D^0 MEAN LIFE

Measurements with an error $> 0.05 \times 10^{-12}$ s are omitted from the average, and those with an error $> 0.1 \times 10^{-12}$ s or that have been superseded by later results have been removed from the Listings.

VALUE (10^{-12} s)	EVTS	DOCUMENT ID		TECN	COMMENT
0.415±0.004 OUR AVERAGE					
0.413±0.004±0.003	16k	FRABETTI	94D	E687	$K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
0.424±0.011±0.007	5118	FRABETTI	91	E687	$K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
0.417±0.018±0.015	890	ALVAREZ	90	NA14	$K^-\pi^+$, $K^-\pi^+\pi^+\pi^-$
$0.388^{+0.023}_{-0.021}$	641	[8] BARLAG	90C	ACCM	π^- Cu 230 GeV
0.48 ±0.04 ±0.03	776	ALBRECHT	88I	ARG	e^+e^- 10 GeV
0.422±0.008±0.010	4212	RAAB	88	E691	Photoproduction
0.42 ±0.05	90	BARLAG	87B	ACCM	K^- and π^- 200 GeV
• • • We do not use the following data for averages, fits, limits, etc. • • •					
$0.34\ ^{+0.06}_{-0.05}$ ±0.03	58	AMENDOLIA	88	SPEC	Photoproduction
$0.46\ ^{+0.06}_{-0.05}$	145	AGUILAR-...	87D	HYBR	$\pi^- p$ and pp
0.50 ±0.07 ±0.04	317	CSORNA	87	CLEO	e^+e^- 10 GeV
0.61 ±0.09 ±0.03	50	ABE	86	HYBR	γp 20 GeV
$0.47\ ^{+0.09}_{-0.08}$ ±0.05	74	GLADNEY	86	MRK2	e^+e^- 29 GeV
$0.43\ ^{+0.07}_{-0.05}\ ^{+0.01}_{-0.02}$	58	USHIDA	86B	EMUL	ν wideband
$0.37\ ^{+0.10}_{-0.07}$	26	BAILEY	85	SILI	π^- Be 200 GeV

[8] BARLAG 90C estimate systematic error to be negligible.

$\left|\tau_{D^0_1} - \tau_{D^0_2}\right|/\tau_{D^0}$, MEAN LIFE DIFFERENCE/AVERAGE

The D^0_1 and D^0_2 are the mass eigenstates of the D^0 meson.

VALUE	CL%	DOCUMENT ID		TECN	COMMENT
<0.17	90	[9,10] ANJOS	88C	E691	Photoproduction
• • • We do not use the following data for averages, fits, limits, etc. • • •					
<0.21	90	[11] LOUIS	86	SPEC	π^- W 225 GeV
<0.8	90	[9] YAMAMOTO	85	DLCO	e^+e^- 29 GeV
<0.55	90	[11] BODEK	82	SPEC	π^-, pFe $\rightarrow$ D^0

[9] This limit is inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(K^+\pi^-\text{ (via }\overline{D}^0))/\Gamma(K^-\pi^+)$ near the end of the D^0 Listings.
[10] Calculated by us using $\Delta\Gamma = (8r/(1+r))^{1/2}\hbar/4.21 \times 10^{-13}$ s, where r is the D^0-$\overline{D}^0$ mixing ratio. See the data on $r \equiv \Gamma(K^+\pi^-\text{ (via }\overline{D}^0))/\Gamma(K^-\pi^+)$ near the end of the D^0 Listings.
[11] Limit inferred from the D^0-$\overline{D}^0$ mixing ratio $\Gamma(\mu^-\text{ anything (via }\overline{D}^0))/\Gamma(\mu^+\text{ anything})$ near the end of the D^0 Listings.

