argonne National Laboratory (ANL) has been proposed and studied. Computer simulated results by optimizing the positron yield and distribution of energy and angle show that a slow positron production at  $10^{10} \text{ e}^+/\text{s}$  is promising. A proposed design of intense slow positron beam with optimal conditions of incident electron/converter configuration, moderation, and extraction/transportation will be presented.

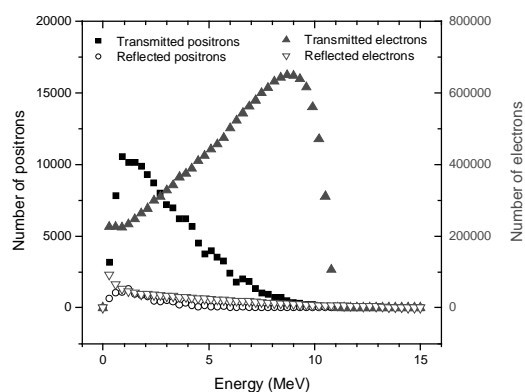


Figure 1 Simulated positron and electron energy distributions for 2 mm Ta converter for  $10^6 \text{ e}^-$  from LINAC at the normal incident angle .

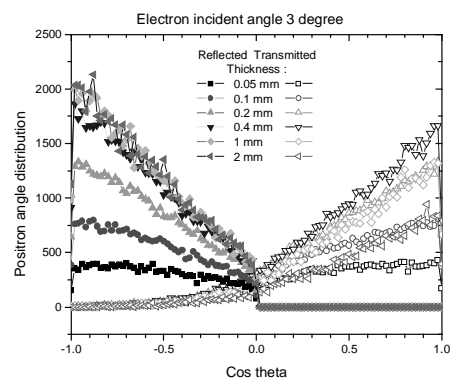


Figure 2 Simulated positron angle distribution at different thickness of Ta converter for incident angle=  $3^\circ$ .

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