Meson Full Listings

$K^{\pm}$

$\Gamma(\pi^0 e^+ \nu_e)/\Gamma_{total}$ Γ_7/Γ

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
4.82±0.06 OUR FIT Error includes scale factor of 1.3.						
4.85±0.09 OUR AVERAGE						
4.86±0.10	3516	CHIANG	72	OSPK	+	1.84 GeV/c K^+
4.7 ±0.3	429	SHAKLEE	64	HLBC	+	
5.0 ±0.5		ROE	61	HLBC	+	
• • • We do not use the following data for averages, fits, limits, etc. • • •						
5.1 ±1.3		[31] ALEXANDER	57	EMUL	+	
3.2 ±1.3		[31] BIRGE	56	EMUL	+	

[31] Earlier experiments not averaged.

$\Gamma(\pi^0 e^+ \nu_e)/\Gamma(\mu^+ \nu_\mu)$ Γ_7/Γ_1

VALUE	EVTS	DOCUMENT ID		TECN	CHG
0.0759±0.0011 OUR FIT Error includes scale factor of 1.4.					
0.0752±0.0024 OUR AVERAGE					
0.069 ±0.006	350	ZELLER	69	ASPK	+
0.0775±0.0033	960	BOTTERILL	68C	ASPK	+
0.069 ±0.006	561	GARLAND	68	OSPK	+
0.0791±0.0054	295	[32] AUERBACH	67	OSPK	+

[32] AUERBACH 67 changed from 0.0797 ± 0.0054. See comment with ratio $\Gamma(\pi^0\mu^+\nu_\mu)/\Gamma(\mu^+\nu_\mu)$. The value 0.0785 ± 0.0025 given in AUERBACH 67 is an average of AUERBACH 67 $\Gamma(\pi^0 e^+\nu_e)/\Gamma(\mu^+\nu_\mu)$ and CESTER 66 $\Gamma(\pi^0 e^+\nu_e)/\left[\Gamma(\mu^+\nu_\mu)+\Gamma(\pi^+\pi^0)\right]$.

$\Gamma(\pi^0 e^+ \nu_e)/\Gamma(\pi^+\pi^0)$ Γ_7/Γ_3

VALUE	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
0.228±0.004 OUR FIT Error includes scale factor of 1.3.						
0.221±0.012	786	[33] LUCAS	73B	HBC	–	Dalitz pairs only

[33] LUCAS 73B gives N(K_{e3}) = 786 ± 3.1%, N(2π) = 3564 ± 3.1%. We divide.

$\Gamma(\pi^0 e^+ \nu_e)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_7/Γ_4

VALUE	EVTS	DOCUMENT ID		TECN	CHG
0.863±0.011 OUR FIT Error includes scale factor of 1.3.					
0.860±0.014 OUR AVERAGE					
0.867±0.027	2768	BARMIN	87	XEBC	+
0.856±0.040	2827	BRAUN	75	HLBC	+
0.850±0.019	4385	[34] HAIDT	71	HLBC	+
0.94 ±0.09	854	BELLOTTI	67B	HLBC	
0.90 ±0.06	230	BORREANI	64	HBC	+
• • • We do not use the following data for averages, fits, limits, etc. • • •					
0.846±0.021	4385	[34] EICHTEN	68	HLBC	+
0.90 ±0.16	37	YOUNG	65	EMUL	+

[34] HAIDT 71 is a reanalysis of EICHTEN 68.

$\Gamma(\pi^0 e^+ \nu_e)/\left[\Gamma(\mu^+\nu_\mu)+\Gamma(\pi^+\pi^0)\right]$ $\Gamma_7/(\Gamma_1+\Gamma_3)$

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	CHG
5.69±0.08 OUR FIT Error includes scale factor of 1.4.					
6.01±0.15 OUR AVERAGE					
5.92±0.65		[35] WEISSENBE...	76	SPEC	+
6.16±0.22	5110	ESCHSTRUTH	68	OSPK	+
5.89±0.21	1679	CESTER	66	OSPK	+

[35] Value calculated from WEISSENBERG 76 ($\pi^0 e\nu$), ($\mu\nu$), and ($\pi\pi^0$) values to eliminate dependence on our 1974 ($\pi 2\pi^0$) and ($\pi\pi^+\pi^-$) fractions.

