THE (p,xn) REACTION FROM PROTONS ON BISMUTH AT INTERMEDIATE ENERGIES.

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Excitation functions for the production of Po isotopes A = 202, 204, 206, 208, 209 and 210 from 62-185 MeV proton bombardment of bismuth were measured. This work extends previous data[1,2,3] to higher energies with additional yield information for the more deficient isotopes. This work is an extension of the study of pion production at threshold and in particular is being used to compare existing pre-equilibrium and cascade codes for direct interaction mechanisms in the intermediate energy range. In particular we are interested in the high-energy exponential tail of the excitation functions. Of further interest are calculations of the (p,γ) and (p,π^o) contributions.

In Figure 1 is shown the excitation functions for the production of 210, 209, 208 and 206 polonium isotopes from protons on bismuth. Included with the experimental data are results of an ALICE-Hybrid[4] calculation in the simplest approximation with no spin dependence taken into account. The excitation functions in the 60-180 MeV range are in general agreement, but clearly the precise slope and magnitudes are not determined. Further measurements to higher energies and more refined calculations are planned.

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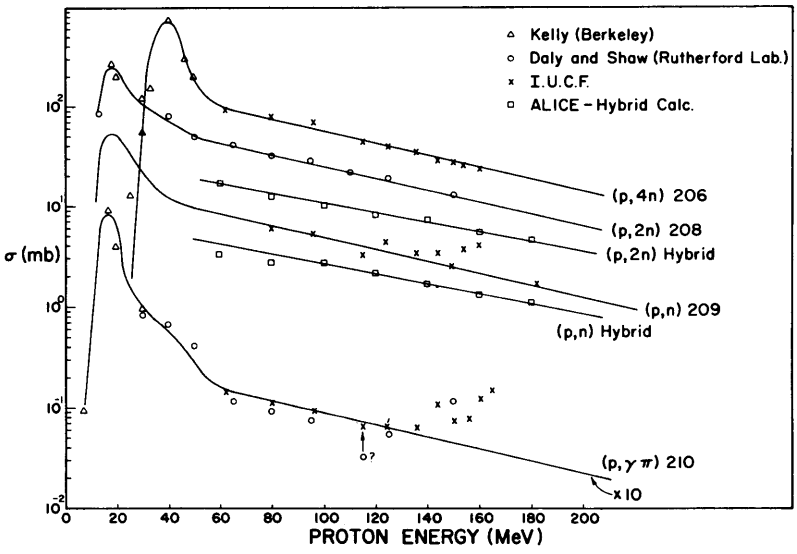

Figure 1.