

MeV data of Comparat *et al.*⁴ (Fig. 1). There is no reference to these data in their paper. Reference is made, however, to unpublished work of Gotow at 203 MeV (Ref. 7), but these measurements do not cover $\theta_{c.m.} > 90^\circ$.

(2) A structure appearing in their data in the region of $t \sim -1$ (GeV/c)² is commented on in connection with the Glauber model calculation.¹ We point out that this structure has previously been noted at 438 and 648 MeV (Ref. 6).

(3) For backward angles, the situation is similar; their data fall nicely between those of Ref. 5, which they do not refer to, and those of McCamis *et al.*³

In their discussion¹ about the need for measurements at 275, 425, and above 600 MeV, they do not refer to extant, though "not complete," data at 298, 438, and 648 MeV (Refs. 5 and 6).

At 788 MeV, there also exists a complete angular distribution.⁸ Furthermore, a sharp backward peak has already been observed at $T_p = 1.05$ GeV (Refs. 6 and 9).

To consider our second point, Fig. 1 shows smooth energy behavior for the proton-⁴He elastic differential cross section at small t (forward angles). This

behavior is consistent when higher energy data (up to about $T = 5$ GeV) are added to the comparison [see data of Nasser *et al.* at $T_p = 2.68$ GeV (Ref. 10) and $T_p = 4.89$ GeV (Ref. 11)]. This illustrates our proposal that the "intermediate energy range" be defined between $T_p \sim 0.1$ and 5 GeV.

For backward angles the situation is more complex, as is readily shown by the data at 298, 438, 648, and 840 MeV (Ref. 5) and at 1.05 GeV (Ref. 9). In the latter, these data are compared with data obtained at very low energies (a few MeV) and with predictions based on the triton-exchange mechanism.⁹ The "intermediate energy range" therefore appears to merge continuously into the low energy region, which suggests that, for backward angles, it is difficult to define an energy as being "intermediate."

To summarize, we have drawn attention to the importance of considering the complete body of data on proton-⁴He scattering that exists at intermediate energies in order to arrive at the fullest understanding of the very beautiful data of Moss *et al.* Without this consideration, there may result for the reader an incomplete picture of the state of knowledge of proton-⁴He scattering at intermediate energies.

¹G. A. Moss *et al.*, Phys. Rev. C **21**, 1932 (1980).

²A. W. Stetz *et al.*, Nucl. Phys. **A290**, 285 (1977).

³R. H. McCamis *et al.*, Nucl. Phys. **A302**, 388 (1978).

⁴V. Comparat *et al.*, Phys. Rev. C **12**, 251 (1975).

⁵J. Berger *et al.*, Phys. Lett. **63B**, 111 (1976).

⁶J. Berger *et al.*, Phys. Rev. Lett. **37**, 1195 (1976).

⁷K. Gotow, University of Rochester, Report No. NYO-2532, 1959 (unpublished).

⁸J. Fong *et al.*, Phys. Lett. **78B**, 205 (1978).

⁹J. Berger *et al.*, Phys. Rev. Lett. **41**, 152 (1978).

¹⁰M. A. Nasser *et al.*, Nucl. Phys. **A312**, 209 (1978).

¹¹M. A. Nasser *et al.*, Phys. Rev. C **17**, 1748 (1978).

Response to Comment

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A response to the Comment on proton-⁴He elastic scattering at intermediate energies is presented.

Goldzahl and Plouin¹ comment on the lack of a complete list of references relating to published data near the energies reported in our paper. Since our publication was not intended to review the entire field of proton-⁴He elastic scattering, our new data were compared only to the most recent existing data at the nearest relevant energy. Our earlier papers,² which dealt directly with the large- and small-angle

scattering regimes, contained further references to extant, relevant data, including that of Goldzahl.

The choice of the title of our paper, made with brevity and conciseness in mind, was perhaps more inclusive than it should have been. However, a reading of the abstract leaves no ambiguity regarding the paper's intended goals.

¹L. Goldzahl and F. Plouin, Phys. Rev. C **26**, 744 (1982) (preceding Comment).

²R. H. McCamis *et al.*, Nucl. Phys. **A302**, 388 (1978) and

references therein; J. M. Cameron *et al.*, Phys. Lett. **74B**, 31 (1978), and references therein.