$\Gamma(\pi^0\pi^0 e^+ \nu_e)/\Gamma(\pi^0 e^+ \nu_e)$ Γ_8/Γ_7

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	CHG
$4.3^{+0.9}_{-0.7}$ OUR FIT					
$4.1^{+1.0}_{-0.7}$ OUR AVERAGE					
$4.2^{+1.0}_{-0.9}$		25	BOLOTOV 86B	CALO	–
$3.8^{+5.0}_{-1.2}$		2	LJUNG 73	HLBC	+
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<37.0	90	0	ROMANO 71	HLBC	+

$\Gamma(\pi^0\pi^0 e^+ \nu_e)/\Gamma_{total}$ Γ_8/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	CHG
2.1 ±0.4 OUR FIT					
2.54±0.89	10	BARMIN	88B	HLBC	+

$\Gamma(\pi^+\pi^- e^+ \nu_e)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_9/Γ_4

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	CHG
6.99±0.30 OUR AVERAGE Error includes scale factor of 1.2.					
7.21±0.32	30k	ROSSELET	77	SPEC	+
7.36±0.68	500	BOURQUIN	71	ASPK	
7.0 ±0.9	106	SCHWEINB...	71	HLBC	+
5.83±0.63	269	ELY	69	HLBC	+
• • • We do not use the following data for averages, fits, limits, etc. • • •					
6.7 ±1.5	69	BIRGE	65	FBC	+

$\Gamma(\pi^+\pi^-\mu^+\nu_\mu)/\Gamma_{total}$ Γ_{10}/Γ

VALUE (units 10^{-5})	EVTS	DOCUMENT ID		TECN	CHG
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.77^{+0.54}_{-0.50}$	1	CLINE	65	FBC	+

$\Gamma(\pi^+\pi^-\mu^+\nu_\mu)/\Gamma(\pi^+\pi^+\pi^-)$ Γ_{10}/Γ_4

VALUE (units 10^{-4})	EVTS	DOCUMENT ID		TECN	CHG
2.57±1.55	7	BISI	67	DBC	+
• • • We do not use the following data for averages, fits, limits, etc. • • •					
~ 2.5	1	GREINER	64	EMUL	+

$\Gamma(\pi^0\pi^0\pi^0 e^+ \nu_e)/\Gamma_{total}$ Γ_{11}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID	TECN	CHG
<3.5	90	0	BOLOTOV 88	SPEC	–
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<9	90	0	BARMIN 92	XEBC	+

$\Gamma(\pi^+\gamma\gamma)/\Gamma_{total}$ Γ_{12}/Γ

All values given here assume a phase space pion energy spectrum.

VALUE (units 10^{-4})	CL%	EVTS	DOCUMENT ID	TECN	CHG	COMMENT
< 0.01	90	0	ATIYA 90B	CALO		$T\pi$ 117–127 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
< 0.084	90	0	ASANO 82	CNTR	+	$T\pi$ 117–127 MeV
−0.42 ±0.52		0	ABRAMS 77	SPEC	+	$T\pi$ <92 MeV
< 0.35	90	0	LJUNG 73	HLBC	+	6–102,114–127 MeV
< 0.5	90	0	KLEMS 71	OSPK	+	$T\pi$ <117 MeV
−0.1 ±0.6			CHEN 68	OSPK	+	$T\pi$ 60–90 MeV

$\Gamma(\pi^+ 3\gamma)/\Gamma_{total}$ Γ_{13}/Γ

Values given here assume a phase space pion energy spectrum.