D^0 DECAY MODES

$\overline{D}^0$ modes are charge conjugates of the modes below.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
	Inclusive modes			
Γ_1	e^+ anything		(7.7 ± 1.2) %	S=1.1
Γ_2	μ^+ anything		(10.0 ± 2.6) %	
Γ_3	K^- anything		(53 ± 4) %	S=1.3
Γ_4	$\overline{K}^0$ anything + K^0 anything		(42 ± 5) %	
Γ_5	K^+ anything		($3.4\ ^{+\ 0.6}_{-\ 0.4}$) %	
Γ_6	η anything	[a]	< 13 %	CL=90%
	Semileptonic modes			
Γ_7	K^- "e^+" ν_e	[b]	(3.68± 0.21) %	S=1.1
Γ_8	$K^- e^+ \nu_e$		(3.80± 0.22) %	S=1.1
Γ_9	$K^- \mu^+ \nu_\mu$		(3.2 ± 0.4) %	
Γ_{10}	$K^- \pi^0 e^+ \nu_e$	[c]	($1.6\ ^{+\ 1.3}_{-\ 0.5}$) %	
Γ_{11}	$\overline{K}^0 \pi^- e^+ \nu_e$	[c]	($2.8\ ^{+\ 1.7}_{-\ 0.9}$) %	
Γ_{12}	$\overline{K}^*(892)^- e^+ \nu_e$ × B($K^{*-} \rightarrow \overline{K}^0\pi^+$)		(1.3 ± 0.3) %	
Γ_{13}	$K^*(892)^- \ell^+ \nu_\ell$	[d]		
Γ_{14}	$K^- \pi^0 (\pi^0) e^+ \nu_e$			
Γ_{15}	$\overline{K}^0 \pi^- (\pi^0) e^+ \nu_e$			
Γ_{16}	$\overline{K}^*(892)^0 \pi^- e^+ \nu_e$	[e]	< 1.3 %	CL=90%
Γ_{17}	$K^- \pi^+ \pi^- \mu^+ \nu_\mu$		< 1.2 × 10^{-3}	CL=90%
Γ_{18}	$(\overline{K}^*(892)\pi)^- \mu^+ \nu_\mu$		< 1.4 × 10^{-3}	CL=90%
Γ_{19}	$\pi^- e^+ \nu_e$		($3.9\ ^{+\ 2.3}_{-\ 1.2}$) × 10^{-3}	

A fraction of the following resonance mode has already appeared above as a submode of a particular charged-particle mode.

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_{20}	$K^*(892)^- e^+ \nu_e$		(2.0 ± 0.4) %	

