Errata

Erratum: Coupled channels analysis of ^{12}C(π, π) at low energy [Phys. Rev. C 40, 1741 (1989)]

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The second derivative used in the angle transformation term $(\nabla^2 \rho)$ in the transition potential was computed incorrectly for the Ingemarsson and Jonsson (IJ) density. Calculations done with the correct derivatives show much smaller differences between this and the Sparrow and Gerace (SG) transition density discussed in the text. The corrected calculation produces a smaller direct transition that lowers this contribution to the cross section at forward angles for both 50 and 65 MeV. At the higher energy, the primary effect is to fill in the very deep minimum seen in Figs. 6, 8, and 12. This does not qualitatively change the discussion of the monopole transition at 65 MeV. The discussion of the details of the one- and two-step interference at either energy is similarly unaffected. Figures 5, 7, and 10, which show the full 50 MeV calculation with the IJ density, however, are more significantly altered. The figure below replaces Fig. 10 in the paper. The results are seen to be more sensitive to the choice of potential than to the choice of transition density. Although all the calculations underestimate the data at this energy, the MSUT calculations better approximate the angular distribution, especially at forward angles. The cross section is quite sensitive to the proper inclusion of the angle transform at this energy. The effect of this correction emphasizes the increasing sensitivity of this transition with decreasing energy.

This correction does not change the conclusion of the paper. Although the agreement at 50 MeV is not as good, the coupled channels calculation more nearly reproduces the angular distribution at both energies. The larger discrepancy at 50 MeV, where the interaction is weaker and the pions more penetrating, reinforces the need for careful attention to the transition between excited states.
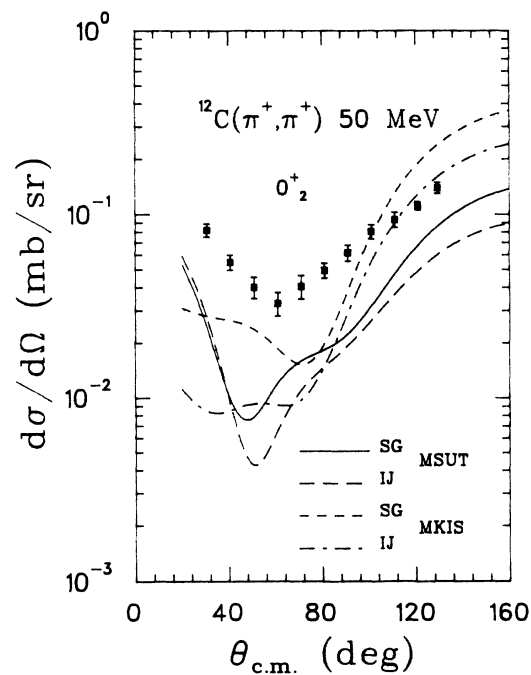

FIG. 10. This figure replaces Fig. 10 in the text. The corrected curves for the IJ density also replace the curves showing the full 50-MeV calculations seen in Figs. 5 and 7.