VALUE (units 10^{-4})	CL%	DOCUMENT ID		TECN	CHG	COMMENT
<1.0	90	ASANO 82		CNTR	+	$T(\pi)$ 117–127 MeV
• • • We do not use the following data for averages, fits, limits, etc. • • •						
<3.0	90	KLEMS 71		OSPK	+	$T(\pi)$ >117 MeV

$\Gamma(e^+\nu_e\nu\overline{\nu})/\Gamma(e^+\nu_e)$ Γ_{14}/Γ_2

VALUE	CL%	EVTS	DOCUMENT ID	TECN	CHG
<3.8	90	0	HEINTZE 79	SPEC	+

$\Gamma(\mu^+\nu_\mu\nu\overline{\nu})/\Gamma_{total}$ Γ_{15}/Γ

VALUE (units 10^{-6})	CL%	EVTS	DOCUMENT ID	TECN	CHG
<6.0	90	0	[36] PANG 73	CNTR	+

[36] PANG 73 assumes μ spectrum from ν-ν interaction of BARDIN 70.

$\Gamma(\mu^+\nu_\mu e^+ e^-)/\Gamma(\pi^+\pi^- e^+\nu_e)$ Γ_{16}/Γ_9

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
27. ±8.	14	[37] DIAMANT-...	76	SPEC	+	Extrapolated BR
• • • We do not use the following data for averages, fits, limits, etc. • • •						
3.3±0.9	14	[37] DIAMANT-...	76	SPEC	+	m_{ee} >140

[37] DIAMANT-BERGER 76 quotes this result times our 1975 $\pi^+\pi^- e\nu$ BR ratio. The first DIAMANT-BERGER 76 value is the second value extrapolated to 0 to include low mass e pairs.

$\Gamma(e^+\nu_e e^+ e^-)/\Gamma(\pi^+\pi^- e^+\nu_e)$ Γ_{17}/Γ_9

VALUE (units 10^{-2})	EVTS	DOCUMENT ID		TECN	CHG
$0.54^{+0.54}_{-0.27}$	4	DIAMANT-...	76	SPEC	+

$\Gamma(\mu^+\nu_\mu\mu^+\mu^-)/\Gamma_{total}$ Γ_{18}/Γ

VALUE (units 10^{-7})	CL%	DOCUMENT ID		TECN	CHG
<4.1	90	ATIYA 89		CNTR	+

$\Gamma(\mu^+\nu_\mu\gamma)/\Gamma_{total}$ Γ_{19}/Γ

VALUE (units 10^{-3})	EVTS	DOCUMENT ID		TECN	CHG	COMMENT
5.50±0.28 OUR AVERAGE						
6.6 ±1.5		[38,39] DEMIDOV	90	XEBC		$P(\mu)$ < 231.5 MeV/c
6.0 ±0.9		BARMIN	88	HLBC	+	$P(\mu)$ < 231.5 MeV/c
5.4 ±0.3		[40] AKIBA	85	SPEC		$P(\mu)$ <231.5 MeV/c
• • • We do not use the following data for averages, fits, limits, etc. • • •						
3.5 ±0.8		[39,41] DEMIDOV	90	XEBC		$E(\gamma)$ > 20 MeV
3.2 ±0.5	57	[42] BARMIN	88	HLBC	+	$E(\gamma)$ >20 MeV
5.8 ±3.5	12	WEISSENBE...	74	STRC	+	$E(\gamma)$ >9 MeV

[38] $P(\mu)$ cut given in DEMIDOV 90 paper, 235.1 MeV/c, is a misprint according to authors (private communication).
[39] DEMIDOV 90 quotes only inner bremsstrahlung (IB) part.
[40] Assumes μ-e universality and uses constraints from $K \to e\nu\gamma$.
[41] Not independent of above DEMIDOV 90 value. Cuts differ.
[42] Not independent of above BARMIN 88 value. Cuts differ.