Hadronic modes with one or three K's

	Mode		Fraction (Γ_i/Γ)	Scale factor/ Confidence level
Γ_{21}	$K^- \pi^+$		(4.01± 0.14) %	
Γ_{22}	$\overline{K}^0 \pi^0$		(2.05± 0.26) %	S=1.1
Γ_{23}	$\overline{K}^0 \pi^+ \pi^-$	[f]	(5.3 ± 0.6) %	S=1.2
Γ_{24}	$\overline{K}^0 \rho^0$		(1.10± 0.18) %	
Γ_{25}	$\overline{K}^0 f_0(980)$ × B($f_0 \rightarrow \pi^+\pi^-$)		(2.4 ± 1.0) × 10^{-3}	
Γ_{26}	$\overline{K}^0 f_2(1270)$ × B($f_2 \rightarrow \pi^+\pi^-$)		(2.6 ± 1.2) × 10^{-3}	
Γ_{27}	$\overline{K}^0 f_0(1300)$ × B($f_0 \rightarrow \pi^+\pi^-$)		(4.3 ± 1.7) × 10^{-3}	
Γ_{28}	$K^*(892)^- \pi^+$ × B($K^{*-} \rightarrow \overline{K}^0\pi^-$)		(3.3 ± 0.4) %	
Γ_{29}	$K^*_0(1430)^- \pi^+$ × B($K^*_0(1430)^- \rightarrow \overline{K}^0\pi^-$)		(7 ± 3) × 10^{-3}	
Γ_{30}	$\overline{K}^0 \pi^+ \pi^-$ nonresonant		(1.43± 0.26) %	
Γ_{31}	$K^- \pi^+ \pi^0$	[f]	(13.8 ± 1.0) %	S=1.1
Γ_{32}	$K^- \rho^+$		(10.4 ± 1.3) %	
Γ_{33}	$K^*(892)^- \pi^+$ × B($K^{*-} \rightarrow K^-\pi^0$)		(1.6 ± 0.2) %	
Γ_{34}	$\overline{K}^*(892)^0 \pi^0$ × B($\overline{K}^{*0} \rightarrow K^-\pi^+$)		(2.0 ± 0.3) %	
Γ_{35}	$K^- \pi^+ \pi^0$ nonresonant		(6.0 ± 2.7) × 10^{-3}	
Γ_{36}	$\overline{K}^0 \pi^0 \pi^0$			
Γ_{37}	$\overline{K}^*(892)^0 \pi^0$ × B($\overline{K}^{*0} \rightarrow \overline{K}^0\pi^0$)		(1.0 ± 0.2) %	
Γ_{38}	$\overline{K}^0 \pi^0 \pi^0$ nonresonant		(7.6 ± 2.1) × 10^{-3}	
Γ_{39}	$K^- \pi^+ \pi^+ \pi^-$	[f]	(8.1 ± 0.5) %	
Γ_{40}	$K^- \pi^+ \rho^0$ total		(6.8 ± 0.5) %	
Γ_{41}	$K^- \pi^+ \rho^0$ 3-body		(5.1 ± 2.3) × 10^{-3}	
Γ_{42}	$\overline{K}^*(892)^0 \rho^0$ × B($\overline{K}^{*0} \rightarrow K^-\pi^+$)		(1.1 ± 0.3) %	
Γ_{43}	$K^- a_1(1260)^+$ × B($a_1(1260)^+ \rightarrow \pi^+\pi^+\pi^-$)		(3.9 ± 0.6) %	
Γ_{44}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ total × B($\overline{K}^{*0} \rightarrow K^-\pi^+$)		(1.6 ± 0.4) %	
Γ_{45}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body × B($\overline{K}^{*0} \rightarrow K^-\pi^+$)		(1.01± 0.22) %	
Γ_{46}	$K_1(1270)^- \pi^+$ × B($K_1(1270)^- \rightarrow K^-\pi^+\pi^-$)		(3.5 ± 1.1) × 10^{-3}	
Γ_{47}	$K^- \pi^+ \pi^+ \pi^-$ nonresonant		(1.89± 0.28) %	
Γ_{48}	$\overline{K}^0 \pi^+ \pi^- \pi^0$	[f]	(9.8 ± 1.4) %	S=1.1
Γ_{49}	$\overline{K}^0 \eta$ × B($\eta \rightarrow \pi^+\pi^-\pi^0$)		(1.61± 0.26) × 10^{-3}	
Γ_{50}	$\overline{K}^0 \omega$ × B($\omega \rightarrow \pi^+\pi^-\pi^0$)		(1.8 ± 0.4) %	
Γ_{51}	$K^*(892)^- \rho^+$ × B($K^{*-} \rightarrow \overline{K}^0\pi^-$)		(3.9 ± 1.6) %	
Γ_{52}	$\overline{K}^*(892)^0 \rho^0$ × B($\overline{K}^{*0} \rightarrow \overline{K}^0\pi^0$)		(5.3 ± 1.4) × 10^{-3}	
Γ_{53}	$K_1(1270)^- \pi^+$ × B($K_1(1270)^- \rightarrow \overline{K}^0\pi^-\pi^0$)	[g]	(5.0 ± 1.5) × 10^{-3}	
Γ_{54}	$\overline{K}^*(892)^0 \pi^+ \pi^-$ 3-body × B($\overline{K}^{*0} \rightarrow \overline{K}^0\pi^0$)		(5.1 ± 1.1) × 10^{-3}	
Γ_{55}	$\overline{K}^0 \pi^+ \pi^- \pi^0$ nonresonant		(2.1 ± 2.1) %	
Γ_{56}	$K^- \pi^+ \pi^0 \pi^0$		(15 ± 5) %	
Γ_{57}	$K^- \pi^+ \pi^+ \pi^- \pi^0$		(4.3 ± 0.4) %	
Γ_{58}	$\overline{K}^*(892)^0 \pi^+ \pi^- \pi^0$ × B($\overline{K}^{*0} \rightarrow K^-\pi^+$)		(1.3 ± 0.6) %	
Γ_{59}	$\overline{K}^*(892)^0 \eta$ × B($\overline{K}^{*0} \rightarrow K^-\pi^+$) × B($\eta \rightarrow \pi^+\pi^-\pi^0$)		(3.0 ± 0.8) × 10^{-3}	
Γ_{60}	$K^- \pi^+ \omega$ × B($\omega \rightarrow \pi^+\pi^-\pi^0$)		(2.8 ± 0.5) %	
Γ_{61}	$\overline{K}^*(892)^0 \omega$ × B($\overline{K}^{*0} \rightarrow K^-\pi^+$) × B($\omega \rightarrow \pi^+\pi^-\pi^0$)		(7 ± 3) × 10^{-3}	
Γ_{62}	$\overline{K}^0 \pi^+ \pi^+ \pi^- \pi^-$		(5.6 ± 1.7) × 10^{-3}	
Γ_{63}	$\overline{K}^0 \pi^+ \pi^- \pi^0 \pi^0 (\pi^0)$		($10.6\ ^{+\ 7.3}_{-\ 3.0}$) %	
Γ_{64}	$\overline{K}^0 K^+ K^-$		(9.1 ± 1.2) × 10^{-3}	
	In the fit as $\frac{1}{2}\Gamma_{75} + \Gamma_{66}$, where $\frac{1}{2}\Gamma_{75} = \Gamma_{65}$.			
Γ_{65}	$\overline{K}^0 \phi$ × B($\phi \rightarrow K^+K^-$)		(4.2 ± 0.6) × 10^{-3}	
Γ_{66}	$\overline{K}^0 K^+ K^-$ non-ϕ		(4.9 ± 0.9) × 10^{-3}	
Γ_{67}	$K^0_S K^0_S K^0_S$		(8.6 ± 2.5) × 10^{-4}	
Γ_{68}	$K^+ K^- \overline{K}^0 \pi^0$		($7.2\ ^{+\ 4.8}_{-\ 3.5}$) × 10^{-3}	