

MORE CALCULATIONS BY PHOTOPION YIELDS

By

K. G. Dedrick

In a previous memorandum<sup>1</sup> photopion yields were calculated according to the statistical model. In Section II of that memorandum, the photon absorption cross-section is discussed and is taken to be proportional to  $(1/K^2)$ , where  $K$  is the photon energy seen in the center of mass of the photon-nucleon system. The  $(1/K^2)$  dependence is then multiplied by a suitable factor so that the cross-section is  $2 \times 10^{-28} \text{ cm}^2$  when the laboratory photon energy is 300 Mev. It is of interest to examine the results of the entire calculation when this cross-section is chosen to be independent of  $K$ . In the numerical work shown in Figs. 1 - 4, we have taken  $\sigma = 1 \times 10^{-28} \text{ cm}^2$  for all photon energies. The yield spectra are seen to be of considerably greater magnitude for large pion energies, and are expected to modify mu-meson shielding requirements considerably.

---

<sup>1</sup>K. G. Dedrick, "Calculation of Pion Photoproduction in Electron Accelerators According to the Statistical Model," Report M-228, W. W. Hansen Labs of Physics, Stanford University, Stanford, Calif.

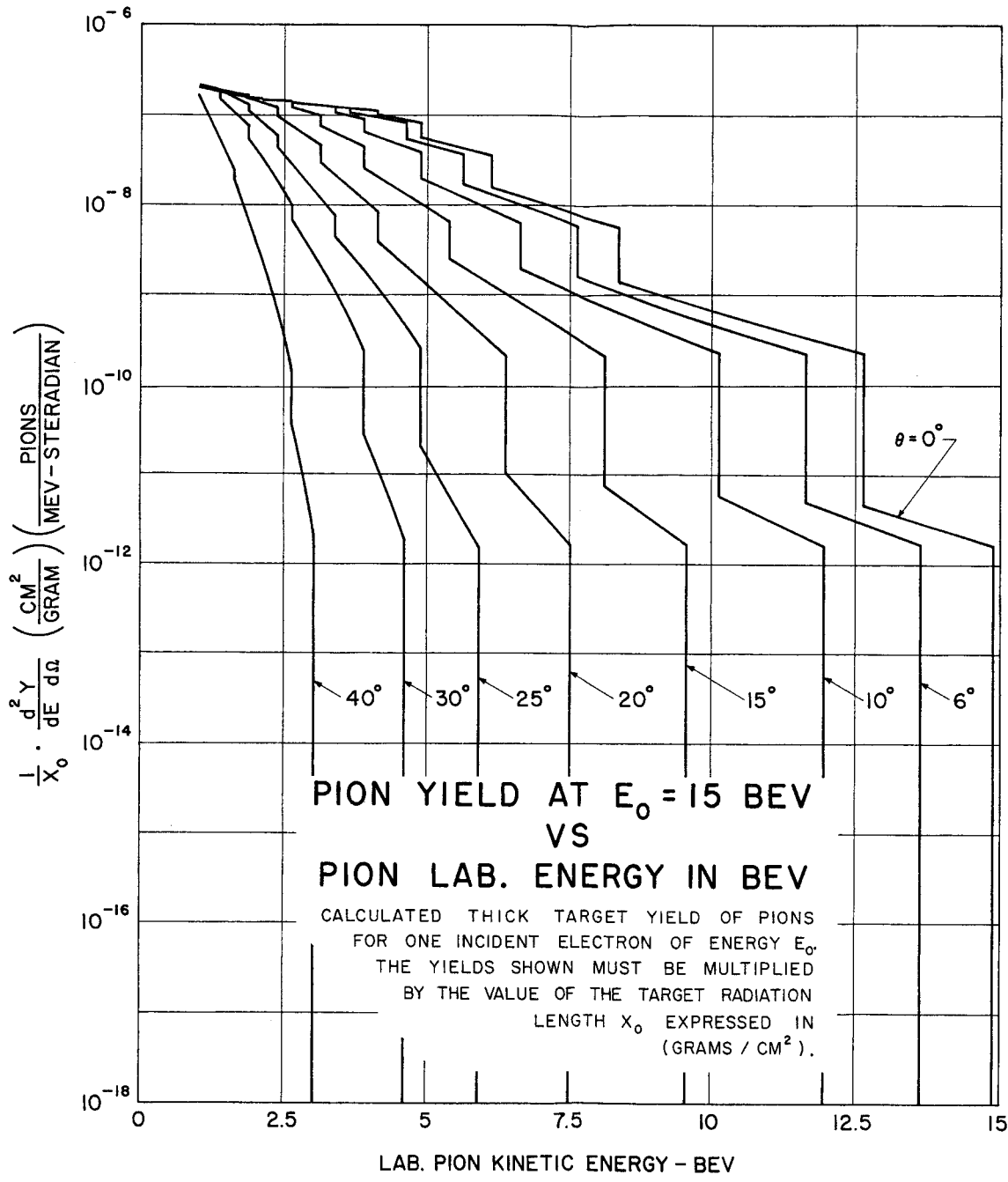


Figure 2

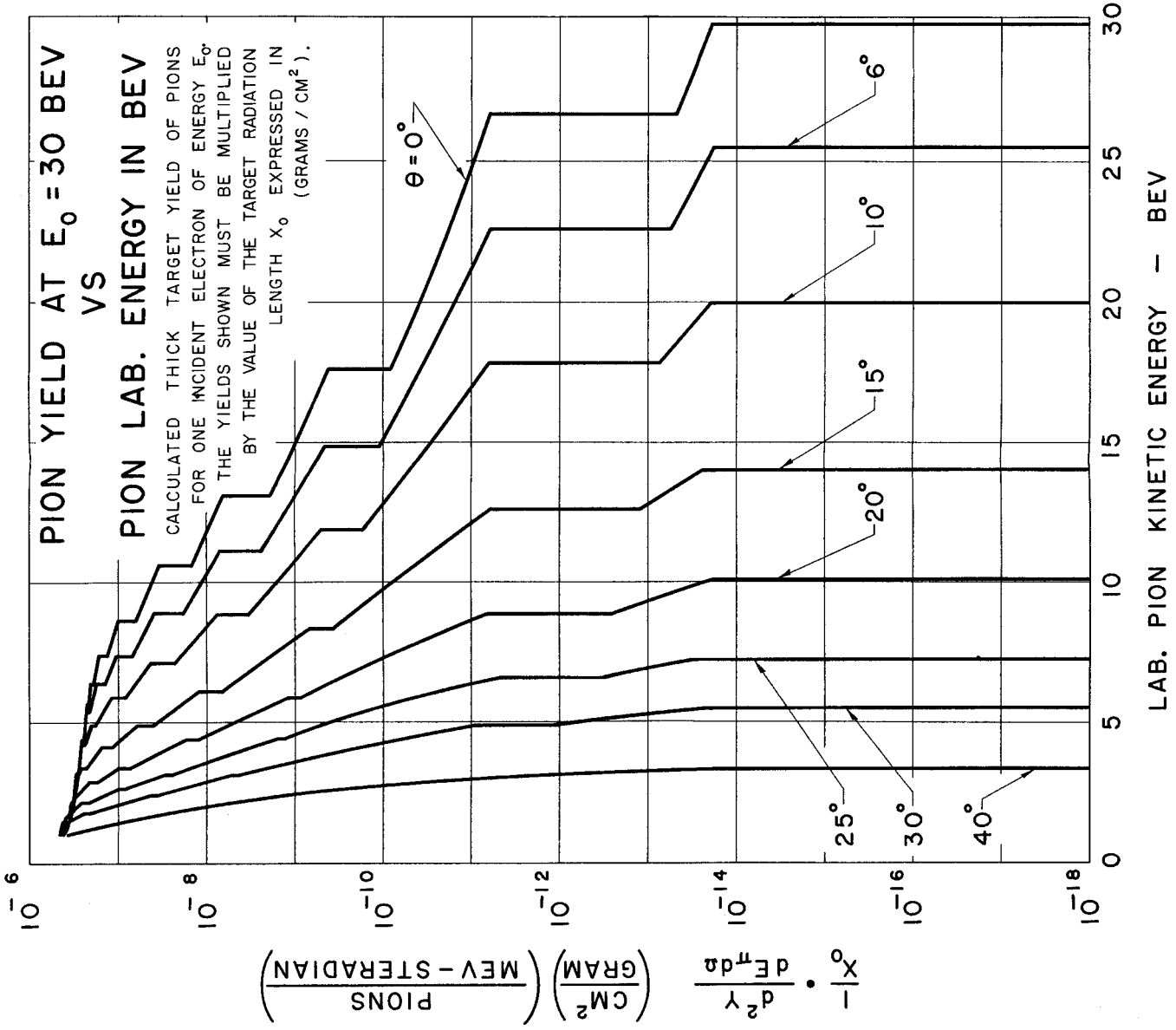


Figure 3

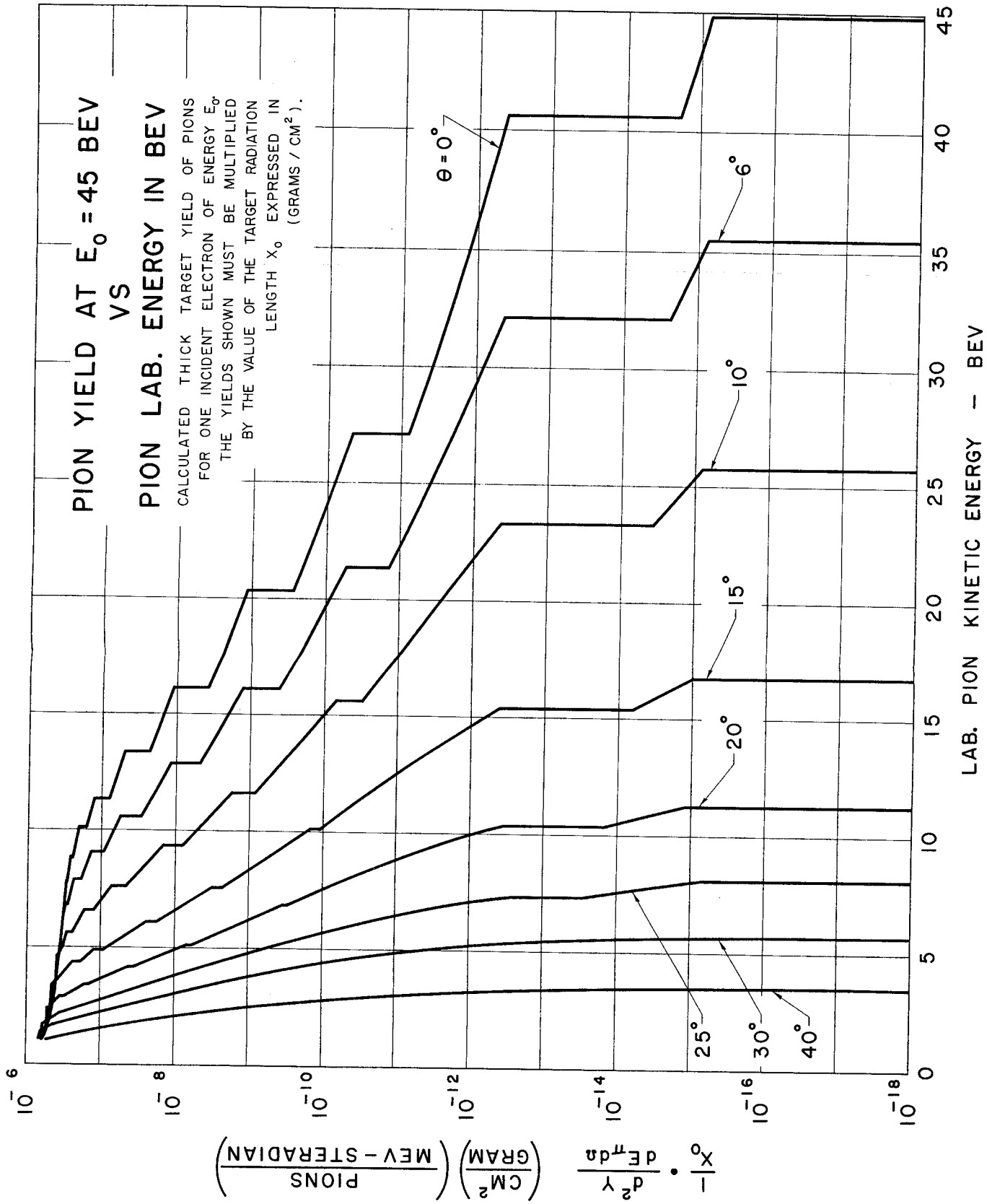


Figure 4