| | Mode | | Rate ($10^8$ s$^{-1}$) | Scale factor |
|---|---|---|---|---|
| $\Gamma_1$ | $3\pi^0$ | | $0.0419\pm0.0016$ | 1.4 |
| $\Gamma_2$ | $\pi^+\pi^-\pi^0$ | | $0.0239\pm0.0004$ | 1.4 |
| $\Gamma_3$ | $\pi^\pm\mu^\mp\nu$ Called $K^0_{\mu3}$. | [a] | $0.0522\pm0.0008$ | 1.2 |
| $\Gamma_6$ | $\pi^\pm e^\mp\nu$ Called $K^0_{e3}$. | [a] | $0.0748\pm0.0011$ | 1.3 |
| $\Gamma_9$ | $2\gamma$ | | $(1.11\pm0.05)\times10^{-4}$ | 1.9 |
| $\Gamma_{16}$ | $\pi^+\pi^-$ | | $(3.93\pm0.08)\times10^{-4}$ | 1.2 |
| $\Gamma_{17}$ | $\pi^0\pi^0$ | | $(1.77\pm0.07)\times10^{-4}$ | 1.7 |

## $K^0_L$ DECAY RATES

### $\Gamma(3\pi^0)$ — $\Gamma_1$

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **4.19±0.16 OUR FIT** | Error includes scale factor of 1.4. | | | | |
| **$5.22^{+1.03}_{-0.84}$** | 54 | BEHR | 66 | HLBC | Assumes *CP* |

### $\Gamma(\pi^+\pi^-\pi^0)$ — $\Gamma_2$

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **2.39±0.04 OUR FIT** | Error includes scale factor of 1.4. | | | | |
| **2.38±0.09 OUR AVERAGE** | | | | | |
| $2.32^{+0.13}_{-0.15}$ | 192 | BALDO-... | 75 | HLBC | Assumes *CP* |
| $2.35\pm0.20$ | 180 | [7] JAMES | 72 | HBC | Assumes *CP* |
| $2.71\pm0.28$ | 99 | CHO | 71 | DBC | Assumes *CP* |
| $2.12\pm0.33$ | 50 | MEISNER | 71 | HBC | Assumes *CP* |
| $2.20\pm0.35$ | 53 | WEBBER | 70 | HBC | Assumes *CP* |
| $2.62^{+0.28}_{-0.27}$ | 136 | BEHR | 66 | HLBC | Assumes *CP* |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| $2.5\pm0.3$ | 98 | [7] JAMES | 71 | HBC | Assumes *CP* |
| $3.26\pm0.77$ | 18 | ANDERSON | 65 | HBC | |
| $1.4\pm0.4$ | 14 | FRANZINI | 65 | HBC | |

In the fit this rate is well determined by the mean life and the branching ratio $\Gamma(\pi^+\pi^-\pi^0)/\left[\Gamma(\pi^+\pi^-\pi^0)+\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)\right]$. For this reason the discrepancy between the $\Gamma(\pi^+\pi^-\pi^0)$ measurements does not affect the scale factor of the overall fit.

[7] JAMES 72 is a final measurement and includes JAMES 71.

### $\Gamma(\pi^\pm\mu^\mp\nu)$ — $\Gamma_3$

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN |
|---|---|---|---|---|
| **5.22±0.08 OUR FIT** | Error includes scale factor of 1.2. | | | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $4.54^{+1.24}_{-1.08}$ | 19 | LOWYS | 67 | HLBC |

### $\Gamma(\pi^\pm e^\mp\nu)$ — $\Gamma_6$

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **7.48±0.11 OUR FIT** | Error includes scale factor of 1.3. | | | | |
| **7.7 ±0.5 OUR AVERAGE** | | | | | |
| $7.81\pm0.56$ | 620 | CHAN | 71 | HBC | |
| $7.52^{+0.85}_{-0.72}$ | | AUBERT | 65 | HLBC | $\Delta S=\Delta Q$,*CP* assumed |

### $\Gamma(\pi^+\pi^-\pi^0)+\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)$ — $(\Gamma_2+\Gamma_3+\Gamma_6)$

$K^0_L\to$ charged.

