- 1 -

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Abstract

Photoproduction of Mesons from Hydrogen. A. S. BISHOP, J. STEINBERGER
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Using the delayed coincidence technique^{1,2} for detection of artificially produced mesons, we have measured the energy distribution of π^+ mesons from hydrogen. These mesons are formed when the x-ray beam from the 335 Mev electron synchrotron strikes a liquid hydrogen target. Since the photons are completely absorbed in the process of meson creation, there is an exact relationship (for a given angle of emission of mesons) between the energy of the meson and the energy of the photon responsible for its creation. Thus, using the measured energy distribution of the mesons at 90° , and the energy distribution of the photons from the synchrotron, we have determined the excitation function for photoproduction of mesons at 90° . This function increases rather slowly and flattens off for photon energies above about 280 Mev.

This work was performed under the auspices of the Atomic Energy Commission

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¹P. Rasetti, Phys. Rev. 60, 198 (1941)

²J. Steinberger and A. S. Bishop, Bull. Am. Phys. Soc. 25, 11, 1950

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