



**Figure 3:** On the **left**, the intensities of the  $1^{-+}$   $M=1$  waves are plotted, showing no clear evidence for resonant structure, as is true for the  $1^{-+}$   $M=0$  wave (not shown). On the **right** is an overlay of the  $1^{-+} - 2^{-+}$  phase motion for both the presented CLAS result and the results reported by E852 in [4]. One can see a clear turning-over of the E852 phase, indicative of interference between two Breit-Wigner forms. The CLAS phase has a steady decrease, indicative of a resonating  $\pi_2$  being subtracted from a nonresonant  $1^{-+}$ , as shown by the curve.

Figure 3, one can compare directly between the phase observed in [4] and the phase we observe, and where there is a clear turning-over in the E852 data, our data shows a clear downward trend, indicative of a resonant  $2^{-+}$  subtracted from a nonresonant background. Thus our preliminary conclusion is that there is no evidence for the presence of a  $1^{-+}$  resonance in our data sample. These results are not necessarily in conflict with past pion-production results; the analyses in [4] and [5] examine diffractive processes while this analysis proceeds via charge exchange. Thus we can explain the discrepancy if we posit that the  $\pi_1(1600)$  is produced via Pomeron exchange.

## References

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