

Reply to "Comment on 'Pion-nucleon partial-wave analysis to 2 GeV' "

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We have analyzed elastic pion-nucleon scattering data to approximately 2 GeV, extracting partial-wave amplitudes, resonance information, and the pion-nucleon coupling constant. Dowell and Rebka have noticed an error in our low-energy charge-exchange cross sections. We consider the effect of this error on the above-mentioned quantities.

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The authors of the preceding Comment [1] point out that differential cross sections for the charge-exchange reaction are sensitive to mass differences at low incident pion energies. As a small number of very low energy (below 50 MeV) charge-exchange cross sections exists, these mass differences should be taken into account. We have made the $p_{c.m.x}/p_{c.m.}$ correction suggested in the Comment and find an improved fit to these measurements.

Given that many users access our SAID program, we should also point out those aspects of our analyses which have not been altered by this correction to the charge-exchange cross sections. We have found that our energy-dependent solution is not significantly altered when this correction is applied in a reanalysis of the full database. We have also regenerated the χ^2 maps used to determine

the πNN coupling constant [2], finding no change. Similarly, none of our resonance parameter determinations are changed by this correction.

As Dowell and Rebka mention a number of experiments utilizing the SAID program in order to calibrate instrumentation, we have checked to see if the above-mentioned correction could have had an important effect. References [6–10] quoted in the Comment deal with energy regions above 150 MeV where this correction is very small and is masked by other systematic errors. Systematic errors would also mask this correction in the experiment quoted in Ref. [11] of the Comment. Reference [12] of the Comment provides too few details for an informed assessment. In this case, however, the energy region is sufficiently low to warrant a check using a current version of the SAID program [3].

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- [1] M.L. Dowell and G.A. Rebka, Jr., preceding Comment, Phys. Rev. D **52**, 5378 (1995).
 - [2] R.A. Arndt, R.L. Workman, and M.M. Pavan, Phys. Rev. C **49**, 2729 (1994).
 - [3] Users of the SAID program are encouraged to ac-

cess it via a telnet link to vtinte.phys.vt.edu (with userid/password: physics/quantum) or through the internet at <http://clsaid.phys.vt.edu> as these links will provide the most recent results.