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN |
|---|---|---|---|---|
| **15.10±0.19 OUR FIT** | Error includes scale factor of 1.3. | | | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | |
| $15.1\pm1.9$ | 98 | AUERBACH | 66B | OSPK |

### $\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)$ — $(\Gamma_3+\Gamma_6)$

| VALUE ($10^6$ s$^{-1}$) | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **12.70±0.18 OUR FIT** | Error includes scale factor of 1.3. | | | | |
| **11.9 ±0.6 OUR AVERAGE** | Error includes scale factor of 1.2. | | | | |
| $12.4\pm0.7$ | 410 | [8] BURGUN | 72 | HBC | $K^+p\to K^0p\pi^+$ |
| $13.1\pm1.3$ | 252 | [8] WEBBER | 71 | HBC | $K^-p\to n\overline{K}^0$ |
| $11.6\pm0.9$ | 393 | [8,9] CHO | 70 | DBC | $K^+n\to K^0p$ |
| $9.85^{+1.15}_{-1.05}$ | 109 | [8] FRANZINI | 65 | HBC | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| $8.47\pm1.69$ | 126 | [8] MANN | 72 | HBC | $K^-p\to n\overline{K}^0$ |
| $10.3\pm0.8$ | 335 | [9] HILL | 67 | DBC | $K^+n\to K^0p$ |

[8] Assumes $\Delta S=\Delta Q$ rule.
[9] CHO 70 includes events of HILL 67.

## $K^0_L$ BRANCHING RATIOS

### $\Gamma(3\pi^0)/\Gamma(\pi^+\pi^-\pi^0)$ — $\Gamma_1/\Gamma_2$

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **1.75±0.08 OUR FIT** | Error includes scale factor of 1.4. | | | | |
| **1.81±0.13 OUR AVERAGE** | | | | | |
| $1.80\pm0.13$ | 1010 | BUDAGOV | 68 | HLBC | |
| $2.0\pm0.6$ | 188 | ALEKSANYAN | 64B | FBC | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| $1.65\pm0.07$ | 883 | BARMIN | 72B | HLBC | Error statistical only |

### $\Gamma(3\pi^0)/\left[\Gamma(\pi^+\pi^-\pi^0)+\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)\right]$ — $\Gamma_1/(\Gamma_2+\Gamma_3+\Gamma_6)$

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **0.277±0.013 OUR FIT** | Error includes scale factor of 1.5. | | | | |
| **0.260±0.011 OUR AVERAGE** | | | | | |
| $0.251\pm0.014$ | 549 | BUDAGOV | 68 | HLBC | ORSAY measur. |
| $0.277\pm0.021$ | 444 | BUDAGOV | 68 | HLBC | Ecole polytec.meas |
| $0.31^{+0.07}_{-0.06}$ | 29 | KULYUKINA | 68 | CC | |
| $0.24\pm0.08$ | 24 | ANIKINA | 64 | CC | |

### $\Gamma(\pi^+\pi^-\pi^0)/\Gamma_{total}$ — $\Gamma_2/\Gamma$

| VALUE | DOCUMENT ID |
|---|---|
| **0.1238±0.0021 OUR FIT** | Error includes scale factor of 1.5. |

### $\Gamma(\pi^+\pi^-\pi^0)/\left[\Gamma(\pi^+\pi^-\pi^0)+\Gamma(\pi^\pm\mu^\mp\nu)+\Gamma(\pi^\pm e^\mp\nu)\right]$ — $\Gamma_2/(\Gamma_2+\Gamma_3+\Gamma_6)$

| VALUE | EVTS | DOCUMENT ID | | TECN | COMMENT |
|---|---|---|---|---|---|
| **0.1586±0.0026 OUR FIT** | Error includes scale factor of 1.6. | | | | |
| **0.1588±0.0024 OUR AVERAGE** | Error includes scale factor of 1.4. See the ideogram below. | | | | |
| $0.163\pm0.003$ | 6499 | CHO | 77 | HBC | |
| $0.1605\pm0.0038$ | 1590 | ALEXANDER | 73B | HBC | |
| $0.146\pm0.004$ | 3200 | BRANDENB... | 73 | HBC | |
| $0.159\pm0.010$ | 558 | EVANS | 73 | HLBC | |
| $0.167\pm0.016$ | 1402 | KULYUKINA | 68 | CC | |
| $0.161\pm0.005$ | | HOPKINS | 67 | HBC | |
| $0.162\pm0.015$ | 126 | HAWKINS | 66 | HBC | |
| $0.159\pm0.015$ | 326 | ASTBURY | 65B | CC | |
| $0.178\pm0.017$ | 566 | GUIDONI | 65 | HBC | |
| • • • We do not use the following data for averages, fits, limits, etc. • • • | | | | | |
| $0.15^{+0.03}_{-0.04}$ | 66 | ASTBURY | 65 | CC | |
| $0.144\pm0.004$ | 1729 | HOPKINS | 65 | HBC | See HOPKINS 67 |
| $0.151\pm0.020$ | 79 | ADAIR | 64 | HBC | |
| $0.157^{+0.03}_{-0.04}$ | 75 | LUERS | 64 | HBC | |
| $0.185\pm0.038$ | 59 | ASTIER | 61 | CC | |