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A STUDY OF 10,000 τ^+ DECAYS

W. Ralph Butler, Roger W. Bland, Gerson Goldhaber, Sulamith Goldhaber, Allan A. Hirata, Thomas O'Halloran, George H. Trilling, and Charles G. Wohl

November 1968

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UNIVERSITY OF CALIFORNIA

Lawrence Radiation Laboratory
Berkeley, California

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Addendum:

We have used an improved method to fit the various distributions described in Tables I and II; also we have used smaller bins for the two-dimensional fitting. This addendum supplies Tables I and II to replace the existing ones.

The improvement consists of two facets. First, the weighting procedure for both coulomb effects and phase space was eliminated by integrating the assumed distribution over each bin to predict the expected number of events in that bin. This expected number is then compared with the observed number in that bin. Second, the distribution is constrained to give exactly the total number of events in the plot; this constraint was not applied in the original version of Tables I and II. Finally, the Dalitz plot was partitioned into 170 bins rather than the 44 used in the previous 2-D fit.

These improvements did not modify the previous results except that the x^2y^2 term, mentioned in the text, cannot be considered statistically significant.

Table I. Fit to x and y projection.

A. Fit of the y projection to $(1 + ay + by^2)$

Coulomb factor included:	a	b	d.f.	x^2	C.L.
Linear fit	0.277 ± .020	-	18	22.0	23%
Quadratic fit	0.294 ± .022	.099 ± .046	17	17.0	45%
No Coulomb factor:					
Linear fit	0.244 ± .020	-	18	18.9	40%
Quadratic fit	0.253 ± .022	0.061 ± .045	17	17.0	45%

B. Fit of the x projection to $(1 + cx^2)$

Coulomb factor included:	c	d.f.	x^2	C.L.
Constant fit	-	19	14.8	74%
Quadratic fit	0.005 ± .044	18	14.8	68%
No Coulomb factor:				
Constant fit	-	19	15.2	71%
Quadratic fit	.046 ± .045	18	14.1	72%

Table II. Two-dimensional fit to Dalitz plot with Coulomb factor included.

Fit Dalitz plot to $(1 + a_1 y + a_2 y^2 + a_3 x^2 + a_4 x^2 y + a_5 x^2 y^2)$

	a_1	a_2	a_3	a_4	a_5	d.f.	x^2	x^2/d.f.
a_1	0.280 ± 0.020	-	-	-	-	168	158.1	.941
a_1, a_2	0.297 ± 0.022	0.099 ± 0.046	-	-	-	167	153.0	.916
a_1, a_3	0.280 ± 0.020	-	-0.048 ± 0.041	-	-	167	156.8	.939
a_1, a_5	0.282 ± 0.020	-	-	-	0.365 ± 0.222	167	155.2	.929
a_1, a_2, a_3	0.296 ± 0.022	0.093 ± 0.048	-0.019 ± 0.046	-	-	166	152.9	.921
all above[a]	0.274 ± 0.030	0.038 ± 0.058	-0.070 ± 0.056	0.100 ± 0.122	0.408 ± 0.289	164	150.3	.916

[a]We have also fitted using all allowed terms up to fourth order and find the other terms are consistent with zero.

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